Architecture Engineering and Building Technology B.Sc.

Program Specification

(By-Law 2018)

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مقدمة

الهندسة هى المعرفة بالعلوم الطبيعية والرياضية، والتى تكتسب بالدراسة والخبرة والممارسة، وتطبق بوعى لتطوير أساليب تستخدم اقتصاديا لتطويع المواد وقوى الطبيعة لصالح البشريّة. وهى أيضا المقدرة على الشروع في النشاط والسلوك المرتبط بالعمليات الهندسية والنظم والمشاكل والفرص، والتاريخ ، والمستقبل ، والتأثيرات ، والأخلاق والمردودات. كما أنها تنطوى على المعرفة، وطرق التفكير والتصرفات والقدرات. كما تساعد الهندسة في إعداد الأفراد لتقديم خيارات مدروسة في إطار كونهم مستهلكين أو عمالا أو مواطنين وأعضاء فى المجتمع الدولى. وينبغي أن يحقق التعليم الهندسي التميز والتفوق في التعليم العالى والدراسات العليا والبحوث، والخدمة العامة، وتطوير المعارف الهندسية. ويهدف التعليم الهندسى الى تخريج مهندسين موهوبين، واسعى المعرفة على درجة عالية من الكفاءة, بالإضافة إلى إنتاج بحوث وتقنيات مفيدة وخلاقة من خلال التفوق والتميز الأكاديمي. علاوة على ذلك فإن التعليم الهندسى يهدف إلى تحفيز الطلاب وأعضاء هيئة التدريس على التعلم والنمو، كذلك تحقيق وتلبية احتياجات المجتمع قوميًّا وإقليميًّا ودوليًّا. كما يهدف أيضا إلى إعداد الطّلبة لمهنة منتجة ومفيدة في المجال الهندسى مبنية على أسس أخلاقية ومعنوية قوية.

ويختص المهندسون بحل المشاكل الواقعيّة، ويعملون على إيجاد أفضل الحلول لها عن طريق تطبيق مجمل معارفهم وخبراتهم ومهاراتهم . كما يساعد المهندسون على تعريف وتحسين نمط الحياة بتوفير وسائل حياتية ذات أداء عالي مبتكر، أكثر أمانًا وملائمة للاستعمال اليومى. كما يسعون إلى التطوير من خلال الاختراع والتصميم والتصنيع والبناء. كما تهدف مجمل الأنشطة الهندسية إلى الحصول على نتائج إيجابية لتحسين المعيشة بيد ان هناك عوائق تصاحب هذه الأنشطة مثل تلوث المياه والهواء والبيئة والتلوث الصوتي الناتج عن الإنجازات الهندسية المبهرة خلال العقود الماضية. كذلك يصطدم عمل المهندس أثناء مواجهة المشكلات بقيود متنامية نتيجة تشابك وتقارب المشكلات الاجتماعية والتقنية. وعلى سبيل المثال فإن مشكلة تلوّث الهواء لا يمكن أن تُحَلّ بدون اعتبار التناقضات الأخلاقيّة والسّياسيّة والقانونيّة والاجتماعيّة. علاوة على ذلك، يجب أن يأخذ فى الاعتبار تأثير الحلول الهندسية المتاحة على مصالح الأفراد و المجموعات.

وتقدم دراسة الهندسة للطلاب تعليما فعالا ومبنيا على أسس تكنولوجية، آخذا فى الاعتبار التوقعات المستقبلية للعلم والتكنولوجيا. وهى أيضا توفر المعارف التقنية والمهارات الضرورية لحل المشاكل التي تسمح بمواجهة التحديات المستقبلية . وقد حددت المعايير الأكاديمية المرجعية (NARS)، لبرنامج هندسة الحاسبات وتكنولوجيا الحاسبات والمعتمدة من الهيئة القومية للاعتماد وجودة التعليم، مفاهيما شاملة تمثل التوقعات والطموحات العامة بخصوص معايير درجة البكالوريوس في العلوم الهندسية، كما توضح هذه المفاهيم المواصفات والخصائص التى يتمتع بها خريج البرامج الدراسية الهندسية خاصة:

- **منح الدرجة يتفق مع الإطار العام للتعليم الهندسى الحديث.**
- **الدرجات الهندسية تتوافق مع التوجهات القومية.**
- **الدرجات الممنوحة تلبى الاحتياجات الفعلية لسوق العمل.**

وقد تم تصميم برنامج هندسة الحاسبات وتكنولوجيا المعلومات لإعداد المهندسين المتميزين فى مجالات تصميم البرامج والمكونات المادية للحاسبات إضافة إلى تكنولوجيا المعلومات التى تدرس من خلال مجموعة من المواد المميزة والتى تعطى لخريج البرنامج تأهيلا متميزا مقارنة بخريجى البرامج المثيلة لسد احتياجات سوق العمل.

وقد تم إعداد مواصفات البرنامج بتعاون جاد وأداء احترافى لنخبة متميزة من أعضاء هيئة التدريس المتخصصين فى مجالات مقررات البرنامج.

وقسم الهندسة الكهربية (شعبة هندسة الحاسبات وتكنولوجيا المعلومات) إذ يقدم هذه الوثيقة الهامة فإنه يتقدم بالشكر لجميع أعضاء هيئة التدريس الذين تضافرت جهودهم لإنجازها كما يقدم الشكر والتقدير لمكتب الجودة بالأكاديمية الذى وفر الخبرات اللازمة والتدريب والاستشارات لإتمام مواصفات البرنامج.

والله ولى التوفيق،،،

أ.د. وفائى بغدادى
منسق البرنامج

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Content

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Architectural Engineering & Building Technology B.Sc.Program Specifications

1. General

1.1. Basic Information

Program Title: Architectural Engineer
ing and Building Technology B.SC.Program.
Program Type: Single
Department: Architectural Engineering and Building Technology Department.
Coordinator: Associate Prof. Dr. Nahed Omran.
Assistant Co -ordinator : Associate Prof .Mona El Basyouni
Associate Prof .Reham Momtaz
External Evaluators: Prof. Hania M. Hamdy, Prof.of Architecture & Urban Design, Faculty of Engineering-Mataria - Helwan University
Academic Standard: The program adopts the Academic Reference Standards for the Architectural Engineering and Building Technology B.SC.Program(ARS) approved by the the National Authority for Quality Assurance and Accreditation in Education, June 2015.
Program Started on 2018-2019.
Dates of program specifications approval: April 2018

1.2 Staff Members

The Architectural Engineering and Building Technology Program is taught by 44 highly qualified staff members in the Architectural Engineering department, in addition to 15 full time employed staff members teaching the basic science courses. All of the staff members are qualified to teach the courses allocated to them.The staff members are assisted by 79 full time teaching assistants in addition to 3 engineers and 7 technicians.

1.3 External Evaluators

The program was evaluated by an external evaluator. His evaluation showed that the program specification agrees with the Adopted Academic Reference Standards

2. Professional Information

2.1. Preamble

Engineers solve real-life problems. They find the best solutions through the application of their knowledge, experience and skills. Engineers help to define and refine the way of life by providing innovative, higher-performance, safer, cleaner or more comfortable day-use facilities for human beings. They seek improvement through the processes of invention, design, manufacturing and construction.

The discipline of architecture draws on knowledge and skills from the human and physical sciences, the humanities, and the fine and applied arts. It addresses the accommodation of all human activity in all places under all conditions, understanding our place within differing physical, historical, cultural, social, political and virtual environments. Architecture proposes forms, transforms our built environment, and does so through an engagement with the spaces, buildings, cities and landscapes in which we live. Architectural education is therefore rich, varied and by definition interdisciplinary.

The current program fulfills the requirements of the academic referenced standard (ARS) of the architectural engineering and building technology engineering BSc program approved by the the National Authority for Quality Assurance and Accreditation in Education, June 2015. It includes distinguished building technology discretionary courses.

2.2. Program Mission and Aims

2.2.1. Program mission

The mission of the Bachelor of Science in Architectural Engineering and Building Technology program is to prepare innovative graduates able to interact with the challenges in diverse domains of his specialty, locally and regionally. He should satisfy the requirements of the society in governmental authorities and public and private sectors.

2.2.2. Program Aims

The Architectural Engineering and Building Technology Program aims at providing future engineers with appropriate theoretical knowledge and technical skills to respond to professional market demandsin the fields of Architectural Engineering and Building Technology.

2.2.3. The aimed graduate attributes

The graduates of the Architectural Engineering and Building Technology program should have the ability to:

1. Apply knowledge of mathematics, science and engineering concepts to the solution of engineering problems.
2. Design a system; component and process to meet the required needs within realistic constraints.
3. Design and conduct experiments as well as analyze and interpret data.
4. Identify, formulate and solve fundamental engineering problems.
5. Use the techniques, skills, and appropriate engineering tools, necessary for engineering practice and project management.
6. Work effectively within multi-disciplinary teams.
7. Communicate effectively.
8. Consider the impacts of engineering solutions on society and environment.
9. Demonstrate knowledge of contemporary engineering issues.
10. Display professional and ethical responsibilities; and contextual understanding.
11. Engage in self- and life- long learning.
12. Design robust architectural projects with creativity and technical mastery.
13. Demonstrate investigative skills, attention to details, and visualize/ conceptualize skills.
14. Adopt a holistic problem solving approach for complex, ambiguous, and open-ended challenges and scenarios.
15. Demonstrate knowledge of cultural diversity, differences and the impact of a building on community character and identity.

16. Address urban issues, planning, and community needs through design work.
17. Recognize the new role of architectural engineer as the leader of design projects- who has the ability to understand, assemble, and coordinate all of the disciplines- to create a sustainable environment.
21. Adopt new technologies, processes and strategies for the design and construction of buildings
22. Apply new materials and advanced manufacturing techniques in the field of building construction.

2.2.4. Graduate Career Opportunities

Bachelor of Science in Architectural Engineering and Building Technology program prepare innovative graduates to interact with the challenges in diverse domains of his specialty, locally and regionally.
The Architectural Engineering and Building Technology Program aims at providing future engineers with appropriate theoretical knowledge and technical skills to respond to professional market demandsin the fields of Architectural Engineering and Building Technology.

2.3. Intended Learning Outcomes (ILO's)

2.3.1. Knowledge and Understanding:

On successful completion of the programme, the graduates of the Architectural Engineering and Building Technology Programshould demonstrate the knowledge and understanding of:

A1. Concepts and theories of mathematics and sciences, appropriate to the discipline.
A2. Basics of information and communication technology (ICT).
A3. Characteristics of engineering materials related to the discipline.
A4. Principles of design including elements design, process and/or a system related to specific disciplines.
A5. Methodologies of solving engineering problems, data collection and interpretation.
A6. Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues.
A7. Business and management principles relevant to engineering.
A8. Current engineering technologies as related to disciplines.
A9. Topics related to humanitarian interests and moral issues.
A10. Technical language and report writing.
A11. Professional ethics and impacts of engineering solutions on society and environment.
A12. Contemporary engineering topics.
A13. Principles of architectural design, and the preparation and presentations of design projects in a variety of contexts, scales, types and degree of complexity.
A14. Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions.
A15. Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building.
A16. Theories and legislations of urban and regional planning.
A17. The processes of spatial change in the built and natural environments; patterns and problems of cities; and positive & negative impacts of urbanization.
A18. The significance of urban spaces and the interaction between human behavior, built environment and natural environment.
A19. Theories and histories of architecture, planning, urban design, and other related disciplines.
A20. Physical modeling, multi-dimensional visualization, multimedia applications, and computer-aided design.

A21. The role of the architecture profession relative to the construction industry and the overlapping interests of organizations representing the built environment.
A22. Various dimensions of housing problem and the range of approaches, policies, and practices that could be carried out to solve this problem.
A23. Principles of sustainable design, climatic considerations, and energy consumption and efficiency in buildings and their impacts on the environment.
A24.The concepts, processes, techniques and materials that apply to building construction phases and technology.
A25. The concepts of standardization in the construction industry and quality management systems.

2.3.2. Intellectual Skills

On successful completion of the programme, the graduates of the Architectural Engineering and Building Technology Programshould be able to:

B1. Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
B2. Select appropriate solutions for engineering problems based on analytical thinking.
B3. Think in a creative and innovative way in problem solving and design.
B4. Combine, exchange, and assess different ideas, views, and knowledge from a range of sources.
B5. Assess and evaluate the characteristics and performance of components, systems and processes.
B6. Investigate the failure of components, systems, and processes.
B7. Solve engineering problems, often on the basis of limited and possibly contradicting information.
B8. Select and appraise appropriate ICT tools to a variety of engineering problems.
B9. Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact.
B10. Incorporate economic, societal, environmental dimensions and risk management in design.
B11. Analyze results of numerical models and assess their limitations.
B12. Create systematic and methodic approaches when dealing with new and advancing technology.
B13. Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions.
B14. Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design.
B15. Predict possible consequences, by- products and assess expected performance of design alternatives.
B16. Reconcile conflicting objectives and manage the broad constituency of interests to reach optimum solutions.
B17. Integrate relationship of structure, building materials, and construction elements into design process.
B18. Integrate community design parameters into design projects.
B19. Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment
B20. Discuss, search and formulate informed opinions appropriate to specific context and circumstances affecting architecture profession & practice.
B21. Analyze the range of patterns and traditions that have shaped and sustained cultures and the way that they can inform design process.
B22. Identify different methods of building technologies and their impact on the built and social environment.
B23. Indicate appropriate project management techniques that are related to building technology.

B24. Select projects that comply with national and international building legislations, codes and by-laws.
B25. Prepare reports of materials and technological methods used in buildings.

2.3.3. Professional and Practical Skills:

On successful completion of the programme, the graduates of the Architectural Engineering and Building Technology Programshould be able to:

C1. Apply knowledge of mathematics, science, information technology, design, business context and engineering practice integrally to solve engineering problems.
C2. Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services.
C3. Create and/or re-design a process, component or system, and carry out specialized engineering designs.
C4. Practice the neatness and aesthetics in design and approach.
C5. Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.
C6. Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs.
C7. Apply numerical modeling methods to engineering problems.
C8. Apply safe systems at work and observe the appropriate steps to manage risks.
C9. Demonstrate basic organizational and project management skills.
C10. Apply quality assurance procedures and follow codes and standards.
C11. Exchange knowledge and skills with engineering community and industry.
C12. Prepare and present technical reports.
C13. Produce and present architectural, urban design, and planning projects using an appropriate range of media and design-based software.
C14. Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings' techniques.
C15. Use appropriate construction techniques and materials to specify and implement different designs;
C16. Participate professionally in managing construction processes.
C17. Demonstrate professional competence in developing innovative and appropriate solutions of architectural and urban problems.
C18. Display imagination and creativity.
C19. Respect all alternative solutions; changes in original plan of the project, differences in style, culture, experience and treat others with respect.
C20. Provide leadership and education to the client particularly with reference to sustainable design principles.
C21. Respond effectively to the broad constituency of interests with consideration of social and ethical concerns.
C22. Contribute positively to the aesthetic, architecture and urban identity, and cultural life of the community.
C23. Apply recent advances in the fields of building materials, manufacturing and building technology to the construction of buildings.
C24. Prepare working drawings that integrate multidisciplinary standards and requirements of the construction process
C25. Demonstrate environmental studies that are applicable to building technology techniques and processes.

2.3.4. General and Transferable Skills:

On successful completion of the programme, the graduates of the Architectural Engineering and Building Technology Programshould be able to:

D1 Collaborate effectively within multidisciplinary team
D2 Work in stressful environment and within constraints
D3 Communicate effectively
D4 Demonstrate efficient IT capabilities
D5 Lead and motivate individuals
D6 Manage tasks and resources efficiently
D7 Search for information and adopt life-long self-learning
D8 Acquire entrepreneurial skills
D9 Refer to relevant literature effectively

2.4. Curriculum Structure and Contents

The program includes 65 courses of total 180 credit hours. These courses are classified according to the relevant sector NARS requirements to the following subject areas:

1) Humanities and social science
2) Mathematics and basic sciences
3) Basic engineering
4) Applied engineering and design
5) Computer Applications and ICT
6) Projects & training
7) Discretionary

2.4.1. Humanities and social science courses

a) Acquiring knowledge of non-engineering fields that strengthen the consciousness of the engineer of the society and its culture, including business, marketing, wellness, ethics, law, arts, etc.
b) The ability to consider and evaluate the impact of the technology on the society, public health and safety.
c) The ability to appreciate and engage in social and entrepreneurialactivities essential to the engineering practice and reflect on the management of the economics and social science
d) The ability to engage in life-long learning and respond effectively to the needs of the society

Table 1-a Compulsory Courses of University Requirements (12 credit Hours, 6.67% of total 180 credits).

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
GENN041	2	2	-	-	2	Contemporary Social Issues	None	2						
GENN042	2	2	-	-	2	English Language.	None	2						
GENN043	2	2	-	-	2	History of Engineering and Technology.	None	2						
GENN141	2	2	-	-	2	Presentation Skills.	None	2						
GENN142	2	2	-	-	2	Technical Report Writing.	None	2						
GENN341	2	2	-	-	2	Project Management.	None	2						
Total	**12**	**12**	**-**		**12**	**6.67 %**		**12**						

Table 1-b Elective Courses of University Requirements (4 Credits Hours, 2. 22% of total 180 credits).

	Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
			L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
Elective 1	GENN351	2	2	-	-	2	Engineering Economy.	None	2						
	GENN352	2	2	-	-	2	Environmental Effects of Electromagnetic Waves.								
	GENN353	2	2	-	-	2	Engineering Laws and Professional ethics.								
	GENN354	2	2	-	-	2	Risk Management								
Elective 2	GENN451	2	2	1	-	3	Advanced Computer Systems Implementation.	CMPN010	2						
	GENN452	2	2	-	-	2	Civilization and heritage	None							
	GENN453	2	2	-	-	2	Industrial Psychology.								
	GENN454	2	2	-	-	2	Marketing								
Total		**4***					**2. 22 %**		**4***						

The University Requirements make 8.89% of the total credit hours.

2.4.2. Mathematics and Basic Sciences

Mathematics

a) Acquiring knowledge in mathematical and analytical methods.

b) The ability to reason about and conceptualize engineering components, systems or processes using analytical methods as related to the Architectural Engineering and Building Technology.
c) The ability to analyze and model engineering components, systems and processes specific to the Architectural Engineering and Building Technology.
d) The skill of using probability and statistical methods

Basic Sciences

a) Acquiring knowledge of physics, chemistry, mechanics, earth sciences, biological sciences and other specific subjects which focus on understanding the physical world.
b) The ability to select and apply scientific principles in problem solving.
c) The ability to analyze, model and reason about engineering components, systems or processes using principles and knowledge of the basic sciences as applicable in each engineering disciplinary context.
d) The ability to adopt scientific evidence-based techniques in problem solving.

e) Table -2 Courses of Institute Requirements

f) (Mathematics and Basic science cources)

g) (30credits, 16.66% of total 180 credits)

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
CHEN001	3	2	1	2	5	Chemistry.	None		3					
MECN001	2	1	3	-	4	Mechanics -1.	None		2					
MECN002	2	1	3	-	4	Mechanics-2.	MECN001		2					
MTHN001	3	2	3	-	5	Mathematics-1(Algebra and Calculus).	None		3					
MTHN002	3	2	3	-	5	Mathematics-2(Integration and Analytic Geometry).	MTHN001		3					
PHYN001	3	2	1	2	5	Physics-1.	None		3					
PHYN002	3	2	1	2	5	Physics -2.	PHYN001		3					
MNFN001	1	1	-	-	1	Introduction to Engineering Materials.	None			1				
MNFN002	3	1	6	-	7	Engineering Graphics.	None			3				
MNFN003	3	2	-	3	5	Principles of Production Engineering.	None			3				
CMPN010	4	2	3	2	7	Program Design and Computer Languages.	None		4					
Total	**30**	**18**	**24**	**11**	**53**	**16.66%**			**23**	**7**				

2.4.3. Basic Engineering Sciences

a) Integrating knowledge and understanding of mathematics and physical sciences to develop basic engineering laws and concepts related to the Architectural Engineering and Building Technology.
b) The ability to extend knowledge and develop models and methods and use techniques, principles and laws of engineering sciences in order to lead to engineering applications across disciplinary boundaries.
c) The ability to deal effectively with numbers and concepts to identify/solve complex and open ended engineering problems.

Table -3 Requirements of the general specialization of the program (Basic Engineering Courses) (60 credits, 33.33% of total 180 credits)

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
MTHN106	2	2	1	-	3	Mathematics 6 (Statistical Mathematics For Architectural Eng.)	MTHN002		2					
ARCN111	3	2	2	-	4	Architectural Construction 1	None		1	2				
ARCN112	3	2	2	-	4	Architectural Construction 2	ARCN111		1	2				
ARCN213	3	2	4	-	6	Skiagraphy and perspective	None		1	2				
ARCN114	3	1	2	3	6	Computer Applications 1	CMPN010					3		
ARCN115	2	1	3	-	4	Properties & Resistance of Materials	None		1	1				
ARCN116	2	1	1	2	4	Surveying	None			1			1	
ARCN117	2	1	3	-	4	Theory of Structures	None		1	1				
ARCN141	2	2	1	-	3	History of Architecture (1)	None				2			
ARCN210	2	2	-	-	2	Building Technology	None			2				
ARCN211	3	2	3	-	5	Architectural Construction & Building materials 1	ARCN112		1	2				
ARCN212	3	2	3	-	5	Architectural Construction & Building materials 2	ARCN211		1	2				
ARCN217	3	1	2	3	6	Computer Applications 2	ARCN114					3		
ARCN214	3	2	2	-	4	Reinforced concrete & Steel structures.	ARCN117		1	2				
ARCN215	2	2	-	-	2	Foundations	ARCN214			2				
ARCN216	2	2	1	-	3	Environmental Control	ARCN210			2				
ARCN241	2	2	1	-	3	History of Architecture.2	ARCN141				2			
ARCN310	2	1	3	-	4	Technical Installations in buildings1	ARCN212		1	1				
ARCN311	2	1	3	-	4	Technical Installations in buildings 2	ARCN310		1	1				
ARCN312	3	2	3	-	5	Working Drawing & Construction Methods 1	ARCN212			2		1		
ARCN313	3	2	3	-	5	Working Drawing & Construction Methods 2	ARCN312			2		1		
ARCN340	2	2	1	-	3	History of Architecture.3	ARCN241				2			
ARCN411	4	2	6	-	8	Working Drawing & Construction Documents	ARCN313			3		1		
ARCN412	2	2	1	-	3	Technical specifications , Quantities & Contracting Methods	ARCN313			1	1			
Total	**60**	**41**	**51**	**8**	**100**	**33.33 %**			**12**	**31**	**7**	**9**	**1**	

2.4.4. Applied Engineering and design subjects and Projects

Applied Engineering and Design

a) Attaining knowledge of operational practice, engineering codes and design techniques relevant to the subject
b) The ability to apply engineering knowledge and creative, iterative and open-ended procedures when conceiving and developing components, systems and processes.
c) The ability to integrate engineering knowledge, engineering codes, basic and mathematical sciences in designing a component, a system or a process.
d) The ability to work under constraints, taking into account time, economy, health and safety, social and environmental factors and applicable laws

2.4.5 Projects and Training

a) Gaining the knowledge and experience of applying the different principles and techniques introduced in the program of study.
b) The ability to work within defined constraints, tackle work which lacks a well-defined outcome or which has a wide range of possible solutions and exhibit creativity in dealing with unfamiliar real-life problems.
c) The ability to investigate, plan and execute technical research specific to the Architectural Engineering and Building Technology over an extended period of time; meeting deadlines and putting technical work in a social and commercial context.
d) The ability to work in a team, search published sources of information, interprets technical data and analyzes and presents findings in various ways.

Table 4-a Requirements of the specific specialization of the program (Applied Engineering and design cources) (54 credits, 30% of total 180 credits)

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARCN120	2	2	1	-	3	Theories of Architecture (1)	None				2			
ARCN121	3	1	6	-	7	Architectural Design 1	ARCN060				2		1	
ARCN122	3	1	6	-	7	Architectural Design 2	ARCN121				2		1	
ARCN123	2	1	3	-	4	Visual Training (1)	None				2			
ARCN221	2	2	-	-	2	Architecture and Human Studies	ARCN122				2			
ARCN222	3	1	6	-	7	Architectural Design 3	ARCN122				2		1	
ARCN223	3	1	6	-	7	Architectural Design 4	ARCN222				2		1	
ARCN224	2	2	-	-	2	Design Methodology	ARCN122				2			
ARCN225	2	1	3	-	4	Visual Training (2)	ARCN123				2			
ARCN226	2	2	-	-	2	History and Theories of planning	ARCN120				2			
ARCN227	2	2	1	-	3	Theories of Architecture (2)	ARCN120				2			
ARCN321	3	1	6	-	7	Architectural Design 5	ARCN223				2		1	
ARCN322	3	1	6	-	7	Architectural Design 6	ARCN321				2		1	
ARCN323	2	1	3	-	4	Housing & City Planning 1	ARCN226				1	1		
ARCN324	2	1	3	-	4	Housing & City Planning 2	ARCN323				1	1		
ARCN325	2	2	1	-	3	Theories of Architectural (3)	ARCN227				2			
ARCN421	3	1	6	-	7	Architectural Design 7	ARCN322				2		1	
ARCN422	3	1	5	-	6	City Planning	ARCN324				2	1		
ARCN423	4	2	4	-	6	Urban Design	ARCN324				3	1		
ARCN460	6	4	8	-	12	Graduation Project	ARCN421				3	1	2	
Total	**54**	**32**	**74**	**0**	**106**	**30 %**					**40**	**5**	**9**	

Table 4-b Applied Engineering and design Elective Courses (14 credits, 7. 77% of total 180 credits)

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARCN330	2	2	-	-	2	Housing in developing countries	ARCN226							2
ARCN331	2	2	-	-	2	SustainableArchitecture	ARCN216							2
ARCN332	2	2	-	-	2	Design, Environment planning & Power	ARCN216							2

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARCN333	2	2	-	-	2	Building technology and structure systems	ARCN210							2
ARCN334	2	2	1	-	3	Advanced Studies in Interior Design	ARCN123							2
ARCN335	2	1	-	2	3	Landscape Design	ARCN223							2
ARCN430	2	2	-	-	2	Aesthetics and formations	ARCN340							2
ARCN431	2	2	-	-	2	Advanced Building economics	ARCN313							2
ARCN432	2	2	-	-	2	Architecture criticism	ARCN340							2
ARCN433	2	2	-	-	2	Modern Building Systems and Materials	ARCN313							2
ARCN434	2	2	-	-	2	Urban Renewal	ARCN226							2
ARCN435	2	2	-	-	2	Urban & Environmental Conservation	ARCN324							2
ARCN436	2	1	-	2	3	Simulation Programs & Architecture	ARCN216+ARCN217							2
Total	**14***					**7.77%**								**14***

Table 4-c: Architectural Training Courses
(6 credits, 3.33% of total 180 credits)

Course Code	Total Credit	Contact Hours				Course Title	Prerequisites	Subject Area						
		L	T	P	Total			Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARCN260	3	-	-	-	-	Architecture Training 1	ARCN211-ARCN160 +65 Credit Hours						3	
ARCN360	3	-	-	-	-	Architecture Training 2	ARCN312-ARCN260 +101 Credit Hours						3	
Total	**6**	**-**	**-**	**-**	**-**	**3.3 %**							**6**	

Table 5: Credit Hours Distribution

	Subject Area							Total Credit Hours	Percentage	Requirements of the Engineering Sector Committee
	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary			
University Requirements (General cultural courses requirements)	16							16	8.89%	8-10%
Faculty/Institute requirements (Mathematics & Basic Science Courses)		23	7					30	16. 66%	15-20%
Requirements of the general specialization of the program (Basic Engineering Courses)		12	31	7	9	1		60	33.33%	30-35%
Requirements of the specific specialization of the program(Applied Engineering and Design)				40	5	15	14	74	41.11%	35-40%
Total Credit Hours	16	35	38	47	14	16	14	180		
Percentage	8.9%	19.44%	21.11%	26.11%	7.7%	8.88%	7.78%		100	
NARS Engineering Requirements	9-12%	20-26%	20-23%	20-22%	9-11%	8-10%	6-8%			

Table 5 shows the credit hours distribution and the requirements of:

- The engineering sector of the supreme council of higher education.
- The Egyptian NARS, August 2009 edition

It is evident that the current program fulfills the NARS and Engineering sector requirements.

Elective Courses are to be chosen by the student in addition to the compulsory courses during the fourth to the tenth semester sum of14 credit hours (7.8%)

2.4.6. Sample study plan

The academic year is divided into 2 main semesters. In addition to summer courses that enable high caliber students to finish the program in nine semesters only (each summer term shouldn't exceed 6 credit hours)

Table 7 First Semester (Level zero)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
CHEN001	Chemistry	3	2	1	2	5
GENN041	Contemporary Social Issues	2	2	-	-	2
MNFN002	Engineering graphics	3	1	6	-	7
GENN043	History of Engineering & Technology.	2	2	-	-	2
MECN001	Mechanics – (1)	2	1	3	-	4
MTHN001	Mathematics – (1)	3	2	3	-	5
PHYN001	Physics (1)	3	2	1	2	5
Total		**18**	**12**	**14**	**4**	**30**

Table 8 Second Semester (Level zero)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
MNFN001	Introduction to engineering materials	1	1	-	-	1
GENN042	English language	2	2	-	-	2
MECN002	Mechanics – (2)	2	1	3	-	4
MTHN002	Mathematics – (2)	3	2	3	-	5
PHYN002	Physics (2)	3	2	1	2	5
MNFN003	Principles of production Engineering	3	2	-	3	5
CMPN010	Program Design and Computer Languages.	4	2	3	2	7
Total		**18**	**12**	**10**	**7**	**29**

Summer Training

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN060	Summer Training-1	-	-	-	-	-
Total		-	**-**	**-**	**-**	**-**

Table 9 Sophomore, Third Semester (Level one)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN111	Architectural Construction 1	3	2	2	-	4
ARCN121	Architectural Design 1	3	1	6	-	7
ARCN116	Surveying	2	1	1	2	4
ARCN120	Theories of Architecture (1)	2	2	1	-	3
ARCN115	Properties & Resistance of Materials	2	1	3	-	4
ARCN123	Visual Training (1)	2	1	3	-	4
GENN141	Presentation Skills`	2	2	-	-	2
GENN142	Technical Report Writing	2	2	-	-	2
Total		**18**	**12**	**16**	**2**	**30**

Table10 Sophomore, Fourth Semester (Level one):

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN112	Architectural Construction 2	3	2	2	-	4
ARCN122	Architectural Design 2	3	1	6	-	7
ARCN141	History of Architecture (1)	2	2	1	-	3
MTHN106	Statistical Mathematics for Arch. Engineering (6)	2	2	1	-	3
ARCN114	Computer Applications 1	3	1	2	3	6
ARCN117	Theory of Structures	2	1	3	-	4
ARCN213	Skiagraphy perspective	3	2	4	-	6
Total		**18**	**11**	**17**	**3**	**31**

Summer Training

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN160	Summer Training-2	-	-	-	-	-
Total		**-**	**-**	**-**	**-**	**-**

Table 11 Junior, Fifth Semester (Level two)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN211	Architectural Construction & Building materials 1	3	2	3	-	5
ARCN210	Building Technology	2	2	-	-	2
ARCN222	Architectural Design 3	3	1	6	-	7
ARCN217	Computer Applications 2	3	1	2	3	6
ARCN214	Reinforced concrete & steel structures	3	2	2	-	4
ARCN227	Theories of Architecture (2)	2	2	1	-	3
ARCN226	History and Theories of planning	2	2	-	-	2
Total		**18**	**12**	**14**	**3**	**29**

Table 12 Junior, Sixth Semester (Level two)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN212	Architectural Construction & Building materials 2	3	2	3	-	5
ARCN221	Architecture & Human Studies	2	2	-	-	2
ARCN223	Architectural Design 4	3	1	6	-	7
ARCN225	Visual Training (2)	2	1	3	-	4
ARCN241	History of Architecture (2)	2	2	1	-	3
ARCN216	Environmental Control	2	2	1	-	3
ARCN215	Foundation	2	2	-	-	2
ARCN224	Design Methodology	2	2	-	-	2
Total		**18**	**14**	**14**	**-**	**28**

Table 13 Junior, Summer Training

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN260	Architecture Training 1	3	-	-	-	-
Total		**3**	**-**	**-**	**-**	**-**

Table 14 Senior 1, Seventh Semester (Level three)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN321	Architectural Design 5	3	1	6	-	7
ARCN323	Housing & City Planning 1	2	1	3	-	4
ARCN325	Theories of Architecture and Arts (3)	2	2	1	-	3
ARCN310	Technical Installations in buildings 1	2	1	3	-	4
ARCN312	Working Drawing & Construction Methods 1	3	2	3	-	5
GENN341	Project Management.	2	2	-	-	2
ARCN33*	Elective Course of Applied Engineering and design • ARCN330- Housing in developing countries • ARCN332- Design, Environmental planning and power • ARCN335-Landscape Design	2*	See Tables			
GENN35*	Elective course of University Requirements • GENN351 Engineering Economy • GENN352 Environmental Effects of Electromagnetic Waves.. • GENN353 Engineering Laws and Professional ethics • GENN354 Risk Management	2*	See Tables			
Total		**18**				

Table 15 Senior 1, Eighth Semester(Level three)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN322	Architectural Design 6	3	1	6	-	7
ARCN324	Housing & City Planning 2	2	1	3	-	4
ARCN340	History of Architecture (3)	2	2	1	-	3
ARCN311	Technical Installations in buildings 2	2	1	3	-	4
ARCN313	Working Drawing & Construction Methods 2	3	2	3	-	5
ARCN33*	Elective Course of Applied Engineering and design • ARCN331 Sustainable Architecture • ARCN333 Building technology and structure systems • ARCN334 Advanced Studies in Interior Design	4*	See Tables			
Total		**16**				

Table 16 Senior1, Summer Training

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN360	Architecture Training 2	3	-	-	-	-
Total		**3**	**-**	**-**	**-**	**-**

Table 17 Senior 2, Ninth Semester (Level Four)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN421	Architectural Design 7	3	1	6	-	7
ARCN422	City Planning	3	1	5	-	6
ARCN423	Urban Design	4	2	4	-	6
ARCN43*	Elective Course of General Specialization • ARCN430 Aesthetics and formations • ARCN431 Advanced Building economics • ARCN432 Architecture criticism • ARCN435 Urban & Environmental Conservation • ARCN436 Simulation Programs & Architecture	6*	See Tables			
Total		**16**				

Table 18 Senior 2, tenth Semester Level Four)

Code	Subject	Total Credits	Contact Hours			
			L	T	P	Total
ARCN411	Working Drawing & Construction Documents	4	2	6	-	8
ARCN412	Technical specifications & Quantities & Contracting Methods	2	2	1	-	3
ARCN460	Project	6	4	8	-	12
ARCN43*	Elective Course of Applied Engineering and design • ARCN433- Modern Building Systems and Materials • ARCN434- Urban Renewal	2*	See Tables			
GENN45*	Elective course of University Requirements • GENN451 Advanced Computer Systems Implementation. • GENN452 Civilization and heritage • GENN453 Industrial psychology • GENN454 Marketing	2*	See Tables			
Total		**16**				

2.5. Curriculum Mapping

The contribution of the individual courses to the program Intended Learning Outcomes are marked in the courses specifications and revised following the evaluation of the mapping matrix. Therefore, the courses specifications are approved by the department scientific council following the program specification approval.

Appendix 1 shows the curriculum-mapping matrix, developed based on the courses specifications. The mapping matrix shows that the program courses present balanced contribution to the program ILO's includes also two tables summarizing the program ILO's contributed by the individual courses and the courses contributing to the individual ILO's.

2.6. Courses Specifications

The detailed program courses specifications are given in **Appendix 2.** These courses specifications were revised and approved on **November 2013**. The contribution of each course to the program ILO's were considered during this revision.

3. Program Admission Requirements

- Admission is fully organized by the admission office of the Ministry of Higher Education.
- Secondary School Certificate Graduates of other countries are eligible to join this program if they met the minimum grades set by Admission Office of the Ministry of Higher Education.
- The study begins with a preparatory year for all students before specialization in Architectural Engineering. Students' departmental allocation is in accordance with the Academy Council regulations.

4. Regulations for Progression and Program Completion

1) Attendance of program is on full-time basis.
2) The study follows the credit hour system with two major semesters, 15-week each and one, 8-week- semesters per year.
3) A minimum of 75 % student attendance to lectures, tutorials and laboratory exercises per course is conditional for taking the final exams of the course, in accordance with the Departmental Board recommendation approved by the Faculty Council, otherwise students would be deprived from taking their final exam(s).
4) If a course includes written and oral / lab tests, the course evaluation is made according to the total mark of all tests in addition to the academic standing throughout the semester.
5) No mark is recorded for the student who fails to appear in the written examination.

The details of program progression and grades evaluation are explained by**Appendix 3**.

5. Student Assessment (Methods and rules for student assessment)

Table17 Students assessment methods

Method (tool)	Assessed ILO's
1- Written exam	A, B & C
2- Quizzes and reports	A, B & C
3- Oral exams	A, B & C
4- Practical	A &C
5- Project applied on a practical field problem	A, B, C & D
6- Other assessment methods	As stated in the courses specifications

Where:

A includes the program knowledge and understanding
B includes the intellectual skills
C includes the professional applied skills
D includes the general transferrable skills

6. Program Evaluation

Table 18 Program Evaluation

Evaluator	Tool	Periodicity
1- Students	Questionnaires	Annual
2- Alumni	Questionnaires	Bi-annual
3- Stakeholders	Questionnaires	Each 5 years
4- External Evaluator(s) (External Examiner (s))	Reports	Each 5 years
5- Other societal parties	Questionnaires	On request

Program Coordinator Response to the External Reviewer Comments7

1- Reviewing the mission and objectives of the program and reviewing the graduate's specifications and attributes

2 – Revision of the formulation of the targeted learning outcomes to determine the specialization in the discipline of Architecture Engineering and Building Technology

3 - Revision of the graduate's specification majoring Architecture Engineering and Building Technology

4 - Reviewing what has been stated in the auditor's report with respect to the structure of the program and its contents

5 – Revision of the evaluation methods and rules for each material to conform to program outputs (ILO's)

6- Reviewing the program and courses specifications. And auditing the arrays of methods of education and learning. Moreover, revising the methods of evaluation and updating the references of all courses

Appendix 1

Curriculum Mapping

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Curriculum Mapping

The curriculum mapping was carried out according to the following procedures:

1) Extract the program ILO's covered by each course from the courses specifications and arrange them in a convenient table.
2) Develop four matrices for the courses with each of the four categories of program ILO's.
3) Study the developed matrices and find the needed tuning of courses specifications to insure balanced covering of the courses to program ILO's.
4) Carryout the required tuning process and prepare the final program specifications including the final mapping matrix.
5) Present the program specifications to the academic council for approval.
6) Carry out the necessary courses specifications tuning and present the courses specifications to the concerned academic council for approval.

A1.1 Program ILO.s Covered by the Individual Courses.

Table A1-1 Program ILO's covered by the program courses

	Course		Program Intended Learning Outcomes			
	Code	Title	Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
1	CHEN001	Chemistry	A1, A3, A4, A5, A6, A8,A11, A12	B1, B2, B3, B4, B6, B8, B10, B12	C1, C2, C3, C5, C8, C12	D1, D2, D3, D4, D5, D7
2	GENN041	Contemporary Social Issues	A9, A10	B4, B9, B12	C1,C5	D1, D3, D7, D9
3	MNFN002	Introduction to engineering materials	A2, A3, A4, A18	B1, B2, B5, B13,B15,B17	C1, C2, C19	D1, D3, D7, D9
4	GENN043	History of Engineering & Technology	A1, A5, A8, A9, A11, A14	B1, B2, B6, B7	C1,C5	D1,D7, D8
5	MECN001	Mechanics – (1)	A1, A2, A3, A4	B1, B2	C1, C2	D1, D2
6	MTHN001	Mathematics – (1)	A1, A2, A5	B1, B2, B3, B7	C1, C12	D3, D7
7	PHYN001	Physics (1)	A1, A2, A3, A4, A13	B1, B2, B3, B7 B17, B20	C1, C6, C12, C16, C17	D1, D2, D3, D4, D5,D6,D7,D8 ,D9
8	MNFN001	Engineering Graphics	A2, A4, A5, A8 ,A10	B3, B5 ,B7 ,B8,B9	C2, C3, C4 ,C11	D1, D3 ,D9
9	GENN042	English language	A9, A10	B4	C11, C12	D1, D2, D3, D4, D6, D7, D8
10	MECN002	Mechanics – (2)	A1, A2, A3, A4, A5	B1, B2, B5, B13,	C1,C2, C3	D1, D2
11	MTHN002	Mathematics – (2)	A1, A3, A5	B1, B2, B3, B4, B7, B11	C1, C12	D1, D3, D7
12	PHYN002	Physics (2)	A1, , A3, , A5	B2, B3, B4, B5,	C1, C5, C12	D5, D7
13	MNFN003	Principles of production Engineering	A1,A2,A4	B2,B3,B10,B18	C1,C3,C7	D1, D3 ,D7 ,D9
14	CMPN010	Program Design and Computer Languages	A1,A2,A4,A5,A8,A13, A15,A16,A18	B1,B2,B3,B4,B7,B1 3, B14, B17, B18 , B19,	C1,C2,C3,C4, C5,C6 , C13, C14, C15	D1, D2 ,D3, D4, D5, D7, D9

	Course		Program Intended Learning Outcomes			
	Code	Title	Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
15	ARCN111	Architectural Construction 1	A3, A4, A24	B2, B5, B11, B12, B14, B22, B25	C2, C3, C12, C14, C23, C24, C25	D1, D2, D3, D6, D7, D8
16	ARCN121	Architectural Design 1	A3, A4, A24	B2, B5, B11, B12, B14, B22, B25	C2, C3, C12, C14, C23, C24, C25	D1, D2, D3, D6, D7, D8
17	ARCN116	Surveying	A4, A8, A14, A24	B2, B9, B18, B22	C1, C6, C15, C16	D3, D5, D6
18	ARCN120	Theories of Architecture (1)	A1, A4, A10, A11, A12, A18, A19, A23	B3, B4, B12, B13, B22	C1, C2, C12	D1, D7, D9
19	ARCN115	Properties & Resistance of Materials	A1, A3, A4, A15	B3, B5, B6, B13, B17, B18	C2, C10, C15, C21, C22, C23	D1, D3, D5
20	ARCN123	Visual Training (1)	A13, A20	B4, B13, B14	C13, C17, C18	D1, D3, D8
21	GENN141	Presentation Skills	A9, A10, A12	B14	C11	D1, D2, D3, D5, D7
22	GENN142	Technical Report Writing	A4, A10, A11	B4	C1, C2, C3	D1, D2, D3
23	ARCN112	Architectural Construction 2	A3, A4, A24	B2, B5, B11, B12, B14, B22, B25	C2, C3, C12, C14, C23, C24, C25	D1, D2, D3, D6, D7,D8
24	ARCN122	Architectural Design 2	A3, A4, A24	B2, B3, B11	C3, C4, C13, C17	D3, D7
25	ARCN141	History of Architecture (1)	A17, A19	B4, B20, B21	C18, C21, C22	D1, D2, D3, D4
26	MTHN106	Mathematics 6 (Statistical Mathematics)	A1, A2, A5, A10	B1, B2 ,B3, B4, B7, B11	C1, C2, C7, C13	D3, D7
27	ARCN114	Computer Applications 1	A2, A4, A8, A14, A15, A21	B1, B2, B3, B13	C5, C12, C13, C14, C24	D1, D3, D6, D7
28	ARCN117	Theory of Structures	A1, A4, A5, A8, A14	B2, B3, B4, B5, B11, B13	C1, C2, C3, C7, C24	D6, D7
29	ARCN213	Skiagraphy and perspective	A4, A13, A20	B4, B14	C13, C18	D3, D8
30	ARCN160	Summer Training-2	A3, A8, A14	B8, B14, B17	C6, C18	D3, D8
31	ARCN211	Architectural Construction & Building materials 1	A14, A24 , A15,A20,A21.A23	B13, B14, B23, B15, B17-B22	C14, C15-C23, C18- C24, C25	D1,D2,D3,D6 ,D7,D8
32	ARCN210	Building Technology	A1, A4, A18,	B4, B5, B13,	C1, C2	D1, D3, D4,D5,D6, D7
33	ARCN222	Architectural Design 3	A5-A13, A17-A21, A23, A14, A18	B3, B4, B13, B14	C3, C6, C17	D3,D7
34	ARCN217	computer applications 2	A1,A4, A13, A14, A20	B1, B4, B9, B13, B14, B15 ,B21	C14,C15,C17, C21	D1,D2, D3, D5,D6 D7, D8
35	ARCN214	Reinforced concrete & steel structures	A4, A5	B2, B3, B6, B11,B25,B27	C1, C3, C7,C25	D6, D7
36	ARCN227	Theories of Architecture (2)	A14, A15, A20, A21, A23,A24	B13, B14, B15, B17 , B22,B25	C15, C14, C18, C25 , C24	D1, D2,D3, D6, D7, D8
37	ARCN226	History and Theories of planning	A16, ,A17,A18	B2,B3,B18, ,B21	C13,C12	D2,D7,D8
38	ARCN212	Architectural Construction &	A14, A15, A20, A21,	B13 , B14, B15,	C14, C15, C18,	D1 , D2 , D3,

	Course				Program Intended Learning Outcomes			
	Code		Title		Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
			Building materials 2		A23, A24	B17 ,B22, B25	C24 , C25	D6, D7 , D8
39	ARCN221		Architecture & Human Studies		A4,A5,A17,A24	B3,B4,B19	C6,C12,C21,C22, C25	D1,D3, D5,D6
40	ARCN223		Architectural Design 4		A5, A13, A14, A17, A18, A21	B3, B4, B13, B14	C3, C6, C17	D3,D7
41	ARCN225		Visual Training (2)		A1, A19, A13	B13, B14, B16	C13, C14	D1, D2, D3, D6, D7
42	ARCN241		History of Architecture (2)		A12,A19	B7,B13,B14,B20,B21	C12,C13.C18	D2,D3,D4,D5 ,D9
43	ARCN216		Environmental Control		A1,A4, A5, A12,A24	B2, B3, B13, B15, B17	C1, C2, C11, C17, C19,C25	D1, D2,D3, D4,D5,D6, D7, D8
44	ARCN215		Foundations		A3, A4 A5 A9, A15	B2, B5, B6, B22,	C2,C12, C13, C14	D6
45	ARCN224		Design Methodology		A4, A5,A8, A9, A11	B5, B7, B20	C3, C4, C8, C12,C15,C18,C20	D3, D5, D6, D7
46	ARCN260		Architecture Training 1		A10,A 14	B2,B16,B 18	C7, C 8	D1,D3,D8
47	ARCN321		Architectural Design 5		A4,A11,A13,A23	B3,B4,B13,B14,B16 ,B17,B19,B20	C4. C13. C15 . C17. C18 . C19 . C20 . C21	D1,D3,D6,D7
48	ARCN323		Housing & City Planning 1		A11,A16,A17,A19	B10,B11	C6,C20	D2,D3,D5
49	ARCN325		Theories of Architecture and Art (3)		A4,A13,A19,A21,A24	B3,B12,B14,B21	C13,C17,C18, C19	D3,D4,D5,D9
50	ARCN310		Technical Installations and Plumbing Engineering 1		A1, A4, A5,A6 ,A11,A12,A14 ,A24	B2, B3, B4,B5, B7,B11,B24	C1, C12,C15, C19,C22 ,C23,C25	D6
51	ARCN312		Working Drawing & Construction Methods 1		A4, A8, A13 A14, A15, A21,A24	B3, B4, B17 ,B22,B24,B25	C4, C10, C14, C15,C18,C23,C25,C24	D2,D3,D6,D7
52	GENN341		Project managment		A3, A6 ,A7, A25	B3, B15	C2, C3, C9	D3, D4, D7
53	ARCN33*	Elective course of Applied Engineering	ARCN330	Housing in Developing Countries	A5,A9,A12, A16,A22	B2,B4,B13	C15,C16	D1,D6,D8,D9
			ARCN332	Design, Environmental Planning & Power	A11,A18,A21, A24	B2, B3, B13, B15, B17,B22,B24	C1, C2, C12, C17, C19,C25	D1, D2,D3, D4,D5,D6, D7, D8
			ARCN335	Landscape Design	A1, A3 ,A4, A5, A11	B2, B3, B5, B9	C2, C3, C4	D1,D3, D4, D7,D8,D9
54	GENN35*	Elective course of Basic Human.	GENN351	Engineering Economy	A2,A5. A6, A14,A15	B2, B9, B16, B22	C2, C15, C25,C9	D3, D8
			GENN352	Environmental Effects of Electromagnetic Waves	A1, A2, A5, A9, A11	B1, B2, B3, B4	None	D1, D3, D4, D6, D7
			GENN353	Engineering Laws and Professional ethics	A7, A16, A25	B12, B20,B25	C1, C8	D6, D7
			GENN354	Engineering Laws and Professional	A7, A16, A25	B12, B20,B25	C1, C8	D6, D7

	Course				Program Intended Learning Outcomes			
	Code		Title		Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
				ethics				
55	ARCN322		Architectural Design 6		A4,A11,A13,A14,A17, A23	B3,B4,B13,B14,B16 ,B17,B19,B20	C4,C13,C15,C17,C18,C19,C20, C21	D1,D3,D6,D7
56	ARCN324		Housing & City Planning 2		A16,A17,A19, A22	B10,B11,B12,B13	C5,C6,C21	D2,D3,D5
57	ARCN340		History of Architecture& Arts 3		A18, A19	B4,B13,B 20,B21	C20, C21,C22	D1, D3, D4, D8
58	ARCN311		Technical Installations and PlumbingEngineering 2		A1, A4, A5, A6 ,A11 ,A12 ,A14 ,A24	B2, B3, B4,B5,B7,B11, B24	C1 , C12, C15,C19,C22,C 23,,C25	D6
59	ARCN313		Working Drawing & Construction Methods 2		A4, A8,A13, A14, A15, A21,A24	B3, B4, B17 ,B22,B24,B25	C4, C10, C14, C15,C18,C23	D2,D3,D6,D7
60	ARCN33	Elective course of Applied Engineering *	ARCN331	SustainableArchitecture	A5,A8, A23	B3, B7, B9, B10, B13, B19 ,B22	C2,C17,C20,C25	D2,D6, D7, D9
			ARCN333	Building technology and structure systems	A1, A4, A18	B4, B5, B13	C1, C2	D1, D3, D4,D5,D6, D7
			ARCN334	Advanced Studies in Interior Design	A4,A12,A13, A14,A20,A21	B2, B3, B4, B6, B7, B8, B10, B12,B13, B14, B15,B17, B18, B19	C1, C2, C3,C 4,C8,C9, C10, C13, C14,C17,C18,C 19,C20,C21	D1,D2,D3,D5 ,D6,D7
61	ARCN360		Architecture Training 2		A10,A 20	B1,B2,B 18	C5, C 12	D1, D3, D8
62	ARCN421		Architectural Design 7		A13, A14,A20,A21	B4, B14, B16, B20,B21	C4, C13, C18, C19,C22	D2, D3, D7, D9
63	ARCN422		City Planning		A11, A16, A17, A19	B10, B11,B14, B19	C6, C20	D1,D2, D3, D5
64	ARCN423		Urban Design		A9, A16,A19	B10, B20	C13,C18,C19,C22,	D1, D5
65	ARCN 43*	Elec. course of General Specialization.	ARCN430	Aesthetics & Formation	A13,A14,A16,A19	B4,B5,B13,B18	C3 ,C13	D1, D2, D3, D7, D8
			ARCN431	Advanced Building Economics	A2,A5. A6, A14,A15	B2, B9, B16, B22	C2, C15, C25,C9	D3, D8
			ARCN432	Architecture Criticism	A9, A11,A16, A17	B18,B19, B20, B21	C18, C20,C21,C22	D3, D6, D9
			ARCN435	Urban & Envir. Conservation	A1, A6, A9, A12, A17,A18	B2, B12, B18, B20	C16, C20,C21	D1, D3, D4, D5, D6,D7,D9
			ARCN436	Simulation Program & Architecture	A1, A4. A13 ,A14, A20	B1, B13, B14 , B15 ,B17, B21	C14, C15 ,C17	D1, D2, D3, D5 ,D8
66	ARCN411		Working Drawing & Construction Documents		A3, A5, A6, A11, A12, A15, A20, A21, A23,A24	B9, B12, B13, B14, B15, B16, B20,B22,B23,B24,B 25	C1, C2, C10, C12, C14, C15,C23,C24,C 25,	D1, D2, D3, D6, D7, D8
67	ARCN412		Technical specifications & Quantities & Contracting Methods		A3, A5, A6, A8, A14,,A24,A25	B3 B9,B17,B19,B22,B2 3,B24	C3, C6, C8, C11, C15,C23	D1, D2, D7
68	ARCN460		Project		A4, A5, A8, A9, A10, A11, A12,A13, A17	B2, B3, B4, B7, B13,B14, B15, B17,B20	C1, C2, C3, C4, C12, C13	D2, D3, D4, D6, D7, D8

	Course				Program Intended Learning Outcomes			
	Code		Title		Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
69	ARCN 43*	Elec. course of Appli. Eng.	ARCN433	Modern Building System &Materials	A3 ,A4,A8,A14,A24	B2,B4,B13,B17	C15,C23	D1,D3,D8
			ARCN434	Urban Renwal	A7,A16	B10,B11,B20	C1,C8	D6,D7
70	GENN45*	Elective course of University Requirements	GENN451	Advanced Computer Systems Implementation	A1,A4, A13, A14, A20	B1, B4, B9, B13, B14, B15 ,B21	C14,C15,C17,C21	D1,D2, D3, D5,D6 D7, D8
			GENN452	Civilization and heritage	A9, A11, A17	B18,B19, B21	C19, C21,C22	D3, D6, D9
			GENN453	Industrial psychology	A4، A9،A11،A18, A19	B3،B5،B9	C2،C4،C8	D1،D2,D6,D9
			GENN454	Marketing	A1, A8 , A9	B1 , B2		D1 , D7, D8

A1.2 Curriculum Mapping Matrices

Table A1-2 Program Mapping Matrix; Courses/Knowledge and Understanding (A's)

	Code	Subject	Program Intended Learning Outcomes **(A)**																								
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	CHEN001	Chemistry	1		1	1	1	1		1			1	1													
2	GENN041	Contemporary Social Iss.									1	1															
3	MNFN002	Introduction to engineering materials		1	1	1														1							
4	GENN043	History of Engineering & Technology	1				1			1	1		1			1											
5	MECN001	Mechanics – (1)	1	1	1	1																					
6	MTHN001	Mathematics – (1)	1	1			1																				
7	PHYN001	Physics (1)	1	1	1	1									1												
8	MNFN001	Engineering Graphics		1		1	1			1		1															
9	GENN042	English language									1	1															
10	MECN002	Mechanics – (2)	1	1	1	1	1																				
11	MTHN002	Mathematics – (2)	1		1		1																				
12	PHYN002	Physics (2)	1		1		1																				
13	MNFN003	Principles of Prod. Eng.	1	1		1																					
14	CMPN010	Program Dgn.& Comp.Lan.	1	1		1	1			1					1		1	1		1							
15	ARCN111	Architectural Construction 1			1	1																				1	
16	ARCN121	Architectural Design 1			1	1																				1	
17	ARCN116	Surveying				1				1						1										1	
18	ARCN120	Theories of Architecture (1)	1			1						1	1	1						1	1				1		

	Code	Subject	Program Intended Learning Outcomes **(A)**																								
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
19	ARCN115	Properties & Resistance of Materials	1		1	1											1										
20	ARCN123	Visual Training (1)													1							1					
21	GENN141	Presentation Skills									1	1		1													
22	GENN142	Technical Report Writing				1						1	1														
23	ARCN112	Architectural Construction 2			1	1																				1	
24	ARCN122	Architectural Design 2			1	1																				1	
25	ARCN141	History of Architecture (1)																	1		1						
26	MTHN106	Mathematics 6 (Statistical Mathematics)	1	1			1					1															
27	ARCN114	Computer Applications 1		1		1				1						1	1						1				
28	ARCN117	Theory of Structures	1			1	1			1						1											
29	ARCN213	Skiagraphy and perspective				1									1							1					
30	ARCN160	Summer Training-2			1					1						1											
31	ARCN211	Architectural Construction & Building materials 1														1	1					1	1		1	1	
32	ARCN210	Building Technology	1			1														1							
33	ARCN222	Architectural Design 3					1								1	1			1	1			1		1		
34	ARCN217	computer applications 2	1			1									1	1						1					
35	ARCN214	Reinforced concrete & steel structures				1	1																				
36	ARCN227	Theories of Architecture (2)														1	1					1	1		1	1	
37	ARCN226	History and Theories of planning																1	1	1							
38	ARCN212	Architectural Construction & Building materials 2														1	1					1	1		1	1	
39	ARCN221	Architecture & Human Studie				1	1												1							1	

	Code	Subject	Program Intended Learning Outcomes **(A)**																								
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
40	ARCN223	Architectural Design 4					1								1	1			1	1			1				
41	ARCN225	Visual Training (2)	1												1						1						
42	ARCN241	History of Architecture (2)												1							1						
43	ARCN216	Environmental Control	1			1	1							1												1	
44	ARCN215	Foundations			1	1	1				1						1										
45	ARCN224	Design Methodology				1	1			1	1		1														
46	ARCN260	Architecture Training 1										1				1											
47	ARCN321	Architectural Design 5				1							1		1										1		
48	ARCN323	Housing & City Planning 1											1					1	1		1						
49	ARCN325	Theories of Architecture and Arts (3)				1									1						1		1			1	
50	ARCN310	Technical Installations and Plumbing Engineering 1	1			1	1	1					1	1		1										1	
51	ARCN312	Working Drawing & Construction Methods 1				1				1					1	1	1						1			1	
52	GENN341	Project Manag.			1			1	1																		1
53	ARCN33* Elective course of Applied Engineering	ARCN330 Housing in Developing Countries					1				1			1				1						1			
		ARCN332 Design, Environmental Planning & Power											1							1			1			1	
		ARCN335 Landscape Design																									
54	GENN35* Elective course of Basic Human.	GENN351b Engineering Economy		1			1	1								1	1										
		GENN351b Environmental Effects of Electromagnetic Waves	1	1			1				1		1														
		GENN351b Engineering Laws and Professional ethics							1									1									1
		GENN351b Risk Management	1	1		1	1	1					1														

	Code		Subject		Program Intended Learning Outcomes **(A)**																								
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
55	ARCN322		Architectural Design 6					1							1		1	1			1						1		
56	ARCN324		Housing & City Planning 2																	1	1		1			1			
57	ARCN340		History of Architecture& Arts 3																			1	1						
58	ARCN311		Technical Installations and PlumbingEngineering 2		1			1	1	1					1	1		1										1	
59	ARCN313		Working Drawing & Construction Methods 2					1				1					1	1	1						1			1	
60	ARCN33*	Elective course of Applied Engineering	ARCN331	SustainableArchitecture					1			1															1		
			ARCN333	Building technology and structure systems	1			1														1							
			ARCN334	Advanced Studies in Interior Design				1								1	1	1						1	1				
61	ARCN360		Architecture Training 2											1										1					
62	ARCN421		Architectural Design 7														1	1						1	1				
63	ARCN422		City Planning												1					1	1		1						
64	ARCN423		Urban Design										1							1			1						
65	ARCN 43*	Elec. course of General Specialization..	ARCN430	Aesthetics & Formation													1	1		1			1						
			ARCN431	Advanced Building Economics	1				1	1								1	1										
			ARCN432	Architecture Criticism									1		1					1	1								
			ARCN435	Urban & Envir Conservation	1					1			1			1					1	1							
			ARCN436	Simulation Programs & Architecture	1			1									1	1						1					
66	ARCN411		Working Drawing & Construction Documents				1		1	1					1	1			1					1	1		1	1	
67	ARCN412		Technical specifications & Quantities & Contracting Methods				1		1	1		1						1										1	1
68	ARCN460		Project					1	1			1	1	1	1	1	1				1								

	Code		Subject		Program Intended Learning Outcomes **(A)**																								
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
69	ARCN 43*	Elec. Course of Appli. Eng.	ARCN433	Modern Building System &Materials			1	1				1						1										1	
			ARCN434	Urban Renwal							1									1									
70	GENN45*	Elective course of University Requirements	GENN451	Advanced Computer Systems Implementatio	1			1									1	1						1					
			GENN452	Civilization an heritage									1		1						1								
			GENN453	Industrial psychology				1					1		1							1	1						
			GENN454	Marketing	1							1	1																

Table A1-3 Program Mapping Matrix; Courses/Intellectual Skills (B's)

	Code	Subject	Program Intended Learning Outcomes **(B)**																								
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	CHEN001	Chemistry	1	1	1				1										1			1					
2	GENN041	Contemporary Social Iss.			1		1		1	1	1																
3	MNFN002	Introduction to eng. materials				1																					
4	GENN043	History of Engineering & Technology	1	1			1								1												
5	MECN001	Mechanics – (1)	1	1	1	1			1				1														
6	MTHN001	Mathematics – (1)		1	1	1	1																				
7	PHYN001	Physics (1)		1	1							1								1							
8	MNFN001	Engineering Graphics	1	1	1	1			1						1	1			1	1	1						
9	GENN042	English language		1			1						1	1		1								1			1
10	MECN002	Mechanics – (2)		1			1						1	1		1								1			1
11	MTHN002	Mathematics – (2)		1							1									1				1			
12	PHYN002	Physics (2)			1	1								1	1									1			
13	MNFN003	Principles of Prod. Eng.			1		1	1							1				1					1			
14	CMPN010	Program Dgn.& Comp.Lan.				1									1	1											
15	ARCN111	Architectural Construction 1														1											
16	ARCN121	Architectural Design 1				1																					
17	GENN141	Presentation Skills		1			1						1	1		1								1			1
18	ARCN115	Properties & Resistance o Materials		1	1								1														
19	ARCN116	Surveying				1																					
20	GENN142	Technical Report Writing	1	1	1	1			1				1														
21	ARCN120	Theories of Architecture (1)	1	1	1										1												
22	ARCN123	Visual Training (1)		1	1	1	1						1		1												
23	ARCN112	Architectural Construction 2				1										1			1								
24	ARCN122	Architectural Design 2								1						1			1								
25	ARCN114	Computer Applications 1													1	1	1		1					1	1		
26	ARCN141	History of Architecture (1)				1	1								1												
27	MTHN106	Mathematics 6 (Statistical Mathematics)			1	1									1	1											
28	ARCN213	Skiagraphy and perspective	1			1					1				1	1	1						1				

	Code	Subject	Program Intended Learning Outcomes **(B)**																								
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
29	ARCN117	Theory of Structures		1	1			1					1														1
30	ARCN160	Summer Training-2													1	1	1		1					1			1
31	ARCN211	Architectural Construction & Building materials 1		1	1															1			1				
32	ARCN210	Building Technology													1	1	1		1					1			1
33	ARCN222	Architectural Design 3			1	1															1						
34	ARCN217	computer applications 2			1	1									1	1											
35	ARCN214	Reinforced concrete & steel structures													1	1		1									
36	ARCN227	Theories of Architecture (2)							١						١	١						١	١				
37	ARCN226	History and Theories of planning		1	1										1		1		1								
38	ARCN212	Architectural Construction & Building materials 2		1			1	1																1			
39	ARCN221	Architecture & Human Studies					1		1													1					
40	ARCN223	Architectural Design 4			1													1		1							
41	ARCN225	Visual Training (2)			1	1									1	1		1	1		1	1					
42	ARCN241	History of Architecture (2)										1	1														
43	ARCN216	Environmental Control			1									1		1							1				
44	ARCN215	Foundations		1	1	1	1		1				1													1	
45	ARCN224	Design Methodology			1	1													1					1		1	1
46	ARCN260	Architecture Training 1													1	1											
47	ARCN321	Architectural Design 5	1	1	1				1										1			1					
48	ARCN323	Housing & City Planning 1			1		1		1	1	1																
49	ARCN325	Theories of Architecture and Arts (3)				1																					
50	ARCN310	Technical Installations and Plumbing Engineering 1	1	1			1								1												
51	ARCN312	Working Drawing & Construction Methods 1	1	1	1	1			1				1														
52	GENN341b	Project Manag.		1	1	1	1																				
53	ARCN33* Elective course of Applied Engineering	ARCN330 Housing in Developing Countries		1		1									1												
		ARCN332 Design, Environmental Planning & Power		1	1										1		1		1					1		1	
		ARCN335 Landscape Design		1	1		1				1																

	Code		Subject		Program Intended Learning Outcomes **(B)**																								
					01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
			ARCN334	Advanced Studies i Interior Design		1							1							1						1			
54	GENN35*	Elective course of Basic Human.	GENN351 b	Engineering Economy												1								1					1
			GENN352	Environmental Effects of Electromagnetic Waves												1								1					1
			GENN353 b	Engineering Laws and Professional ethics		1		1									1												
			GENN354	Risk Management		1	1										1		1		1					1		1	
55	ARCN322		Architectural Design 6				1	1									1	1		1	1		1	1					
56	ARCN324		Housing & City Planning 2											1	1	1	1												
57	ARCN340		History of Architecture& Arts					1									1							1	1				
58	ARCN311		Technical Installations and PlumbingEngineering 2			1	1	1	1		1				1													1	
59	ARCN313		Working Drawing & Construction Methods 2				1	1													1					1		1	1
60	ARCN33*	Elective course of Applied Engineering	ARCN331	SustainableArchitec ure			1				1		1	1			1						1			1			
			ARCN332	Building technology and structure systems				1	1								1												
			ARCN334	Advanced Studies i Interior Design		1	1	1		1	1	1		1		1	1	1	1		1	1	1						
61	ARCN360		Architecture Training 2		1	1																1							
62	ARCN421		Architectural Design 7					1										1		1				1	1				
63	ARCN422		City Planning											1	1			1					1						
64	ARCN423		Urban Design											1										1					
65	ARCN 43*	Elec. course of General Specialization..	ARCN430	Aesthetics & Formation				1	1								1					1							
			ARCN431	Advanced Building Economics		1							1							1						1			
			ARCN432	Architecture Criticism																		1	1	1	1				
			ARCN435	Urban & Envir. Conservation		1										1						1		1					
			ARCN436	Simulation Programs & Architecture	1												1	1	1		1				1				
66	ARCN411		Working Drawing & Construction Documents					1	1								1					1							
67	ARCN412		Technical specifications & Quantities & Contracting Methods			1							1							1						1			
68	ARCN460		Project																			1	1	1	1				
69	ARCN 43*	cour e of Appl Eng	ARCN433	Modern Building System &Materials		1		1									1				1								

	Code		Subject		Program Intended Learning Outcomes **(B)**																								
					01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
			ARCN434	Urban Renwal									1		1									1					
70	GENN45*	Elective course of University Requirements	GENN451	Advanced Computer Systems Implementation	1			1					1				1	1	1						1				
			GENN452	Civilization and heritage																		1	1		1				
			GENN453	Industrial psychology			1		1				1																
			GENN454	Marketing	1	1																							

Table A1-4 Program Mapping Matrix; Courses/ Professional and practical skills (C's)

	Code	Subject	Program Intended Learning Outcomes (C)																							
			01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1	CHEN001	Chemistry	1	1	1		1			1				1													
2	GENN041	Contemporary Social Iss.	1				1																				
3	MNFN002	Introduction to engineering material	1	1																	1						
4	GENN043	History of Engineering & Technolog	1				1																				
5	MECN001	Mechanics – (1)	1	1																							
6	MTHN001	Mathematics – (1)	1											1													
7	PHYN001	Physics (1)	1					1						1				1	1								
8	MNFN001	Engineering Graphics		1	1	1							1														
9	GENN042	English language											1	1													
10	MECN002	Mechanics – (2)	1		1		1																				
11	MTHN002	Mathematics – (2)	1											1													
12	PHYN002	Physics (2)	1				1							1													
13	MNFN003	Principles of Prod. Eng.	1		1				1																		
14	CMPN010	Program Dgn.& Comp.Lan.	1	1	1	1	1	1							1	1	1										
15	ARCN111	Architectural Construction 1		1	1									1		1									1	1	1
16	ARCN121	Architectural Design 1		1	1									1		1									1	1	1
17	GENN141	Presentation Skills											1														
18	ARCN115	Properties & Resistance of Materials		1								1					1						1	1	1		
19	ARCN116	Surveying	1					1									1	1									
20	GENN142	Technical Report Writing	1	1	1																						
21	ARCN120	Theories of Architecture (1)	1	1										1													
22	ARCN123	Visual Training (1)													1				1	1							
23	ARCN112	Architectural Construction 2		1	1									1		1									1	1	1
24	ARCN122	Architectural Design 2			1	1									1				1								
25	ARCN114	Computer Applications 1					1							1	1	1										1	
26	ARCN141	History of Architecture (1)																		1			1	1			
27	MTHN106	Mathematics 6 (Statistical Mathematics)	1	1					1						1												
28	ARCN213	Skiagraphy and perspective													1					1							
29	ARCN117	Theory of Structures	1	1	1				1																	1	
30	ARCN160	Summer Training-2						1												1							
31	ARCN211	Architectural Construction & Building materials 1														1	1			1					1	1	1
32	ARCN210	Building Technology	1	1																							
33	ARCN222	Architectural Design 3			1			1											1								
34	ARCN217	computer applications 2														1	1		1				1				
35	ARCN214	Reinforced concrete & steel structures	1		1				1																		1
36	ARCN227	Theories of Architecture (2)														1	1			1						1	1
37	ARCN226	History and Theories of planning												1	1												
38	ARCN212	Architectural Construction & Building materials 2														1	1			1						1	1
39	ARCN221	Architecture & Human Studies						1						1									1	1			1

40	ARCN223		Architectural Design 4			1			1										1								
41	ARCN225		Visual Training (2)												1	1											
42	ARCN241		History of Architecture (2)											1	1					1							
43	ARCN216		Environmental Control	1	1								1						1		1						1
44	ARCN215		Foundations		1									1	1	1											
45	ARCN224		Design Methodology			1	1				1			1			1			1		1					
46	ARCN260		Architecture Training 1							1	1																
47	ARCN321		Architectural Design 5		1							1					1										1
48	ARCN323		Housing & City Planning 1						1													1					
49	ARCN325		Theories of Architecture and Art (3)												1				1	1	1						
50	ARCN310		Technical Installations and Plumbing Engineering 1	1										1			1				1			1	1		1
51	ARCN312		Working Drawing & Construction Methods 1				1						1			1	1			1					1	1	1
52	GENN341b		Project Manag.		1	1						1															
53	ARCN33*	Elective course of Applied Engineering	ARCN330	Housing in Developing Countries													1	1									
			ARCN332	Design, Environmental Planning & Power	1	1								1					1		1						1
			ARCN335	Landscape Design		1	1	1																			
54	GENN35*	Elective course of Basic Human.	GENN351b	Engineering Economy		1						1					1										1
			GENN352	Environmental Effects of Electromagnetic Waves																							
			GENN354	Risk Management	1	1				1				1													
			GENN353b	Engineering Laws and Professional ethics	1						1																
55	ARCN322		Architectural Design 6					1								1		1		1	1	1	1	1			
56	ARCN324		Housing & City Planning 2						1	1														1			
57	ARCN340		History of Architecture& Arts 3																				1	1	1		
58	ARCN311		Technical Installations and PlumbingEngineering 2	1										1			1				1			1	1		1
59	ARCN313		Working Drawing & Construction Methods 2				1						1			1	1			1					1		
60	ARCN33	Elective course of Applied Engineering *	ARCN331	SustainableArchitecture																							
			ARCN333	Building technology and structure systems				1	1							1											
			ARCN334	Advanced Studies in Interior Design	1	1	1	1				1	1	1			1	1			1	1	1	1	1		
61	ARCN360		Architecture Training 2					1							1												
62	ARCN421		Architectural Design 7			1								1					1	1			1				
63	ARCN422		City Planning					1													1						
64	ARCN423		Urban Design											1					1	1			1				

65	ARCN 43*	Elec. course of General Specialization...	ARCN430	Aesthetics & Formation		1									1												
			ARCN431	Advanced Building Economics	1						1						1									1	1
			ARCN432	Architecture Criticism															1		1	1	1				
			ARCN435	Urban & Envir. Conservation														1			1	1					
			ARCN436	Simulation Programs & Architecture												1	1		1								
66	ARCN411		Working Drawing & Construction Documents		1							1		1		1	1							1	1	1	1
67	ARCN412		Technical specifications & Quantities & Contracting Methods			1			1		1		1				1							1			
68	ARCN460		Project		1	1	1							1	1												1
69	ARCN 43*	Elec. course of Appli. Eng.	ARCN433	Modern Building System &Materials														1							1		
			ARCN434	Urban Renwal	1						1																
70	GENN45*	Elective course of University Requirements	GENN451	Advanced Computer Systems Implementation													1	1		1			1				
			GENN452	Civilization and heritage																	1		1	1			
			GENN453	Industrial psychology		1		1			1																
			GENN454	Marketing																							

Table A1-5 Curriculum Mapping Matrix Courses/General Transferrable skills (D's)

	Code	Subject	General and transferable skills (D)								
			01	02	03	04	05	06	07	08	09
1	CHEN001	Chemistry	1	1	1	1	1		1		
2	GENN041	Contemporary Social Issues	1		1				1		1
3	MNFN002	Introduction to engineering materials	1		1				1		1
4	GENN043	History of Engineering & Technology	1		1				1		1
5	MECN001	Mechanics – (1)	1	1							
6	MTHN001	Mathematics – (1)			1				1		
7	PHYN001	Physics (1)	1	1	1	1	1	1	1	1	1
8	MNFN001	Engineering Graphics	1		1						1
9	GENN042	English language	1	1	1	1		1	1	1	
10	MECN002	Mechanics – (2)	1	1							
11	MTHN002	Mathematics – (2)	1		1				1		
12	PHYN002	Physics (2)					1		1		
13	MNFN003	Principles of production Engineering	1		1				1		1
14	CMPN010	Program Design and Computer Languages	1	1	1	1	1		1		1
15	ARCN111	Architectural Construction 1	1	1	1			1	1	1	
16	ARCN121	Architectural Design 1	1	1	1			1	1	1	
17	GENN141	Presentation Skills	1	1	1		1		1		
18	ARCN115	Properties & Resistance of Materials	1		1		1				
19	ARCN116	Surveying			1		1	1			
20	GENN142	Technical Report Writing	1	1	1						
21	ARCN120	Theories of Architecture (1)	1						1		1
22	ARCN123	Visual Training (1)	1		1					1	
23	ARCN112	Architectural Construction 2	1	1	1			1	1	1	
24	ARCN122	Architectural Design 2			1				1		
25	ARCN114	Computer Applications 1	1		1			1	1		
26	ARCN141	History of Architecture (1)	1	1	1	1					
27	MTHN106	Mathematics 6 (Statistical Mathematics)			1				1		
28	ARCN213	Skiagraphy and perspective			1					1	
29	ARCN117	Theory of Structures						1	1		
30	ARCN160	Summer Training-2			1					1	
31	ARCN211	Architectural Construction & Building materials 1	1	1	1			1	1	1	
32	ARCN210	Building Technology	1		1	1	1	1	1		
33	ARCN222	Architectural Design 3			1				1		
34	ARCN217	computer applications 2	1	1	1		1	1	1	1	
35	ARCN214	Reinforced concrete & steel structures						1	1		
36	ARCN227	Theories of Architecture (2)	1	1	1			1	1	1	
37	ARCN226	History and Theories of planning		1					1	1	
38	ARCN212	Architectural Construction & Building materials 2	1	1	1			1	1	1	
39	ARCN221	Architecture & Human Studies	1		1		1	1			
40	ARCN223	Architectural Design 4			1				1		
41	ARCN225	Visual Training (2)	1	1	1			1	1		
42	ARCN241	History of Architecture (2)		1	1	1	1				1
43	ARCN216	Environmental Control	1	1	1	1	1	1	1	1	
44	ARCN215	Foundations						1			
45	ARCN224	Design Methodology			1		1	1	1		

	Code		Subject		General and transferable skills (D)								
					01	02	03	04	05	06	07	08	09
46	ARCN260		Architecture Training 1		1		1					1	
47	ARCN321		Architectural Design 5				1					1	
48	ARCN323		Housing & City Planning 1			1	1		1				
49	ARCN325		Theories of Architecture and Arts (3)				1	1	1				1
50	ARCN310		Technical Installations and PlumbingEngineering 1							1			
51	ARCN312		Working Drawing & Construction Methods 1			1	1			1	1		
52	GENN341b		Project Manag.				1	1			1		
53	ARCN33*	course of Applied	ARCN330	Housing in Developing Countries	1					1		1	1
			ARCN332	Design, Environmental Planning & Power	1	1	1	1	1	1	1	1	
			ARCN335	Landscape Design									
54	GENN35*	Electi e cours of Basic Human	GENN351b	Engineering Economy			1					1	
			GENN352	Environmental Effects of Electromagnetic Waves	1		1	1		1	1		
			GENN353b	Engineering Laws and Professional ethics						1	1		
			GENN354	Risk Management	1	1	1		1	1	1		1
55	ARCN322		Architectural Design 6		1		1			1	1		
56	ARCN324		Housing & City Planning 2			1	1		1				
57	ARCN340		History of Architecture& Arts 3		1		1	1				1	
58	ARCN311		Technical Installations and PlumbingEngineering 2							1			
59	ARCN313		Working Drawing & Construction Methods 2			1	1			1	1		
60	ARCN33*	Elective cours of Applied Engineering	ARCN331	SustainableArchitecture		1				1	1		1
			ARCN333	Building technology and structure systems	1		1	1	1	1	1		
			ARCN334	Advanced Studies in Interior Design	1	1	1		1	1	1		
61	ARCN360		Architecture Training 2		1		1					1	
62	ARCN421		Architectural Design 7			1	1				1		1
63	ARCN422		City Planning		1	1	1		1				
64	ARCN423		Urban Design		1				1				
65	ARCN 43*	Elec. course of General Specialization	ARCN430	Aesthetics & Formation	1	1	1				1	1	
			ARCN431	Advanced Building Economics			1					1	
			ARCN432	Architecture Criticism			1			1			1
			ARCN435	Urban & Envir. Conservation	1		1	1	1	1	1		1
			ARCN436	Simulation Programs & Architecture	1	1	1		1			1	
66	ARCN411		Working Drawing & Construction Documents		1	1	1			1	1	1	
67	ARCN412		Technical specifications & Quantities & Contracting Methods		1	1					1		
68	ARCN460		Project			1	1	1		1	1	1	
69	ARCN 43	course o Appli. Eng	ARCN433	Modern Building System &Materials	1		1					1	
			ARCN434	Urban Renwal						1	1		
70	GENN45*	Elective course of University Requirements	GENN451	Advanced Computer Systems Implementation	1	1	1		1	1	1	1	
			GENN452	Civilization and heritage			1			1			1
			GENN453	Industrial psychology	1	1				1			1
			GENN454	Marketing	1						1	1	

Appendix 2

Courses Specifications

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FRESHMAN

Basic Science

Level 1

Course Specifications

Credit Hours System

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FRESHMAN
Basic Science
Level 1

S	Course	
	Code	**Title**
1	CHEN001	Chemistry
2	GENN041	Contemporary Social Issues
3	MNFN002	Introduction to engineering materials
4	GENN043	History of Engineering & Technology.
5	MECN001	Mechanics – (1)
6	MTHN001	Mathematics – (1)
7	PHYN001	Physics (1)
8	MNFN001	Engineering graphics
9	GENN042	English language
10	MECN002	Mechanics – (2)
11	MTHN002	Mathematics – (2)
12	PHYN002	Physics (2)
13	MNFN003	Principles of production Engineering
14	CMPN010	Program Design and Computer Languages.

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Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

CHEN 001: Chemistry

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Manufacturing Engineering and Production Technology Department
Architecture Engineering and Building Technology Department
Electronic Engineering and Communications Technology Department
Computer Engineering and Information Technology Department

Department offering the course: Basic Scienc Department

Date of specifications approval: September, 2015

B - Basic information

Title: Chemistry **Code:** CHEN001 **Level:** Freshman. **Semester**: First/Second

Hours **Credit** 3 hrs **Lectures** 2 hrs **Tutorial** 1 hrs **Practical** 2 hr

Pre-requisite: non

1 – Course Learning Objectives:

By the end of this course the students should be able to demonstrate the knowledge and understanding of the basic concepts and theory of chemical Engineering subjects such as: gas laws, gas liquidation, Electro chemistry and its applications, thermo chemistry and its applications, solutions and antifreezes to understand some of chemical industries in different fields Such as polymers, lubricants, Soaps and detergents, petrochemicals, cement Industry, water treatments and Desalination.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Key facts, concepts, principles and techniques of Gas and Liquid states of Matter. (A1,A3)

a2- Theories relevant to Electrochemistry, solutions and thermo chemistry.(A1,A3,A5,A4,A8,A11,A12)

a3- Some chemical industries in different fields such as eng. practices and regulatory farm works in chem.. Eng. Industry. (A3,A4,A5,A6, A11,A12)

a4- Technology Supporting water treatments and Desalination Techniques.(A4,A6,A11)

a5- Scientific principles of petroleum extraction and refining(A1,A3.A4.A7).

a6- Basic principles for fuel classification and knowing its optimum characteristics, also identify advantage and disadvantage of them (A1,A5,A6,A11,A12).

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- Apply chem. Principles and analytical thinking to problems of Gases, Liquids and electrochemistry and determine its effective solutions.(B1,B2,B8,B12)

b2- Select and develop appropriate Some petrochemical Technologies.(B6)

b3- Exercise professional judgment with respect to commercial and technical risks.(B1)

b4- Overlap different scientific subjects to reach a new scientific systems with a better quality.(B1,B3.B4,B12,B10)

b5-Think in a creative new scientific ideas which are not exist in present time to be used in the fee ten line the field of development of energy recourses, pollution problem, new industrial products.(B3, B12)

b6- Select appropriate solutions for corrosion problems based on analytical thinking.(B1,B2,B6,B8)

b7- Consider the applicability, economy and risk management.(B4)

b8-Maintain a systematic and methodic approach in dealing with new advanced industrial products.(B1)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1-Apply knowledge of scientific equipment and instrumentation competently to determine known concentration and solve its problem.(C1,C5)

c2- Employ computational facilities, measuring instruments, Laboratory tools and equipment to design an experiment to treat underground water and make it safe for Human use. (C1,C5)

c3- Improve plan and execute project work including the preparation of descriptive and interpretative technical reports.(C2,C3,C5,C8)

c4- Create and design for a certain system using the subject information given during.(C2,C3,C8)

c5- Improve the designed system to be compatible with Eng. Conditions.(C2,C3,C8)

c6- Apply experimental facilities to investigate the system performance.(pH and water hardness degree).(C2,C3,C5,C8)

c7- Prepare and present technical materials.(Soaps, detergents, and some polymeric samples).(C2)

c8- Observe, record and analyze data in lab. As well as in Field.(Lab Fresh water and undergrawnd water).(C5)

c9- Use appropriate tools to measure system performance.(C5)

c10- Present work both in written and oral form.(C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Improving own learning and performance, personal skills, working with others.(D1,D2,D3)

d2- Search for information from references, journals and internet.(D3)

d3- Write technical reports and prepare convenient presentations.(D5)

d4- Use the E-mail for communication.(D3,D4,D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A3,A4,A5,A6,A8,A11,A12
B	Intellectual skills	B1,B2,B3,B4,B6,B8,B10,B12
C	Professional and practical skills	C1,C2,C3,C5,C8,C12
D	General and transferable skills	D1,D2,D3,D4,D5,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Gas law and gas liquefaction.	4	2	-
Liquid state, Refrigeration & heat pump.	4	2	-
Electrochemistry &Metallic corrosion.	4	1	-
Solution & Antifreezes	2	1	-
Thermo chemistry & solar heat, Rocket.	2	1	-
Pollution	2	1	-
Water treatment and destitution	2	1	10
Polymer and Industry	2	1	-
Fuels and combustion	2	1	-
Chemistry and tech. of petroleum new trends in energy resource	2	1	-
Industrial detergents chemistry such cement , lubricants , soap	2	1	4
Acid - base titration	-	-	10
Revision and sheets	2	2	6
Total hours	**30**	**15**	**30**

4 – Teaching, Learning and Assessementmethods:

Course IL O's		Teaching Methods						Learning Methods		Assessement Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizes	Term papers	Assignments
Knowledge	a1	1	1	1	1		1	1		1		1	1	
	a2	1			1					1		1	1	1
	a3	1			1				1	1		1	1	1
	a4	1	1	1	1	1	1	1		1		1	1	1
	a5	1				1	1			1	1	1	1	1
	a6	1						1					1	1
Intellectual	b1	**1**			**1**					1		1		**1**
	b2	**1**			**1**	**1**				1		1	**1**	**1**
	b3	**1**	**1**	**1**	**1**		**1**	**1**		1	1		**1**	
	b4	**1**	**1**	**1**	**1**			**1**		1	1			
	b5	**1**											**1**	**1**
	b6	**1**				**1**				1			**1**	
	b7	**1**		**1**				**1**		1				**1**
	b8	**1**	**1**			**1**								
Applied	c1	1	1		1	1	1			1	1	1	1	1
	c2	1			1					1		1	1	1
	c3	1		1		1		1	1				1	1
	c4	1	1		1	1					1		1	1
	c5	1	1				1			1	1			
	c6	1		1			1				1	1		

	c7	1			1	1								1
	c8	1	1	1	1		1							
	c9	1				1								1
	c10	1					1				1			
General	d1			1		1		1					1	
	d2		1	1			1	1	1				1	
	d3	1	1		1	1		1					1	1
	d4	1	1	1				1						

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	10
Mid-Term Exam	7th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course notes

Goda,S. and Assran,A. Chemistry for engineering & applied sciences, Lecture note, 2012.

.

6-2 Required books:

W. Steedman, R. B. Snadden, Iain Howe Anderson, Chemistry for the engineering and applied sciences, Pergamon Press, 1980.

6-3 Recommended books:

Non

6-4 Periodicals, Web sites, etc.

www.seciensedaily.com
www.encyclopedia.com
www.nasa,com
www.science.com

7- Facilities required for teaching and learning:

- Chemistry lab.
- Computer, Data show.
- Computer programs.

Course coordinator: DrShimaaNabihEsmail
Head of the Department: Dr. Laila Soliman
Date: September 2015

Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

GENN041: Contemporary Social Issues

Relevant program:	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology BSc Program Architecture Engineering and Building Technology BSc Program
Department offering the program:	Electrical Engineering Department Architectural Engineering Department Mechanical Engineering Department
Department offering the course:	Basic scinec department
Date of specifications approval:	September 2015

B - Basic information

Title Contemporary Social Issues: **Code:** GENN041 **Level:** Freshman, **Semester**: First

Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** - **Practical:** -

Pre-requisite: non

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should be able to gain and analyze and apply the knowledge and understanding of

الانتماءوأهميته وأصول المجتمع وبناء الأسرة و تكوينها والمكونات الاجتماعية والاقتصادية للمجتمع وأساليب القيادة وكذلك أساليب ترشيد الموارد وتجديدها و أساليب تقييم المشروعات وكذلك مهارات العمل الجماعي وأهمية الفارق بين العمل الجماعي والفريقى و كيفية إعداد القادة و كذلك الضغوط والمؤثرات المعوقة والنظريات المفسرة للعمل الفريقى.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- الانتماء و أهميته و أصول المجتمع و العادات والتقاليد المرعية (A9, A10)

a2- بناء الأسرة و تكوينها و التنشئة الاجتماعية (A9, A10)

a3- العمل الجماعي و أهمية عمل الفريق و الفارق بين العمل الجماعي والفريقى و كيفية إعداد القادة (A9, A10)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- ان يتعلم الطالب مفهوم الانتماء والعادات والتقاليد واصول المجتمع (B4, B9, B12)

b2- ان يدرك الطالب علي اهمية الاسره والتنشئه الاجتماعيه (B4, B9)

b3- ان يتعلم مهارات العمل الجماعي واهمية عمل الفريق والفرق بين العمل الجماعي والفردي (B4, B12)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- أن يمارس الطالب مهارات العمل الجماعى والفردى خلال الدراسة.(C1,C5)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in a team and involve in group discussion and seminars (D1, D3).

d2- Search for information's in references and in internet (D7).
d3- Practice self-learning (D7, D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9, A10
B	Intellectual skills	B4, B9, B12
C	Professional and practical skills	C1,C5
D	General and transferable skills	D1, D3, D7, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
الانتماء: أهميته - أصول المجتمع - العادات والتقاليد المرعية – المواطنة - العوامل المحفزة لحب الوطن (الحرية - احترام الرأي الآخر - عدم التمييز العنصري - الديمقراطية).	6	-	-
النمو والتكامل الاقتصادي: المكونات الاجتماعية والاقتصادية للمجتمع- أساليب القيادة - أساليب ترشيد الموارد - الابتكار وتجديد الموارد - الحوافز الخاصة بأفراد المجتمع - أساليب تقييم المشروعات).	10	-	--
بناء الأسرة: تكوين الأسرة - التنشئة الاجتماعية - النسق الأسرى والأنساق الأخرى - المؤسسات التقليدية والحديثة الخاصة بالأسرة).	6	-	-
مهارات العمل الجماعي : أهمية عمل الفريق-الفارق بين العمل الجماعي والفريقى – كيفية إعداد القادة	4	-	-
الضغوط والمؤثرات المعوقة-النظريات المفسرة للعمل الفريقى.	4	-	-
Total hours	**30**	**-**	**-**

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1								1				1		1					
	a2	1				1										1		1		1			
	a3	1														1		1		1			
Intellectual Skills	b1	**1**														1		1		**1**			
	b2	**1**				**1**										1		1		**1**			
	b3	**1**	**1**	**1**								**1**				1							
Prof fesi	c1	**1**	**1**									**1**				1							

ona l																							
General Tran. Skills	d1	1		1		1						1											
	d2	1	1	1																			
	d3	1	1																	1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
quizes assignments	Bi-Weekly	15
Mid-Term Exam	7th Week	15
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes :

Shimaa Esmail, Contemporary Social Issues, Lecture note, Modern Academy Press, 2014.

.

6-2 Required books

S. Nasef, Contemporary Social Issues, 2007.

6-3 Recommended books:

Non

6-4 Periodicals, Web sites, etc.:

7- Facilities required for teaching and learning:

- Computer,
- Data show
- Computer programs

Course coordinator: Dr. Shimaa Nabih Ebrahim Esmail
Head of the Department: Prof. Dr. Laila Solaiman
Date: September 2015

Modern Academy for Engineering & Technology

Mechanical Engineering Department

Course Specification

MNFN001: Introduction to Engineering Materials

A- Affiliation

Relevant program:

Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program

Architecture Engineering and Building Technology BSc Program

Department offering the program:

Mechanical Engineering Department
Electrical Engineering Department

Architecture Engineering Department

Department offering the course:

Mechanical Engineering Department.

Date of specifications approval: September 2015

B - Basic information

Title: Introduction to Engineering Materials **Code:**MNFN001 **Level:** Freshman, First Semester
Credit Hours: 1 **Lectures:** 1 **Tutorial/Exercise:**- **Practical:** -

Pre-requisite: -

C - Professional information

1 – Course Learning Objectives:

By the end of this course, the students should demonstrate the knowledge and understanding of the engineering materials, materials classification and material properties. They should be able to differentiate between materials according to their physical, thermal, magnetic, mechanical properties and how to select the suitable material.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Basic information of atomic structure (A2)
a2- Characteristics of engineering materials related to the discipline (A3).
a3- Principles of ferrous and non-ferrous alloys (A4)
a4- Basic properties of copper and aluminum alloys (A3).
a5- Engineering design principles for selection of material (A4).

B - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Investigate the required properties to choose the material (B1)

b2- Select appropriate solutions for engineering problems based on analytical thinking (B2)

b3- Assess and evaluate the characteristics and performance of component material (B5)

b4- Use the principle of engineering science in selection of the required properties (B15,B17).

C- Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Solve some simple production problems related to material and process selection (C19)

c2- Apply knowledge of materials to determine the suitable used materials (C1).

c3- professionally merge the engineering knowledge to improve material properties (C2).

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in a team and involve in group discussion and seminars (D1, D3).

d2- Communicate effectively and present data and results orally and in written form (D3).

d3- Search for information's in references and in internet (D7).

d4- Practice self-learning through preparing reports (D7, D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A2, A3, A4, A18
B	Professional and practical skills	B1, B2, B5, B13, B15, B17
C	Intellectual skills	C1, C2, C19
D	General and transferable skills	D1, D3, D7, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1- Introduction	1		
• Types of engineering materials			
• Properties of materials, material testing principles	3		
2- Ferrous alloys and their properties			
2-1 Steel; types and uses			
2-2 Cast iron; types and uses	8		
3- Non-ferrous alloys and their properties			
3-1 Copper and its alloys			
3-2 Aluminum and its alloys			
4- Other engineering alloys	3		
5- Selection of Materials			
Total hours	**15**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Discussions and seminars	Tutorials	Problem solving	Laboratory & Experimentation		Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1	1	1	1				1	1	1			
	a2	1	1	1	1			1		1				1
	a3	1	1		1				1	1		1		1
	a4	1	1	1	1			1		1		1		1
	a5	1	1	1	1			1		1	1		1	
Intellectual Skills	b1	1	1	1	1					1	1	1		1
	b2	1	1	1	1			1		1			1	1
	b3	1	1	1				1		1	1		1	
	b4	1	1	1	1			1		1	1			
Applied Prof. Skills	c1	1	1	1		1								
	c2	1	1	1						1	1	1	1	1
	c3	1	1	1	1			1		1	1		1	
General Tran. Skills	d1			1				1						
	d2		1	1				1						
	d3			1				1						
	d4		1	1				1						

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	20
Mid-Term Exam	8-th Week	10
Written Exam	Sixteenth week	70
	Total	100

6- List of references:

6-1 Course notes: Introduction to Engineering Material (Lecture Notes)

6-2 Required books : David G. Rethwisch, "Fundamentals of Materials Science and Engineering", Wiley, Asia,2013

6-3 Recommended books: William D. Callister, "Fundamentals of Materials Science and Engineering", Wiley, USA, 2005

6-4 Periodicals, Web sites, etc.

http://simple.wikipedia.org/wiki/Materials_science
http://www.matsci.com/
http://www.homework-help-secrets.com/atomic-structure.html

7- Facilities required for teaching and learning:

- Lecture Room
- Computer, Data show.

Course coordinator: Dr. Abdelrady Okasha
Head of the Department: Dr. Abdelmagid Abdelatif
Date: September, 2015

Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

GENN043: History of Science & Technology

A- Affiliation

Relevant program: Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Manufacturing Engineering and Production Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Mechanical Engineering Department
Electrical Engineering Department
Architectural Engineering Department

Department offering the course: Basic Science Department

Date of specifications approval: September, 2015

B - Basic information

Title: History of Science and Technology **Code:** GENN043 **Level:** Freshman Semester: First/Second.

Hours **Credit** 2 hrs **Lectures** 2 hrs **Tutorial** - **Practical** -

C – Professional information

مع نهاية تدريس هذا المقرر يكون الطالب قد اكتسب المهارات التى تمكنه من فهم تاريخ الهندسه و التكنولوجيا فى مختلف العصور والفرق بين كل من العلم و الهندسة والتكنولوجيا – نقل التكنولوجيا – نشاطات العمل الهندسى و مسئوليات المهندس- امثلة على تطور اوجه النشاط الهندسى و التكنولوجى و أشهر علماء الهندسة كنماذج يحتذى بها

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- مفهوم العلم و الهندسة والتكنولوجيا و علاقتهم ببعضهم البعض و كيفية ابتكار معدات و منظومات تحقق احتياجات المجتمع طبقا لتلك المفاهيم (A1, A11, A14)

a2- المعلومات التاريخية عن مهنه الهندسة و التكنولوجيا وكذا العلاقة بين مسمى المعهد او الكلية و بين ما يتم دراسته(A9,A1).

a3- مفهوم التعليم الهندسى و مجالات العمل للمهندسين و كيفيه القيد و التسجيل بنقابة المهندسين و كذا حقوق وواجبات المهندس(A9, A1)

a4- تطور اوجه النشاط الهندسى و التكنولوجى و ايضا التعرف على الطرق المختلفة لنقل التكنولوجيا (A8,A5)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- أن يكتسب الطالب مهارات توظيف النظريات و المعارف و البيانات و الافكار لابتكار معدات و منظومات متطورة (B1, B2)

b2- أن يستخدم الطالب المنهج العلمى فى التفكير وصولا لتصميم و تركيب الفروض(B2)

b3- أن يستطيع الطالب التفكير فى حل مشكلة ما من خلال تفهمه لموضوعات الهندسة العكسية (B7)

b4- ان يستطيع الطالب اتخاذ القرار السليم و اختيار انسب الحلول من خلال دراسته لنماذج و امثلة من المشاكل الهندسيه و عرض الحلول الممكنه لها (B6)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- ان يتمكن الطالب من توظيف المعلومات التاريخية والمعرفية فى الابتكارات الهندسية (C1,C5)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- المام الطالب بمعايير الجودة و نظم الامان فى استخدام المنظومات الهندسية (D1).

d2- تدريب الطالب على التفكير و ايجاد التصميمات اللازمة لخلق كل ما هو جديد. (D7,D8).

d3- اكساب الطالب الخبرة فى ايجاد حلول عملية تخدم برامج خارج تخصصه (D7).

d4- اكساب الطالب كيفية وضع المعايير اللازمة لتكوين فريف بحثى متكامل (D1)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A5, A8, A9, A11,A14
B	Intellectual skills	B1, B2, B6, B7
C	Professional and practical skills	C1, C5
D	General and transferable skills	D1, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
العلم و الهندسة والتكنولوجيا	2		
الهندسة و البحث العلمى – منظومة البحث العلمى	2		
عناصر و متطلبات البحث العلمى	2		
الهندسة وخريطة البحث العلمى – مراحل البحث العلمى	2		
تاريخ الهندسة و التكنولوجيا فى مختلف العصور	4		
نقل التكنولوجيا	2		
نشاطات العمل الهندسى و مسئوليات المهندس	2		
التعليم الهندسى	2		
نقابة المهندسين المصرية – جمعية المهندسين المصرية	4		
تطور اوجه النشاط الهندسى و التكنولوجى	4		
اشهر علماء الهندسة و التكنولوجيا	2		
مراجعة عامة	2		
Total hours	**30**		

4 – Teaching, Learning and Assessment methods:

Course IL O's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge	a1	1	1					1					1	1
	a2	1	1	1				1					1	1
	a3	1	1					1					1	1
	a4	1	1	1				1					1	1
Intellectual	b1	**1**	**1**					**1**					**1**	**1**
	b2	**1**	**1**					**1**					**1**	**1**
	b3	**1**	**1**					**1**					**1**	**1**
	b4	1	1					1					1	
off es sio	c1	1	1					1					1	
General	d1		1	1				1					1	
	d2		1	1				1					1	
	d3		1	1				1					1	
	d4		1	1				1					1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	30
Mid-Term Exam	7-th Week	-
Practical Exam	Fifteenth week	-
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes: -

S. R. Goda, History of Science and Technology, Lecture notes, Modern Academy, 2012.

6-2 Required books:

Non

6-3 Recommended books

Wright, P. H., Introduction to engineering, second edition, John Wiley and Sons Inc., New York, 1994

6-4 Periodicals, Web sites, etc. .

7- Facilities required for teaching and learning:

- Computer
- Data show
- Library and Internet

Course coordinator: Dr Marwa Mohamed Fouad
Head of the Department: Professor Dr Laila Soliman
Date: September 2015

Modern Academy for Engineering & Technology

Basic SciencesDepartment

Course Specification

MECN001: Mechanics-1

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Manufacturing Engineering and Production Technology Department
Architecture Engineering and Building Technology Department
Electronic Engineering and Communications Technology Department
Computer Engineering and Information Technology Department

Department offering the course: Basic SciencDepartment
Date of specifications approval: September, 2015

B - Basic information

Title: Mechanics-1 **Code:** MECN001 **Level:** Freshman. **Semester:** First.
Hours Credit 2hrs **Lectures** 1hrs **Tutorial:** 3hrs **Practical:** None

C - Professional information

1 – Course Learning Objectives:

After the study of this course the student should be able to use and apply the basic concepts of statics in both plane and space in real engineering problems.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1- knowledge of the basic of statics in plane and space(A1,A2).
a2- knowledge the difference between the moment of force in plane and space(A2,A4).
a3- classification the support reaction in plane and in space(A1,A2).
a4- understanding the structural analysis in plane(A3,A4).

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- analyze and classify between equilibrium in plane and equilibrium in space(B1, B2).
b2- classify and compare the different between equilibrium of a single rigid body and all forces involved were external to the rigid body(B1,B2) .

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- solve the equations of equilibrium to get three unkownes(C1,C2).
c2- solve the trusses to get the value of the forces in the structural by joints and by section methods(C1,C2).

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1-work in a team to solve problem as a search(D1).

d2- search for information in references and in internet(D2)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A3, A4
B	Professional and practical skills	B1, B2
C	Intellectual skills	C1, C2
D	General and transferable skills	D1, D2

3 – Contents

Topic	Lecture hours	Tutorial hours	practical
Basic Concepts of statics.	1	2	
Resultant of concurrent forces in plane	1	3	
Resultant of concurrent forces in space	1	4	
Equilibrium of a particle (in plane and in space)	2	4	
Different types of support in plane	1	3	
Distributed loads	1	3	
Equilibrium of rigid body in plane	1	2	
Different types of supports in space	1	4	
Equilibrium of rigid body in space	2	4	
Special cases of two, three and four force members	1	4	
Analysis of Trussess by the method of joints	1	4	
Analysis of Trussess by the method of section	1	4	
Final revision	1	4	
Total hours	**15**	**45**	**-**

4 – Teaching, Learning and Assessementmethods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge	a1	1			1	1						1				1		1	1	1			
	a2	1			1	1										1		1	1	1			
	a3	1			1	1						1				1		1	1	2			
	a4	1			1	1						1				1		1	1	1			
Intellectual	b1	**1**			**1**											1		1		**1**			
	b2	**1**			**1**	**1**										1		1	**1**	**1**			
Applied	c1	1			1	1										1		1	1	1			
	c2	1			1											1		1	1	1			
General	d1					1						1							1				
	d2											1							1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	20
Mid-Term Exam	7-th Week	10
Written Exam	Fifteen week	70
Total		100

6- List of references:

6-1 Course notes:

Hassan Awad, Mechanics I, Lecture notes, Modern Academy.

6-2 Required books :

Beer and Johnston, Vector Mechanics for Engineers- Statics, 8th Edition in SI Units, ISBN 978-007-125765-7, U.S.A., 2007.

6-2 Recommended books

Beer and Johnston, Vector Mechanics for Engineers- Statics, 8th Edition in SI Units, ISBN 978-007-125765-7, U.S.A., 2007.

6-4 Periodicals, Web sites, etc.

www.mathwprlds.com

www.exchange.com

Course coordinator: Professor DrHassan Awad
Head of the Department: Dr Laila Soliman
Date: September 2015

Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

MTHN001: Mathematics-1(Algebra and calculus)

A- Affiliation

Relevant program:	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology BSc Program Architecture Engineering and Building Technology BSc Program
Department offering the program:	Manufacturing Engineering and Production Technology Department Electronic Engineering and Communication Technology Department Computer Engineering and Information Technology Department Architecture Engineering and Building Technology Department
Department offering the course:	Basic Sciences Department
Date of specifications approval:	September, 2015

B - Basic information

Title: Mathematics-1	Code: MTHN001	Level: Freshman	Semester: First
Credit Hours: 3	Lectures: 2	Tutorial/Exercise: 2	Practical: -
	Pre-requisite: None		

C - Professional information

1 - Course Learning Objectives:

The main objective of this course is to introduce the main concepts of differential calculus, linear algebra, Taylor expansion and binomial expansion and polar coordinates and their applications.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Rules of limits and continuity of functions of one variable. (A1)
a2- Concepts of differentiation. (A1)
a3- Rules of applications of differential calculus used engineering. (A1)
a4- Basic concepts of Taylor expansion and Binomial expansion. (A1)
a5- Basic concepts matrices and matrices algebra. (A1, A2, A5)
a6- Solutions of systems of linear equations. (A1, A5)
a7- Basic concepts of vectors, vector spaces and vector algebra. (A1)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- Solve problems on limits, continuity and differentiate all continuous function. (B1, B2)
b2- Use differential calculus to solve applied Engineering Models. (B1, B2, B7)
b3- Apply infinite series, power series, Taylor and Meclaurin series to applications. (B1, B2)
b4- Apply basic concepts of different methods to discuss solutions of linear systems. (B1, B2, B3)
b5- Solve problems on vectors, vector spaces and vector algebra. (B1, B2)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Apply differential calculus in mechanics and electronics. (C1, C12)

c2- Use matrices and vectors to solve engineering problems. (C1, C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Write technical reports. (D3)

d2- Communicate effectively in written form.(D3)

d3- Search for information's in references and in internet. (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A5
B	Intellectual skills	B1, B2, B3, B7
C	Professional and practical skills	C1, C12
D	General and transferable skills	D3, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Functions	3	2	
Differentiation	3	4	
Trigonometric and inverse trigonometric functions	4	4	
Exponential and logarithmic functions	2	2	
Hyperbolic and inverse hyperbolic functions	2	2	
Taylor and binomial expansions	2	2	
Matrices with applications	6	6	
Vectors in the Euclidean space	2	2	
Real vector spaces	2	2	
Polar coordinates	2	2	
Final Revision	2	2	
Total hours	30	30	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods				Assessment Method				
		Lecture	Discussions and seminars	Tutorials	Problem solving			Researches and Reports	Modeling and Simulation			Written Exam	Quizzes	Assignments		
Knowledge & Understanding	a1	1	1	1	1			1				1	1	1		
	a2	1		1	1			1				1	1	1		
	a3	1		1	1			1				1	1	1		
	a4	1		1	1			1				1	1	1		
	a5	1		1	1			1				1	1	1		
	a6	1		1				1	1			1		1		
	a7	1	1	1	1			1	1			1		1		
Intellectual Skills	b1	1		1	1							1	1	1		
	b2	1						1	1			1				
	b3	1	1		1			1				1				
	b4	1		1	1			1				1	1	1		
	b5			1	1							1	1	1		
Applied Professional Skills	c1	1	1						1							
	c2	1	1						1							
General Tran. Skills	d1		1		1			1						1		
	d2		1	1	1			1						1		
	d3	1						1						1		

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Quizes, assignments, term paper	Weekly	15
Mid-Term Exam	7-th Week	15
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes:

Sameh Shenawy and Dr. Sabry Abd El-Aziz Linear Algebra and Calculus, Lecture notes, Modern Academy Press, 2012.

6-2 Required books

E. W. Swokoski, "Calculus", 6-th Edition, PWS Publishing Company, Boston, 1994.

R. E. Larson and B. H. Edwards, "Elementary Linear Algebra", 2-nd Edition, DG Heath and Company, Toronto, 1991.

6-3 Recommended books:

E. Kreyszig, Advanced Engineering Mathematics, 8ed, John Willey & Sons, Inc., 1999

6-4 Periodicals, Web sites, etc.

www.mathwords.com
www.17calculus.com
www.sosmath.com

7- Facilities required for teaching and learning:

- Library
- Internet

Course coordinator:	Dr. Sabry Abd El-Aziz
Head of the Department:	Prof. Dr. Lila Soliman
Date:	September, 2015

Modern Academy for Engineering & Technology

Basic SciencesDepartment

Course Specification

PHYN001 : Physics I

A- Affiliation

Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Departments offering the programs:
Manufacturing Engineering and Production Technology Department
Architecture Engineering and Building Technology Department
Electronic Engineering and Communications Technology Department
Computer Engineering and Information Technology Department

Department offering the course: Basic Sciences Department
Date of specifications approval: September 2015

B - Basic Information

Title: Physics1 **Code: PHYN001** **Level:** Freshman. **Semester:** First.
Credit Hours: 3 **Lectures:** 2 **Tutorial/Exercise:**1 **Practical:** 2

C - Professional Information

1 – Course Learning Objectives:
The student should be able to use and apply basic concepts, principles and fundamental topics of classical physics concerning properties of matter, heat and waves in both engineering and real life.

2 - Intended Learning Outcomes (ILOS)
A - Knowledge and understanding
On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1- the basic principles of rotational motion, application of rotational motion. (A1,A2,A3)
a2- laws of planetary motion derived from the law of gravity and driving a general expression for gravitational potential energy. (A1,A2,A3)
a3- how objects deform under load condition and defining of several elastic constants for different types of deformation. (A1,A2,A3)
a4- fluid in motion and its description by using a model with certain simplifying assumptions. (A1,A2,A4)
a5- Bernoulli's equation and its Application. (A1,A2)
a6- description of thermal phenomena through important terms; temperature, heat & internal energy.(A1 ,A2)
a7- the concept of internal energy and the process by which energy is transferred. (A1 ,A2,A13)
a8- the first law of thermodynamic and some important applications of this law. (A1,A2,A3)
a9- the kinetic theory of gas, entropy and engine efficiency. (A1,A2,A3)
a10- fundamental of wave motion and sound wave. (A1,A2)

B - Intellectual skills

On successful completion of the course, the student should be able to.
b1- analyze and solve a wide variety of problems of the related subjects listed above, justify the suitability and limitations of the studied equations, and select the most appropriate equations for problem solutions. (B1,B2,B3)
b2- predict the different laws that governing the motion of the body (Newton's laws, gravity law, and kepler's law). (B1,B2 ,B7)
b3- analyze the characteristics of elastic materials. (B17)
b4-deduce models for fluid flow and analyze some practical situation. (B7,B13)
b5- differentiate and compare the different types of heat transfer in different walls. (B7,B13)
b6- identify the heat system's internal energy changes by an energy transfer or bywork done. (B1,B2,B7)
b7- differentiate and compare the different types of waves. (B1,B2, B20).

C - Professional and practical skills
On successful completion of the course, the student should be able to:
c1- analyze physical phenomena and solve problems depending on the gained background and concepts. (C1)
c2- validate the concepts of some of the studied physical phenomena.(C1,C12,C16)
c3- determine different dimensions using vernier calipers, micrometer and spherometer.(C16,C17)
c4- use experimental facilities tomeasure the acceleration due to gravity and the force constant. (C6,C12,C16,C17)
c5- perform experiments on heat to get practically the specific heat of different materials, the expansion coefficient of a solid, and the viscosity of a viscous liquid.(C1,C16,C17)
c6- determine the velocity of sound in air using resonance tube. (C1,C16,C17)
c7- use experimental facilities toverify the inverse square law of radiation. (C1,C16,C17)

D - General and transferable skills
On successful completion of the course, the student should be able to:
d1. communicate and interact effectively with other people and in a small group.(D1,D3,D5)
d2. use computing and information technology, and synthesize information.(D4,D7,D8)
d3. develop reasoned and scientific arguments.(D2,D6)
d4. manage resources and time, and work within a deadline.(D2,D6)
d5- search for information's in references and in internet. .(D7,D8,D9)
d6- practice self-learning.(D5,D6,D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A3, A4, A13
B	Intellectual skills	B1, B2, B3, B7,B13, B17, B20
C	Professional and practical skills	C1, C6, C12, C16, C17
D	General and transferable skills	D1, D2, D3, D4, D5,D6,D7,D8,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Rotational motion, angular displacement, veleocity, acceleration.	2		
Relation between linear and angular quantities.	1	2	4
Applications on rotational motion.	2	1	
Universal garavitational law.	1	1	2
Kepler's laws.	2	1	
Gravitational energy.	1		
Escape speed and orbital energy.	1	1	
Elasticity: Linear, and shear deformation.	1		2
Bulk deformation, and energy stored in a wire.	2	2	4
Characterstics of fluids and stream lines.	1	1	2
Fundemental laws of fluid	2	1	
Applications on Bernoulli's equation.	2	1	2
Viscosity and Poiseulli's law.	1	1	2
Heat transfer by convection.	1		
Heat transfer by conduction.	2	1	2
Work and heat in thermodynamic system.	1		
First law of thermodynamic.	1		
Isothermal expansion of gases and Molar specific heat.	2	1	4
Mathematical representation of waves and speed of transverse waves.	2		2
The principle of superposition.	1		
Standing waves and Sound waves.	2	1	4
Total hours	**30**	**15**	**30**

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge	a1	1		1	1	1	1					1				1	1	1	1	1			
	a2	1		1	1	1	1					1				1	1	1	1	1			
	a3	1		1	1	1	1					1				1	1	1	1	1			
	a4	1		1	1	1	1					1				1	1	1	1	1			
	a5	1		1	1	1	1					1				1	1	1	1	1			
	a6	1		1	1	1	1					1				1	1	1	1	1			
	a7	1		1	1	1	1					1				1	1	1	1	1			
	a8	1		1	1	1	1					1				1	1	1	1	1			
	a9	1		1	1	1	1					1				1	1	1	1	1			
	a10	1		1	1	1	1					1				1	1	1	1	1			
Intellect	b1	1		1	1	1	1					1				1	1	1	1	1			

	b2	1		1	1	1	1					1				1	1	1	1	1			
	b3	1		1	1	1	1					1				1	1	1	1	1			
	b4	1		1	1	1	1					1				1	1	1	1	1			
	b5	1		1	1	1	1					1				1	1	1	1	1			
	b6	1		1	1	1	1					1				1	1	1	1	1			
	b7	1		1	1	1	1					1				1	1	1	1	1			
Applied	c1			1	1	1	1					1				1	1	1	1	1			
	c2						1										1			1			
	c3						1										1						
	c4						1										1						
	c5						1										1						
	c6						1										1						
	c7						1										1						
General	d1	1	1	1			1					1											
	d2		1	1		1						1								1			
	d3	1		1		1	1					1							1	1			
	d4					1										1	1	1		1			
	d5			1		1						1							1				
	d6					1						1				1	1	1	1	1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
SemisterWork:seminars, quizes assignments and reports	Bi-Weekly	10
Mid-Term Exam	7th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course notes:

- M. El- Tawab Kamal , Abo- Elyzeed B. Abo- Elyzeed,MarwaYahiaShoeib and Nagat A. Salam Elmahdy,Physics 1- Lecture Notes, Modern Academy, 2012.
- M. El- Tawab Kamal , Abo- Elyzeed B. Abo- Elyzeed,MarwaYahiaShoeib and Nagat A. Salam Elmahdy,Physics Lab (1) Note, Modern Academy, 2012.

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6-2 Required books

Raymond A. Serway, Physics for Scientists and Engineers, Thomson Brooks, 2004; 6th Edition.

6-3 Recommended books:

Halliday, David, Robert Resnick, Jearl Walker. Fundamentals of Physics, 7th ed. Hoboken, N.J.: John Wiley and Sons. 2005.

6-4 Periodicals, Web sites, etc.

http.www.saunderscollege.cpm/physics
http://en.wikipedia.org/wiki/Bernoul/principle
http://www.physicsclassroom.com/calcpad/circgrav/
http://physicsworld.com/
http://www.britannica.com/science/wave-motion
http://physics.info/

7- Facilities required for teaching and learning:

1. Library
2. Computer, Internet, and Data Show
3. Laboratories (Lab 1, Lab 2).

Course coordinator: Dr. Nagat A. Elmahdy

Head of the Department: Prof. Dr. Laila Soliman
Date: September, 2015

Modern Academy for Engineering & Technology

Mechanical Engineering Department

Course Specification

MNFN002: Engineering Graphics

A- Affiliation

Relevant program:

	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering & Communication Tech. BSc Program Computer Engineering and Information Tech. BSc. Program. Architecture engineering and Building technology BSc. Prog.
Department offering the program:	Mechanical Engineering Department. Electrical Engineering Department. Architecture Engineering Department.
Department offering the course:	Mechanical Engineering Department
Date of specifications approval:	September 2015

B - Basic information

Title: Engineering Graphics **Code:** MNFN002 **Year/level:** freshman, first semester

Credit Hours:3 **Lectures:** 1 **Tutorial:**6 **Practical:** -

Pre-requisite: Non

C - Professional information

1 – Course Learning Objectives:

The objective of this course is to enable the students to read and draw components in different drawing kinds, namely orthogonal, perspective and/or section drawings. The students will be able to apply the dimensioning principles on the drawings.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

By the end of the course, the student should gain the following knowledge.

a1- The basic information in engineering graphics.[A2]
a2- The principles of geometrical construction in engineering graphics.[A4]
a3- Methodology of solving problems in orthographic and in successive views.[A5]
a4- The basics of developments and intersections.[A4]
a5- Section views. Methodology of solving problems in sectional views. .[A5]
a6- Conventional way of drawings. .[A8]
a7- The correct rules for dimensioning. .[A10]

B - Intellectual skills

By the end of the course the student should be able to:

b1- Solve and communicate problems in orthographic views. [B7]
b2- Solve and communicate problems in isometric and oblique drawings. [B7]
b3- Consider the benefits of solving problems of developments and intersections. .[B5]
b4- Draw different problems in sectional views. [B7]
b5- Select the proper section for each component. [B8]

b6- Draw dimensions for components from production point of view. [B3]

C - Professional and practical skills

By the end of the course the student should be able to:
c1- Produce orthographic views from 3D models. [C2]
c2- Read and understand orthographic drawing. [C3]
c3- Prepare and interpret engineering drawing. [C4]
c4- Read orthographic drawing with sectional views. [C4], [C11]
c5- Make necessary views using sections and dimensioning. [C4]
c6- Communicate by graphic language. [C4]

D - General and transferable skills

By the end of the course the student should be able to:
d1- Communicate effectively with other discipline using the graphical language. [D3]
d2- Expand their creative talents and to communicate their ideas in a meaningful manner. [D9]
d3- Search for information and engage in life – long sell learning discipline. [D1]
d4- Communicate graphically effectively. [D9]
d5- Refer to relevant literature. [D9]

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	2, 4, 5, 8, 10
B	Professional and practical skills	3, 5, 7, 8,9
C	Intellectual skills	2, 3, 4, 11
D	General and transferable skills	1, 3, 9

3 – Contents

Topic	Lecture hours	Tutorial hours
Drawing instruments , Draw sheets ; Scales; Folding Lettering	1	6
Geometric Construction	1	6
Alphabet of lines	1	6
Theory of orthographic projection: Projection of point ; line and plane Projection of geometric solids	1	6
Multi view drawing (of Vertical and Horizontal Surfaces)	1	6
Multi view drawing (of inclined Surfaces)	1	6
Multi view drawing (of cylindrical Surfaces)	1	6
Pictorial drawing (isometric) , Pictorial drawing (oblique)	1	6
Isometric drawing (of Vertical, Horizontal & inclined Surfaces)	1	6
Isometric drawing (of cylindrical Surfaces)	1	6
Conventional practice in ED	1	6
Importance of drawing sections ; Basic types of sections: Full sections : longitudinal ,cross – section	1	6

Off set ; Aligned sections ; Half-section ;Partial S.; Revolved & Auxiliary sections.	1	6
Dimensioning – Arrangements of dimensions – Rules for dimensions of circles ; radii ; angles ; plain holes	1	6
Revision	1	6
Total hours	**15**	**90**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method						
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiment	Modeling	Self-learning	Homework	Seminars	Quizzes	Reports	Mid-Term Exam	Practical Exam	Written Exam
Knowledge & Understanding	a1	1	1		1					1		1		1		1
	a2	1	1		1					1		1		1		1
	a3	1	1		1					1		1		1		1
	a4	1	1		1					1		1		1		1
	a5	1	1		1					1		1		1		1
	a6	1	1		1					1		1		1		1
	a7	1			1					1		1				1
Intellectual Skills	b1	1	1		1	1				1		1		1		1
	b2	1			1	1				1		1		1		1
	b3	1	1		1	1				1		1		1		1
	b4	1			1	1				1		1				1
	b5	1			1	1				1		1				1
	b6	1			1	1				1		1				1
Applied Professional Skills	c1	1	1		1	1				1		1		1		1
	c2	1			1	1				1		1		1		1
	c3	1			1	1				1		1		1		1
	c4	1			1	1				1		1		1		1
	c5	1	1		1	1				1		1				1
	c6	1			1	1				1						1
General Tran. Skills	d1	1	1		1	1				1						
	d2	1	1		1	1				1				1		1
	d3	1			1	1				1						
	d4	1	1		1	1				1				1		1
	d5	1			1	1				1						

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: Assignments and Home works	Weekly	20
Mid-Term Exam	7th. Week	10
Written Exam	16th. week	70
Total		100

6- List of references:

6-1 Course notes

Engineering Drawing by : Prof. Mamdouh Saber

6-2 Required books

James H.Earle, Graphics For Engineering, Addison Wesley Publishing Company 1991.

6-3 Recommended books Non

6-4 Periodicals, Web sites etc . Non

7- Facilities required for teaching and learning:

- Overhead projector and screen
- Models and prototype as teaching aids

Course coordinator: Dr. Nabil Gadallah
Head of the Department: Dr. Abdelmagid Abdelatif
Date: September 2015

Modern Academy for Engineering & Technology
Basic Sciences Department
Course Specification
GEN042: English Language

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Manufacturing Engineering and Production Technology Department
Architecture Engineering and Building Technology Department
Electronic Engineering and Communications Technology Department
Computer Engineering and Information Technology Department

Department offering the course: Basic Sciences Department
Date of specifications approval: September, 2015

B - Basic information

Title: English Language **Code:**GENN042 **Level:** Freshman**Semester:** First
Credit Hours: 2 **Lectures:**2 **Tutorial:** **Practical:**
Pre-requist: -

C - Professional information

1 – Course Learning Objectives:

This course is designed for students of the pre-intermediate to upper-intermediate level of English. The course aims at developing students' reading, writing, speaking and listening skills with regard to the related topics. It is also designed to consolidate and extend Students' knowledge of situations of every day life. The course offers realistic and informative original situations introducing students to key concepts of different topics.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:
On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1) identifying the most frequent words, phrases and grammar rules in everyday conversation. (A9), (A10)
a2) communicating effectively in written and oral forms, even at the very beginning levels. (A9), (A10)
a3) differentiating between tenses. (A9)

b - Intellectual skills:
On successful completion of the course, the student should be able to.
b1) enhance class interaction in terms of speaking, reading, listening and writing. (B4)
b2) personalize the learning experience by offering students interesting topics relevant to their interests and experiences. (B4)
b3) employ tasks which encourage students to take an active role in learning and using new vocabulary. (B4)
b4) use different tenses in conversation. (B4)

c - Professional and practical skills:
On successful completion of the course, the student should be able to:
c 1)write paragraphs and peer edit them using error detection. (C12)
c 2)communicate with each other and with the professor. (C11)
c 3)use different tenses in conversation. (C11)

c 4)brainstorm ideas for homework writing. (C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- work in a team and involve in group discussion. (D1), (D2), (D3)

d2- present data and results orally. (D1, D2, D3, D6)

d3- communicate effectively in written form.(D3), (D7)

d4- search for information in references and in internet. (D4), (D7)

d5- practice self-learning. (D4), (D7), (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9, A10
B	Intellectual skills	B4
C	Professional and practical skills	C11, C12
D	General and transferable skills	D1, D2, D3, D4, D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Computer Hackers	2		
At the Doctor's Reviewing tenses and Reading	2		
At the Doctor's(to be continued) Grammar: perfect tenses& prefixes	2		
Global Warming: Reading Speaking : English communication skillsSuffixes & adj. and adv.	2		
Computer Addiction: Reading: 53-55 Seaking: discussing the topic Grammar: adjectives	2		
Earthquake: Reading: 59-61 Grammar: Suffixes	2		
Words and their Stories: Reading Grammar: wh-questions and negatives	2		
Revision 7th week Exam	2		
Describing People &Things: Reading Grammar:adj.&adv	2		
Describing People &Things (to becontiued) Grammar : relative clauses	2		
Qualities and Flaws : Reading Speak: dicussingqualities and flaws of each one (pair work Grammar: Possession Pronouns+ Adjectives	2		
Qualities and Flaws (to becontinued) List. & Speak:dicussing the topic	2		
People Idioms Grammar:gerund "& to infinitive & adjectives with prepositions	2		
English proverbs Grammar: problem verbs	2		
Revision	2		
Total hours	**30**		

4 - Teaching and Learning and Assessementmethods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Warming up	Discussions	Tutorials	Problem solving						Researches and Reports	Modeling and Simulation			Written Exam	Class work	Quizes	Class participation	Assignments			
Knowledge & Understanding	a1	1	1	1								1				1	1	1	1	1			
	a2	1	1	1								1				1	1	1	1	1			
	a3	1	1	1								1				1	1	1	1	1			
Intellectual Skills	b1	1	1	1								1				1	1	1	1	1			
	b2	1	1	1								1				1	1	1	1	1			
	b3	1	1	1								1				1	1		1	1			
	b4	1	1	1								1				1	1	1	1	1			
Applied Professional Skills	c1	1	1	1								1				1	1	1	1	1			
	c2	1	1	1								1				1	1	1	1	1			
	c3	1	1	1								1				1	1	1	1	1			
	c4	1	1	1								1				1	1	1	1	1			
General Tran. Skills	d1	1	1	1								1				1			1				
	d2		1	1								1							1				
	d3	1	1	1								1							1	1			
	d4	1	1	1								1											
	d5		1									1							1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: quizzes, assignments and class participation	Bi-Weekly	20
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes:

Neveen Samir, English Language, lecture notes, Modern Academy Press, 2010.

6-2 Required books

Shelton, James, Handbook for technical writing, NTC publishing Group, Illinois, USA, 1998.

6-3 Recommended books:

Shelton, James**, English for Engineering,** NTC publishing Group, Illinois, USA,2008.

6-4 Periodicals, Web sites, etc.:

- http://www.bbc.co.uk/learningenglish
- http://www.rong-chang.com/
- http://legacy.australianetwork.com/studyenglish/
- http://toeic-town.net/wp-content/uploads/fc/grammarinuse-sample.jpg

7- Facilities required for teaching and learning:

- Data show
- Library and Internet

Course coordinator: Dr. Neveen Samir
Head of the Department: Prof. DrLayla Solaiman
Date: Sept., 2015

Modern Academy for Engineering & Technology

Basic SciencesDepartment

Course Specification

MECN002: Mechanics-2

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Mechanical Engineering Department
Electrical Engineering Department
Architectural Engineering Department

Department offering the course: Basic SciencDepartment

Date of specifications approval: September, 2015

B - Basic information

Title: Mechanics-2 **Code:** MECN002 **Level:** First/Second. Semester: First / Second

Hours Credit/Total 3 hrs Lectures 2 hrs Tutorial 2 hrs

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding the geometry of motion to relate displacement, velocity, acceleration and time without reference to the cause of the motion. The study of the relation existing between the forces acting on a body to determine the forces required to produce a given motion.The end of this course the students should demonstrate the knowledge that the equation of motion together with the principle of kinetics to obtain the two additional methods of analysis the method of the work and energy and the method of impulse and momentum.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- basic of dynamics like velocity, acceleration, total distance, average velocity and average speed(A1, A2).
a2- defention of differentiation and integration (A1)
a3- classification the particle's motion in straight line and in curved path and it's applications (A3,A5)
a4- understanding the dynamics system and the effect of forces on the system in different coordinates (A5).
a5- classification of two methods of kinetics, namely,the method of work and energy and method of impulse and momentum. (A4, A5)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- analyze and classify between the force acting on the system to get it's value and the principle of work and energy to get the velocity of the particle (B1, B2)
b2- classify and compare the different between the average velocity and average speed (B5, B13).

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- solve the equation of motion to get velocity,acceleration and total distance traveled at any time. (C1,C3)
c2- calculate the time of flight of projectile to get a target. (C1, C5).
c3- solve the equation of motion graphically.(C3)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1- work in a team to solve problem as a search.(D1,D2)
d2- search for information in references and in internet (D2).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A3, A4, A5
B	Professional and practical skills	B1, B2, B5, B13,
C	Intellectual skills	C1, C3 C5
D	General and transferable skills	D1, D2

3 – Contents

Topic	Lecture hours	Tutorial hours
➢ Rectilinear Motion of particles.	1	4
➢ Determination of the motion of a particle.	1	4
➢ Graphical Solution of Rectilinear Motion.	1	4
➢ Curvilinear Motion of particle, Free Flight Motion.	2	4
➢ Curvilinear Motion of particle:		
➢ Normal and Tangention.	1	4
➢ Plane Curvilinear Motion.	1	4
➢ Polar Coordinates.	1	4
➢ Kinetics of Particles, Force and acceleration.	2	4
➢ Kinetics of Particles Energy and Momentum Methods	2	4
➢ Motion under a conservative centeral force.	1	4
➢ Principle of Impulse and Momentum for particle.	2	5
Total hours	**15**	**45**

4 Teaching, Learning and Assessementmethods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge	a1	1			1	1						1				1		1	1	1			
	a2	1			1	3										1		1	1	1			
	a3	2			2	3						1				1		1	1	2			
	a4	1			1	1						1				1		1	1	1			
	a5	2			2											1		1	1	1			
Intellectual	b1	**2**			**2**											1		1		**1**			
	b2	**1**			**1**	**1**										1		1	**1**	**1**			
Applied	c1	1			1	3										1		1	1	1			
	c2	1			1											1		1	1	1			
	c3	1			1	1													1	1			
General	d1					1						1							1				
	d2											1							1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	20
Mid-Term Exam	6-th Week	10
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes: found

6-2 Required books:

F. Beer and Johnston Vector mechanics for Engineers, Dynamics, McGraw-Hill.
R.C. Hibbeler Engineering mechanics, Dynamics.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

Basic of mechanical engineering, enginerring mechanics statics and dynamics, statics and dynamics hibbeler 12th edition.

Course coordinator: Professor Dr Hassan Awad
Head of the Department: Dr Laila Soliman
Date: September 2015

Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

MTHN002: Mathematics-2(Integration and analytic geometry)

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Manufacturing Engineering and Production Technology Department
Electronic Engineering and Communication Technology Department
Computer Engineering and Information Technology Department
Architecture Engineering and Building Technology Department

Department offering thecourse: Basic Science Department
Date of specifications approval: September, 2015

B - Basic information

Title: Mathematics - 2	**Code:** MTHN002	**Level:** Freshman	**Semester:** Second
Credit Hours: 3	**Lectures:** 2	**Tutorial:** 3	**Practical:** --
	Pre-requisite: MTH 101		

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should be able to apply, demonstrate the knowledge and understanding of the the concepts of integral calculus and analytic geometry with their applications.

2 - Intended Learning Outcomes (ILOS)

a. Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1. Definition of anti-derivative, indefinite integral, definite integrals.(A1, A5)
a2. Methods of integration (integration by parts, substitution). (A1, A5)
a3. Integration rules of trigonometric functions, integration of rational functions, improper integrals. (A1, A5)
a4. Basic concepts of convergence of infinite sequences and series. (A1, A3)
a5. Equations of lines, planes and conic sections. (A1, A3)

b. Intellectual skills:

On successful completion of the course, the student should be able to.

b1. Investigate the geometric interpretation of the integration. (B1, B2, B3)
b2. Develop techniques for using basic integration formulas to obtain indefinite integrals of complicated functions.(B1, B2, B3, B7)
b3. Explore some of the geometric applications of the definite integral by using it to compute areas between curves, volumes of solids, arc length and surface area. (B1, B2, B3, B4, B7)
b4. Develop several tests to determine whether a series is convergent or divergent without explicitly

finding its sum. (B1, B2, B3, B4, B7)

b5. Estimate of the sum of the convergent series and the error using various methods. (B1, B11)

b6. Derive the equation and main geometric properties of lines, planes and conic sections. (B2, B3, B4)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1. Use integration to evaluate area between curves, volume of solids with known cross sections, arc length. (C1, C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1. Work in a team and involve in group discussion and seminars (D1, D3).

d2. Communicate effectively and present data and results orally and in written form (D3).

d3. Search for information's in references and in internet (D7).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A3, A5
B	Intellectual skills	B1, B2, B3, B4, B7, B11
C	Professional and practical skills	C1, C12
D	General and transferable skills	D1, D3, D7

Topic		Lecture hours	Tutorial hours
1	Anti-derivative, indefinite integral	2	2
2	Definite integrals and the fundamental thearem of calculus	2	3
3	Methods of integration (integration by parts, substitution)	4	6
4	Integration of trigonometric functions	2	4
5	Trignometric Substitutions	2	2
6	Integration of rational functions	2	4
7	Miscellaneous Substitutions, improper integrals	2	4
8	Application of definite integral(area, volume, arc length, surface area)	3	4
9	Sequences, series	4	6
10	Equations of lines, planes and circles	3	4
11	Conic sections (parabola, ellipse, hyperbola)	4	6
	Total hours	**30**	**45**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving						Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
Knowledge & Understanding	a1	1		1	1							1				1		1		1			
	a2	1	1		1	1										1		1		1			
	a3	1			1	1										1		1	1	1			
	a4	1		1	1	1						1				1		1	1	1			
	a5	1	1		1	1						1				1		1	1	1			
Intellectual Skills	b1	1			1	1										1		1		1			
	b2	1			1	1										1		1	1	1			
	b3	1	1	1	1	1						1				1			1	1			
	b4	1			1	1										1				1			
	b5	1			1	1										1			1	1			
	b6	1		1	1	1						1				1			1	1			
Applied Professional Skills	c1	1		1	1	1						1				1				1			
General Tran. Skills	d1			1		1						1							1				
	d2		1	1								1							1				
	d3		1	1								1							1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Quizes, assignments, term papers	Weekly	15
Mid-Term Exam	7-th Week	15
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes:

S. Shenawy and S. Abd-elaziz, Integration and Analytic Geometry, Lecture Notes, 2012

6-2 Required books

E. W. Swokoski, Calculus, 6ed, PWS Publishing Company, Boston, 1994.

P. H. Selby, Analytic Geomatry, Books for Professional, Inc., 1986

6-3 Recommended books:

E. Kreyszig, Advanced Engineering Mathematics, 8ed, John Willey & Sons, Inc., 1999

6-4 Periodicals, Web sites, etc.

www.sosmath.com ,

www.17calculus.com ,

www.mathwords.com.

7- Facilities required for teaching and learning:

- Library, Required references
- Computer, Internet
- Data show
- Required Computer programs

Course coordinator: Dr. Sabry Abd El-Aziz
Head of the Department: Prof. Dr. Laila Soliman
Date: September, 2015

Modern Academy for Engineering & Technology

Basic SciencesDepartment

Course Specification

PHYN002:Physics 2

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology BSc Program
Architecture Engineering and Building Technology BSc Program

Department offering the program: Manufacturing Engineering and Production Technology Department
Architecture Engineering and Building Technology Department
Electronic Engineering and Communications Technology Department
Computer Engineering and Information Technology Department

Department offering the course: Basic SciencDepartment
Date of specifications approval: September, 2015

B - Basic information

Title: Physics 2 **Code:** PHYN002 **Level:** First. **Semester**: Second.
Credit Hours 3 hrs **Lectures** 2 hrs **Tutorial** 1hr **Practical** 2hrs

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the fundamental concepts of the electricity and magnetism learn the main laws of electromagnetism, understanding how to connect the actual phenomena with the theory, and learn the fundamentals of physical optics.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- fundamental and basic law of applications in electricity, magnetism and electromagnetism (A1, A3) .
a2- Gausses law in electricity for different type of charged bodies (A1, A3).
a3- laws of electric capacitors and effect of dielectric (A5).
a4- direct current, resistance and solution of simple electric circuits and kerchief's laws (A5)
a5- analogy between magnetic field and electric field., and application of Ampere's law, Gausse's law in magnetism (A3) .
a6- magnetic properties of matter (A3, A5).
a7- fundamental theories of Electro-magnetic waves and main physical phenomena of physical optics (interference, diffraction and polarization) (A5) .

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- investigate electric force and electric field (using Gauss's law) and select the proper manner to solve problem (B2, B3, B4).
b2- study of capacitors' and dielectric effect, uses of capacitors, and use Kirchoff's laws to solve simple electric circuits (B3,B4).
b3- investigate and compere electric field, magnetic field, and magnetic force using Gauss law in magnetism and Ampere's law; studying the nature of each, and identify magnetic properties and studying

electromagnetic wave (B3,B4, B5).

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- identify ohms law practically, and comparison between two nearly equal resistance by carey-foster bridge (C1, C5,C12).

c2- determine time constant for (Rc) circuits (C1, C5, C12).

c3- determine power, focal length for lenses and mirrors (convex and concave) (C1, C5, C12).

c4- perform a physical experiment (Absorption co-efficient, polarization and Newton's rings) (C1,C5, C12).

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- write technical reports(D5)

d2- use libraries information's in subjects (D7)

d3- search for information's in references and in internet(D7).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A3, A5
B	Intellectual skills	B2,B3, B4, B5
C	Professional and practical skills	C1, C5, C12
D	General and transferable skills	D5, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Charge and Matter, The Electric Field, Gauss' law	2	1	2
Gauss's law, Electric Potential	2	1	2
Gauss's law applications	2	1	2
Capacitors and Dielectric	2	1	2
Current and Resistance, Electromotive force and Circuits	2	1	2
The Magnetic Field, Ampere's Law	2	1	2
Ampere's law, Inductance	2	1	2
Magnetic Properties of matter	2	1	2
Magnetic Properties of matter, Electromagnetic Waves	2	1	2
Electromagnetic Waves	2	1	2
Electromagnetic Waves, Physical Optics, Polarization of light	2	1	2
Polarization of light	2	1	2
Interference of light	2	1	2
Interference of light, Diffraction of light	2	1	2
Diffraction of light, Some applications	2	1	2
Total hours	**30**	**15**	**30**

4 – Teaching, Learning and Assessementmethods:

Course IL O's		Teaching Methods						Learning Methods		Assessement Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizes	Term papers	Assignments
Knowledge	a1	1		1	1	1	1	1		1	1	1	1	1
	a2	1			1	1				1		1	1	1
	a3	1			1	1	1			1	1	1	1	1
	a4	1			1	1	1			1	1	1	1	1
	a5	1		1	1	1		1		1			1	1
	a6	1		1	1	1		1		1			1	1
	a7	1		1	1	1	1	1		1	1		1	1
Intellectual	b1	**1**			**1**	**1**				1		1	1	**1**
	b2	**1**			**1**	**1**				1		1	1	**1**
	b3	**1**		**1**	**1**			**1**					1	**1**
Applied	c1	1			1		1	1			1		1	1
	c2	1			1	1	1	1			1		1	1
	c3	1			1		1	1			1		1	1
	c4	1			1		1	1			1		1	1
General	d1	1		1		1		1					1	1
	d2			1				1					1	1
	d3			1				1					1	1

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	10
Mid-Term Exam	7-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course notes

M. El- Tawab Kamal , Abo- Elyzeed B. Abo- Elyzeed,MarwaYahiaShoeib and Nagat A. Salam Elmahdy,PHY 102- Physics 2, Lecture notes, Modern Academy, 2012.

6-2 Required books:

Halliday, D., Resnick, R.,Wallker, J.(1993) Fundamentals of Physics .John Wiley, New York.

6-3 Recommended books

Serway, R. A. (1990) Physics for Scientists and Engineers with Modern Physics, 3rd ed. Wiely, New Yourk.

6-4 Periodicals, Web sites, etc.

www.bookstore.org
http://2020ok.com/14545.htm
http://booksgoogle.com/

7- Facilities required for teaching and learning:

- Physics Lab.
- Computer, and Data show
- Liberary
- Internet

Course coordinator: Dr. MarwaShoeib
Head of the Department: Professor Dr. Laila Soliman
Date: September 2015

Modern Academy for Engineering & Technology

Mechanical Engineering Department

Course Specification

MNFN003: Principle of Production Engineering

A- Affiliation

Relevant program:

Manufacturing Engineering and Production Technology BSc Program
Electronic Engineering & Communication Tech. BSc Program
Computer Engineering and Information Tech. BSc. Program.
Architecture engineering and Building technology BSc. Prog

Department offering the program: Mechanical Engineering Department.
Electrical Engineering Department.
Architecture Engineering Department.

Department offering the course: Mechanical Engineering Department

Date of specifications approval: September 2015

B - Basic information

Title: Principle of Production Engineering **Code:** MNFN003 **Year/level:** Fresh man Second Semester

Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**- **Practical:** 4 **Total:** 3

Pre-requisite: MNF 101

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the production system and different methods of production by cutting and non-cutting processes theoretically and practically.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Basic production methods related to casting, metal forming processes, welding and metal cutting (A1)
a2- Design pattern, allowances in casting & solidification (A4).
a3- Fundamental of centrifugal casting process (A2)
a4- Classification of welding process (A1).
a5- Basic methods of hot and cold forming (A1)
a6- Applications of metal cutting processes (A1)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- Select the proper manufacturing process for a specific product (B2)

b2- Design the pattern for sand casting (B3)

b3- Choose the suitable welding method or different joining (B8)

b4- Use the principle of production engineering in producing good quality cheap product (B10, B2)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Solve some simple production problems related to method of production selection (C3)

c2- Use the studied manufacturing methods in producing prototypes during practical hours (C7).

c3- Collect, record and submitting data about production engineering (C1).

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in a team and involve in group discussion (D1, D3).

d2- Communicate effectively and present data and results orally (D3, D9).

d3- Search for information's in references and in internet (D7).

d4- Practice self-learning.(D7,D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A2,A4.
B	Professional and practical skills	B2,B3,B10,B18.
C	Intellectual skills	C1, C3,C7.
D	General and transferable skills	D1,D3,D7,D9.

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
➢ Role of production engineering, production system objective, types of industries, classification of manufacturing processes .	2		
➢ Properties of materials and testing principles	2		4
➢ Sand casting, melting of metal & furnaces. Solidification, pattern allowances, sand molding & gating system. Die casting, centrifugal & investment casting.	2		8
➢ Types of welding, oxy- acetylene welding, electric- arc welding, submerged arc welding, MIG, TIG, resistance welding, soldering & brazing	2		8
➢ Hot & cold forming, rolling, extrusion, wire drawing & sheet metal forming	3		10
➢ Metal cutting processes (Turning, milling, shaping, grinding and drilling)	4		30
Total hours	**15**		**60**

4 - Teaching and Learning and Assessment methods:

Course IL O's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1	1	1	1					1	1	1	1	1
	a2	1	1	1	1				1	1	1	1	1	1
	a3	1	1	1	1	1		1	1	1	1	1	1	1
	a4	1	1	1					1	1	1	1	1	1
	a5	1	1	1	1	1		1	1	1	1	1	1	
	a6	1	1	1	1				1	1	1	1	1	
Intellectual Skills	b1	1	1	1	1					1	1	1	1	1
	b2	1	1	1	1				1	1	1	1	1	1
	b3	1	1	1	1		1			1	1	1	1	1
	b4	1	1	1	1		1			1		1	1	
Applied Prof. Skills	c1			1			1			1	1			1
	c2	1	1		1	1				1	1			1
	c3	1	1		1					1			1	1
General	d1		1	1				1						
	d2			1				1				1		
	d3												1	
	d4							1			1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	10
Mid-Term Exam	7-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course notes: Lecture notes & workshop training notes
6-2 Required books: Serope Kalpakjiam," Manufacturing Engineering and technology", prentice hall, 2010
6-3 Recommended books: Non
6-4 Periodicals, Web sites, etc.:

http://www.sme.org/manufacturingengineering/
http://www.chalmers.se/en/education/programmes/masters-info/Pages/Production-Engineering.aspx
http://w3bin.com/websites/production-engineering

7- Facilities required for teaching and learning:

- Lecture room , and workshops

Course coordinator:	Prof. Dr. Ahmed Kohail
	Dr. Maher Khalifa
Head of the Department:	Dr. Abdelmagid Abdelatif
Date:	September 2015

Modern Academy for Engineering & Technology

Electrical Engineering Department

Course Specifications

CMPN010: Program Design and Computer Languages

A- Affiliation

Relevant program: Computer Engineering and Information Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Manufacturing Engineering and Production Technology BSc Program
Architectural Engineering and Building Technology BSc Program

Department offering the program: Electrical Engineering Department
Department offering the course: Electrical Engineering Department
Date of specifications approval: September 2015

B - Basic information

Title: Program Design and Computer Languages
Code: CMPN010
Year/level: Freshman - Fall, Spring and Summer Semesters
Credit Hours: 4
Lectures: 2 **Tutorial**: 3 **Practical**: 2
Prerequisite: None

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the concepts of programming, the steps of solving problems using flowcharts or using the C++ programming language. They should be able to develop and enhance programming using the Microsoft Visual C++ software (embedded in the Microsoft Visual Studio software package).

2 - Intended Learning Outcomes (ILOS)

A– Knowledge and understanding:

By the end of this course the student should have the following Knowledge:
a1- Steps for solving programs by computer programs and flowcharts (A1, A2, A4, A15).
a2- Program structure in C++ (A4, A15, A18).
a3- Data types, Data declaration (Variables and Constants) in C++ (A16, A18).
a4- Different Categories of Operators and their precedence in C++ (A1, A13).
a5- Control Structures in C++ (Decision and Loop Constructs) (A4, A5).
a6- Arrays, Pointers, References, and dynamic allocation (A16, A18).
a7- Functions and types of calling (by value, by reference) in C++ (A4, A16, A18).
a8- Structures, Unions, Enumeration, User-defined data types and ADT (Abstract Data Types) (A4, A15, A16).
a9- Object-Oriented Programming (OOP) concepts and terminologies (A5, A8, A16, A18).
a10- Input and Output Files (File I/O s), I/O stream, strings and recursion(A5, A16, A18).

B – Intellectual Skills:

On successful completion of the course, the student should be able to.
b1-Investigate on a Visual C++ program in a similar way to other computer programming tools (B1, B13, B14).

b2-Manipulate different data types (B4, B18, B19).
b3- Analyze the problem required to be solved and design the appropriate C++ program to solve this problem (B1, B2, B3, B13)
b4-Manipulate the different control structures; investigate decisions and loops suitable for solving the problem (B2, B7).
b5- Manipulate different C++ structures (Arrays, Structures, Unions and Classes) for different problems (B3, B7, B18).
b6-Investigate the new programming interface and develop to the Object- Oriented Programming concepts (B17, B18).
b7-Manipulate input and output files (for reading from and writing into these files respectively) (B4, B19).

C- Professional and practical skills:

On successful completion of the course, the student should be able to.
c1- Install and use the Visual C++ 2010 (or 2012) software (C6, C14).
c2- Develop and Produce a solution to the problem through flowcharts and C++ programs (C1, C4).
c3-Solve different engineering problems related to the artificial intelligent systems, microcontroller systems, operating systems and their basic elements (C1, C5, C6, C15).
c4- Design and implement C++different structures (C2, C3, C4, C13).
c5- Apply the concepts of Object – Oriented Programming for solving different engineering problems (C2,C3,C4,C5).

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1- Work in a team and involve in group discussion and seminars (D1, D2, D3).
d2- Communicate effectively and present data and results orally and in written form (D3, D4).
d3- Use ICT facilities in presentations, and manage resources efficiently (D4, D5).
d4- Search for information's in references, journals and in internet (D7).
d5- Practice self-learning (D7, D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A4, A5, A8, A13, A15, A16, A18
B	Professional and practical skills	B1, B2, B3, B4, B7, B13, B14,B17,B18, B19
C	Intellectual skills	C1, C2,C3,C4,C5, C6, C13, C14,C15
D	General and transferable skills	D1, D2, D3, D4, D5,D7, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
➢ Steps for solving programs by computer programs	2	3	2
➢ Program documentation and flow charts	2	3	2
➢ Program structure in C++	1	2	1
➢ Data types and declaration in C++	2	2	2
➢ Input/output in C++ and I/O stream class	1	2	1

➢ I/O manipulation	1	2	1
➢ Operators and precedence in C++	2	3	2
➢ Decision (Selection) Constructs in C++	2	3	2
➢ Loops (Iterations) in C++	2	3	2
➢ Arrays, Pointers, References, and dynamic allocation	2	3	2
➢ Functions in C++, calling functions (by value, by reference)	2	3	2
➢ Structures, Unions, Enumeration, and user-defined data types	2	3	2
➢ Abstract data types (ADT)	1	2	1
➢ Concepts and Terminologies of Object-Oriented Programming (OOP)	2	2	2
➢ Classes and objects	2	2	2
➢ Constructors, destructors, friend functions	1	2	1
➢ Polymorphism, encapsulation, inheritance	1	2	1
➢ File I/O, I/O stream, strings, recursion	2	3	2
Total hours	**30**	**45**	**30**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
Knowledge &Understanding	a1	1	1	1		1						1				1		1	1	1			
	a2	1	1		1											1		1	1	1			
	a3	1	1		1		1					1				1		1	1	1			
	a4	1	1		1		1					1				1	1	1	1	1			
	a5	1	1		1		1					1	1			1	1	1	1	1			
	a6	1	1	1	1		1					1				1	1	1	1	1			
	a7	1	1	1	1		1					1	1			1	1	1	1	1			
	a8	1	1		1		1					1				1	1	1	1	1			
	a9	1	1	1	1		1					1	1			1	1	1	1	1			
	a10	1	1		1		1					1				1	1	1	1	1			
Intellectual Skills	b1		1	1			1						1				1	1	1	1			
	b2	1	1		1		1									1		1	1	1			
	b3	1	1	1	1	1						1				1		1	1	1			
	b4	1	1		1	1	1					1				1	1	1	1	1			
	b5	1	1	1	1		1					1	1			1	1	1	1	1			
	b6	1	1	1	1		1					1	1			1	1	1	1	1			
	b7	1	1		1		1					1				1		1	1	1			
Applied Professional Skills	c1						1										1						
	c2						1										1						
	c3						1										1						
	c4						1										1						
	c5						1										1						

General and Transferable Skills	d1																	1		1			
	d2																	1		1			
	d3																	1		1			
	d4																	1		1			
	d5																	1		1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes, assignments and reports	Bi-Weekly	10
Mid-Term Exam	7th Week	10
Practical Exam	14th, 15th weeks	20
Written Exam	Sixteenth week	60
Total		**100**

6- List of references:

6-1 Course notes:

- Lecture notes and handouts

6-2 Required books:

- Walter Savitch, Problem Solving With C++, Pearson Education Inc., 2006.
- Deitel & Deitel, C++ How To program, Prentice Hall, 2001.
- Al Stevens, C++ Programming Bible, IDG, 2000.

6-3 Recommended books:

- C++ Essentials, Sharam Hekmat, PragSoft Corporation,www.pragsoft.com, 2005

6-4 Periodicals, Web sites, etc.

- http://www.cplusplus.com/ .

7- Facilities required for teaching and learning:

- Computer Lab.
- Computer, Data show
- Computer package (Microsoft Visual Studio 2010 or 2012).

Course coordinator: Dr. Ehab ElShimy
Head of the Department: Prof. Dr. Said Gawish
Date: September 2015

SOPHOMORE

First year Architecture
Level 1

Course Specifications

Credit Hours System

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SOPHOMORE

First year Architecture

Level 1

S	Course	
	Code	Title
1	ARCN111	Architectural Construction 1
2	ARCN121	Architectural Design 1
3	ARCN116	Surveying
4	ARCN120	Theories of Architecture (1)
5	ARCN115	Properties & Resistance of Materials
6	ARCN123	Visual Training (1)
7	GENN141	Presentation Skills.
8	GENN142	Technical Report Writing.
9	ARCN112	Architectural Construction 2
10	ARCN122	Architectural Design 2
11	ARCN141	History of Architecture (1)
12	MTHN106	Mathematics 6 (Statistical Mathematics
13	ARCN114	Computer Applications 1
14	ARCN117	Theory of Structures
15	ARCN213	Skiagraphy and perspective
16	ARCN160	Summer training for level one

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Modern Academy
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Course Specification

ARCN116:Surveying

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	February 2018

B - Basic Information

Title: Surveying **Code:** ARCN116 **Level:** first , third Semester
Credit Hours: 2 **Pre-requisite:** NONE
Contact Hours: **Lectures:** 1 **Tutorial:**1 **Practical: 2** **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

The course aims at introducing student to different applications of surveying in building construction.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1-Surveying processes relevant to architectural practices (A4).
a2- Standards of surveying techniques (A14).
a3-Surveying sites construction processes, activities, and management (A14, A24).
a4-Land Surveying Systems and mapping methods. (A8, A24)
a5-Calculations of areas of different types of lands. (A4)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1-Developing abilities to undertake data gathering tasks. (B2)
b2- Capacity to synthesize surveying solution mechanisms and components properly. (B9)
b3- Integrating theoretical studies with practical reality. (B2)
b4- Ability to analyze surveying problems into sub-problems towards a controllable handling of elements. (B18, B22)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1-Designing projects of surveying traversing and leveling (C1).
c2- Implementing projects of surveying traversing and leveling (C6).
c3-Participate with a team to carry out surveying processes (C15, C16)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1-Communicating ideas verbally and visually in a clear coherent manner. (D3)

d2-Ability to work in team environments. (D5)
d3- Lead and motivate individuals (D5)
d4- Organization and documentation skills (D6).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A8 , A14, A24
B	Intellectual skills	B2, B9, B18, B22
C	Professional and Practical Skills	C1, C6, C15, C16
D	General and transferable skills	D3, D5, D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Definition of surveying types of measurements	1	1	2
2. Linear measurements	1	1	2
3. Taping	1	1	2
4. Distance corrections	1	1	2
5. Angle measurements and theodolite	1	1	2
6. Traverse surveys and computations	1	1	2
7. Mid-Term Exam	-	-	-
8. Bearing	1	1	2
9. Types of level	1	1	2
10. Leveling	1	1	2
11. Profile and cross-sectional leveling	1	1	2
12. Contour maps	1	1	2
13. Area computations	1	1	2
14. Topographic surveying	1	1	2
15. Practical exam	1	1	2
Total hours	**14**	**14**	**28**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Research and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1				1		1		1		1	1	
	a2	1			1					1		1	1	1
	a3	1								1		1	1	1
Intellectual Skills	b1	1			1			1	1	1		1		1
	b2	1			1				1	1		1	1	1
	b3	1			1		1		1					

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Research and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	b4	1			1		1		1					
	b5	1			1				1					
Applied Prof. Skills	c1	1					1							
	c2	1			1				1			1	1	
	c3	1			1							1	1	
	c4	1			1		1				1	1	1	
General Skills	d1	1				1			1	1		1	1	1
	d2	1				1	1			1			1	1
	d3	1			1	1		1		1			1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	4 Quizzes (every 3 weeks)	10
	Reports	Two reports per semester	5
	Assignments	Bi-Weekly	5
Practical Exam		Fifteenth week	20
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Course notes &Laboratory work notes

6-2 Required books: Non

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Surveying Lab.

Professor Amira Gouhar

Professor Ebrahem Goda

Modern Academy
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Course Specification

ARCN120: Theories of Architecture (1)

A- Affiliation

Relevant program/s: Architecture Engineering and Technology BSc Program
Department offering the program: Architecture Engineering and Technology Department
Department offering the course: Architecture Engineering and Technology Department
Date of specifications approval: July2018

B - Basic Information

Title: Theories of Architecture(1) **Code:** ARCN120 **Level:** 3rd , Third Semester
Credit Hours: 2 **Pre-requisite:** none
Contact Hours: **Lectures:** 2 **Tutorial:** 1 **Laboratory:** 0 **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course enables the students to understand the concept of architecture and the goals that should be met in a building to reach a successful architecture from functional, strength and aesthetical point of views. Student will also be aware of the functional requirements in designing residential buildings and their elements, which includes studying private and public residential building and how to provide comfort and safety in them while satisfying the users need and the living spaces and sleep and service spaces and vertical distribution and horizontal .application is done through the work of applied research.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

By the end of the course the student should gain the following knowledge.

a1 - Concepts and theories of architecture, appropriate to the discipline (A1,A19)
a2 - Methodologies of solving engineering problems, data collection and interpretation(A5)
a3 - Technical language and report writing.(A10)
a4 - The impacts of engineering solutions on society and environment.(A11,A18)
a5 - Contemporary Architectural topics (A12,A19)
a6 - . Principles of climatic considerations, and energy consumption and efficiency in buildings and their impacts on the environment (A23)

b - Intellectual skills:

On successful completion of the course, the student should be able to:
By the end of the course the student should be able to:

b1 - Think in a creative and innovative way in problem solving and design.(B3, B12)
b2- Combine, exchange, and assess different ideas, views, and knowledge from a range of sources(B4,B13)
b3 - Identify different methods of building technologies and their impact on the built and social environment(B22)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Apply knowledge of design context and engineering practice integrally to solve engineering problems. (C1)

c2 - Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. (C2)

c3 - Prepare and present technical reports(C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Collaborate effectively within multidisciplinary team (D1)

d2 - Search for information and adopt life-long self-learning (D7)

d3 - Refer to relevant literature effectively (D9)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A5, A10, A11,A12,A18,A19,A23
B	Intellectual skills	B3,B4,B12,B13,B22
C	Professional and Practical Skills	C1,C2,C12
D	General and transferable skills	D1, D7,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction: about the architecture and relationship between architecture and theories of architecture.	2	1	
2. Architectural definitions and constrains	2	1	
3. Types and typologies of Buildings	2	1	
4. The basic elements of the architectural building (Accommodation/Service Elements)+ research1	2	1	
5. The basic elements of the architectural building (Circulation Elements/Architectural Spaces forming: :circulation, vertical, horizontal)+ Quiz1	2	1	
6. The basic elements of the architectural building (Ventilation/lighting /Protecting Elements)	2	1	
7. Mid Term Exam	-	-	
8. The basic elements of the architectural building (Structural Elements)	2	1	
9. Research Discussion (final research1)	2	1	
10. The basic elements of the architectural building (Beauty Elements)	2	1	
11. Design Process:-Briefing -Analysis - synthesis- Design- Appraisal Evaluation.- Communications +research 2	2	1	
12. The Principles of Architectural Forming Process	2	1	
13. Revision + final sketch	2	1	
14. Research Discussion	-	3	
Total hours	**24**	**15**	**39**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1	1	1	1			1		1		1	1	1
	a2		1	1	1			1		1			1	1
	a3		1	1	1			1					1	1
	a4	1	1	1				1		1		1		
	a5	1	1	1	1			1	1	1		1	1	
	a6	1	1	1	1			1	1	1		1		
Intellectual Skills	b1	1		1				1		1		1		1
	b2	1		1	1			1		1				1
	b3	1		1				1		1				1
Applied Prof. Skills	c1	1		1		1		1		1				1
	c2				1	1								
	c3					1							1	
General Skills	d1			1				1	1	1				1
	d2			1	1			1		1				1
	d3		1	1				1					1	

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	Quiz (5 week)	5
	researches	Two researches per semester	25
	Assignments	weekly	5
	Final sketch	End of semester	5
Practical Exam		Fifteenth week	-
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: None

6-2 Required books

- Architecture" Space form and order "John Wily & Sons,Inc,USA.
- The Architecture of use :Aesthetics and Function in Architecture design".1st Edition .Routledge, UK
- على رافت" الابداع الفني والابداع المعماري – البيئة والفراغ "مطابع الاهرام ,القاهرة, مصر

6-3 Recommended books:

- Les Elements Des Projects Du Construction
- Time Saver Standards for Interior Design

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Computer
- Data show
- Gallery for models

Course coordinator: Assistant professor Nermen Matter
Head of the Department: Professor Ebrahim Goda
Date: July 2018

Modern Academy
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Course Specification

ARCN115: Properties & Resistance of Materials

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architecture Engineering and Building Technology Department
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: December 2018

B - Basic Information

Title: Properties & Resistance of Materials **Code:** ARCN 115 **Level:** 1st , third Semester
Credit Hours: 2 **Pre-requisite:** None
Contact Hours: **Lectures:** 1 **Tutorial:**3 **Laboratory:** - **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

The course aims at introducing students to construction materials; they should acquire the knowledge of properties, function, usage, and testing of the construction materials.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- fundamental knowledge of properties of construction materials relevant to architectural practices (A1-A3)
a2- building codes and regulations (A4 -A15)
a3- materials properties and uses in different building contexts (A3-A15)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Deduce grounded criteria and guidelines from a given construction problem.(B5-B17)
b2 - Promote investigation and exploration abilities in research work.(B5-B6)
b3 - Integrate theoretical studies with practical reality (B13,B18)
b4 - Improve creative problem-solving and decision-making faculties (B3)
b5 -Develop visual sensitivity towards materials, colors, and textures (B5)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Selecting construction materials that are functionally sound, environmentally appropriate aesthetically plausible, users' friendly and technologically up to date. (C2-C21-C22)
c2 - Mastering material testing skills and site work (C10) (C23)
c3 -Coordination between architectural, structural, technical, and economic considerations of a project (C2-C10)
c4 - Sound construction material selection for different uses based on properties and limitations (C15)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Improve communication skills with versatile backgrounds in field research [laymen, administrative personnel, construction labor, academic staff (D3)

d2- work in team environments (D1)

d3- Sound task allocation amongst team members (D5)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A3, A4, A15
B	Intellectual skills	B3,B5,B6,B13,B17,B18
C	Professional and Practical Skills	C2,C10,C15,C21,C22,C23
D	General and transferable skills	D1,D3,D5

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to Soil Mechanics	1	3	
2. Soil Exploration	1	3	
3. Soil classification	1	3	
4. Physical properties of soil	1	3	
5. Mechanical properties	1	3	
6. Active soil pressure	1	3	
7. Mid-Term Exam	-	-	
8. Bearing Capacity of the types of soil Compaction of soil	1	3	
9. Foundation introduction	1	3	
10. Design of isolated square footing	1	3	
11. Design of isolated rectangular footing	1	3	
12. Design of combined footing	1	3	
13. Design of raft foundation	1	3	
14. Deep foundation	1	3	
15. Deep foundation	1	3	
Total hours	**14**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Research and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1						1		1		1	1	
	a2	1			1					1		1	1	1

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Research and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	a3	1			1					1		1	1	1
Intellectual Skills	b1	1			1	1		1		1		1		1
	b2	1			1	1				1		1	1	1
	b3	1			1	1								
	b4	1			1	1								
	b5	1			1	1								
Applied Prof. Skills	c1	1	1		1	1				1	1	1	1	1
	c2	1			1					1		1	1	1
	c3	1		1	1	1		1	1				1	1
	c4	1		1	1	1		1	1				1	1
General Skills	d1			1	1			1						1
	d2			1				1						1
	d3	١	١					١					١	١

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	5 Quizzes (every 3 weeks)	15
	Reports	Two reports per semester	10
	Assignments	Weekly	15
Practical Exam		---	--
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Properties & Resistance of Materials.

6-2 Required books

Egyptian code of practice for design and construction of reinforced concrete structures, (2007).
Park, R., and Paulay, T. (1975). “Reinforced concrete structures”, John Wiely & Sons, Inc.
Robert L. (2008). " Applied Strength of Materials", John Wiely & Sons, Inc.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

http://www.ACI.com.
https://www.ASCE.com.
https:// www.hbrc.edu.eg.

7- Facilities required for teaching and learning:

- Data show and Computer programs.

Course coordinator: Professor Adham El Alfy
Head of the Department: Professor Ibrahim Gouda
Date: March 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN123: Visual Training (1)

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Visual Training (1) **Code:** ARCN123 **Level:** 1, 3rd Semester
Credit Hours: 2 **Pre-requisite: none**
Contact Hours: **Lectures:** 1 **Tutorial:**3 **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

The objective of the course is to develop students' abilities in expressing ideas through freehand sketches. Pencil techniques for graphic presentation. Proportions. Representing bi-dimensional compositions. Drawing three-dimensional views. Spatial compositions representation. Composition meanings and values. Shading principles.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - The fundamental different techniques for sketching , relationships between shade, shadows and direction of light. (A13)

a2 - Three-dimensional visualization and representation in terms of shades, shadows and perspective. (A20)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 -Integrating different scales of freehand sketching, ranging from interior details to landscape details. (B4,B14)

b2 - Integrating theoretical studies with practical reality. (B4)
b3 - Developing architectural and structural sense of scale and proportions(B13)
b4 - Developing visual sensitivity towards materials, colors and textures(B14)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Manual drafting and freehand sketching(C13)
c2 - Professional techniques of manual presentation using different tools and media. (C17)
c3 - Drawing 3D perspective views with shades and shadows. (C18)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Communicate ideas verbally and visually in a clear coherent manner. (D3)
d2 - work in team environments. (D1)

d3 - Acquire entrepreneurial skills (D8).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A13 , A20
B	Intellectual skills	B4,B13,B14
C	Professional and Practical Skills	C13, C17 ,C18
D	General and transferable skills	D1,D3, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Thickness of lines using pencil.	1	3	-
2. Texture of different materials using pencil	1	3	-
3. Copying a drawing with different scale.	1	3	-
4. Different techniques for sketching.	1	3	-
5. Sketching 2D drawings.	1	3	-
6. Sketching 2D drawings/ Presentation for different architectural drawings.	1	3	-
7. Mid Term Exam	-	-	-
8. Techniques for sketching 3D drawings	1	3	-
9. Rules for freehand perspective.	1	3	-
10. Techniques for sketching 3D drawings.	1	3	-
11. Sketching 3D drawings from nature.	1	3	-
12. Sketching 3D drawings from nature.	1	3	-
13. Sketching 3D drawings from nature.	1	3	-
14. Shade and shadows in 3D drawings	1	3	-
15. Shade and shadows in 3D drawings	1	3	-
Total hours	**14**	**42**	**-**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1			1	1				1			1	1
	a2	1			1	1				1			1	1
	a3	1			1	1							1	1
	a4	1			1	1							1	1

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	a5	1			1	1							1	1
Intellectual Skills	b1	1	1		1	1		1	1	1		1	1	1
	b2	1	1		1	1		1	1	1		1	1	1
	b3	1	1		1	1		1	1	1		1	1	1
	b4	1	1		1	1		1	1	1		1	1	1
Applied Prof. Skills	c1	1	1		1	1		1	1	1		1	1	1
	c2	1	1		1	1		1	1	1		1	1	1
	c3	1	1		1	1		1	1	1		1	1	1
General Tran. Skills	d1		1	1				1	1				1	
	d2		1	1				1	1				1	
	d3		1	1				1	1				1	

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

ربيع الحرستانى ،الاظهار المعماري واللون ، دار قابس ، ١٩٨٧، بيروت ، لبنان.

محمد احمد عبد الله ، الاظهار المعماري ،١٩٩٧ ، الانجلو ، جمهورية مصر العربية.

6-3 Recommended books:

John Raskin, M.A., 1857, Elements of Drawing, Smith, Elder & Co. London.

Joseph D. Amelio, 2000, Perspective drawing handbook, Dover Publications, Canada.

6-4 Periodicals, Web sites, etc.

https://www.sketchbook.com/blog/how-to-draw-architectural-street-scenes/ (Last accessed February 25, 2019).

https://shalumrendering.com/renderings-pencil/ (Last accessed February 20, 2019).

7- Facilities required for teaching and learning:

White boards and markers.
Drawing halls for exercises.

Course coordinator:	Dr. Mona Albasyoni
Head of the Department:	Associate Professor: Ibrahim Goda
Date:	March 2019

Modern Academy
for Engineering and Technology in Maadi

Course Specification
GEN141: Presentation Skills

A- Affiliation

Relevant program/s:	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology B.Sc. Program Architecture Engineering and Building Technology BSc Program
Department offering the program:	Electronic Engineering and Communication Technology Department
Department offering the course:	Basic Sciences Department.
Date of specifications approval:	October 2018

B - Basic Information

Title: Presentation Skills **Code:** GENN141 **Level: First**, Third Semester.
Credit Hours: 2 **Pre-requisite:** None
Contact Hours: **Lectures:** 2 **Tutorial: :** - **Laboratory: :**- **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

This is a public speaking course that requires the student to combine both written knowledge with oral performance criteria. The course gives practical advice on the different modes of communication, including formal writing, CV writing, body language, art of listening, leadership, speeches, negotiation, and face-to-face interactions, and examines how to design and deliver an effective presentation. Students will become more confident and less fearful, more skillful and less clumsy, more understanding of others and less threatened by them. Students will practice different modes of communication and examine how to design and deliver an effective attractive presentation.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1-Topics related to humanitarian interests and moral issues (A9)
a2-Technical language and report writing (A10)
a3-Contemporary engineering topics (A12)

b -Intellectual skills:

On successful completion of the course, the student should be able to:
b1- Plan, conduct and write a report on a project or assignment B14)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1-Prepare and present technical reports (C11)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1- Collaborate effectively within multidisciplinary team (D1)
d2-Work in stressful environment and within constraints (D2)

d3-Communicate effectively (D3)
d4- Lead and motivate individuals (D5)
d5- Search for information and adopt life-long self-learning (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9, A10, A12
B	Intellectual skills	B14
C	Professional and Practical Skills	C11
D	General and transferable skills	D1, D2, D3, D5, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
• Preparation of short talks.	2		
• How to write a technical report.	2		
• C.V Writing: Preparation of an attractive C.V. containing personal data qualifications, posts, and publications. - Interview Preparations	2		
• Fundamentals of preparing an attractive style for a short talk, techniques for using slides and projector for better interpretation. Using the power point technique for achieving and ideal short talk through a lab top and a data show / Seminar training.	4		
• To improve the student communications skills / Seminar training / Joharry's window	6		
• To develop the student acquiring power of leadership	2		
• Training on active listening and negotiation.	4		
• To understand and practice what's body language.	2		
• Free Suggested topic by the students.	2		
• Speeches vs. presentation	2		
Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Brain storming	Self-Learning	Research & Reports		Midterm	Quizzes	Assignments	Written Exam	Practical Exam			
Knowledge & Understanding	a1	1	1																1				
	a2	1												1				1					
	a3		1	1																			
Intellectual Skills	b1	1	1	1								1	1	1				1	1				
Applied Prof. Skills	c1	1											1	1			1	1					

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Brain storming	Self-Learning	Research & Reports		Midterm	Quizzes	Assignments	Written Exam	Practical Exam			
General Skills	d1		1	1								1		1									
	d2		1	1															1				
	d3		1	1								1							1				
	d4		1	1								1							1				
	d5	1	1											1				1	1				

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Presentation	Weekly (every week different no. of students to present)	20
	CV	Weekly (every week different no. of students to present)	13
	Company's biography	Weekly (every week different no. of students to present)	7
Practical Exam		Fifteenth week	-
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Presentation and Communication Skills "Theoretical part"

6-2 Required books

- Anderson, Paul, Technical Communication: A Reader-Centered Approach, 5th. Edition MacMillan Publishing., 2003.

6-3 Recommended books:

- Strunck, William, Jr.; and white, E. B., The Elements of style, 3rd edition", MacMillan Co., 2000
- Gerson Sharon J. and Gerson Steven M., Technical Communication Process and Product, 7th edition, Prentice Hall, 2012.
- Riordan Daniel G. Technical Report Writing Today, 9th edition", Houghton Mifflin, 2005.
- Stephen Lucas, The Art of Public Speaking, 9th edition, McGraw Hill. 2007.
- Julius Fast, Body Language, MJF books, 1970.

7- Facilities required for teaching and learning:

- Lectures room equipped with and data show facility.

Course coordinator: Dr. Lubna Fekry
Head of the Department: Prof. Dr. Shouman S.E.I.
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

GENN142: Technical Report Writing

Relevant program:	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology BSc Program Architecture Engineering and Building Technology BSc Program
Department offering the program:	Manufacturing Engineering and Production Technology Department Electronic Engineering and Communication Technology Department Computer Engineering and Information Technology Department Architecture Engineering and Building Technology Department
Department offering the course:	Basic Sciences Department
Date of specifications approval:	September, 2018

B - Basic information

Title: Technical Report Writing	**Code:** GENN142	**Level:** junior, First Semester	
Credit Hours: 2	**Lectures:** 2	**Tutorial/Exercise:**	**Practical: -**
	Pre-requisite: None		

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to enable the students to introduce the basic concepts of writing technical reports, resume's, CVs, and research papers.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

By the end of the course the student should gain the following knowledge:

a1- Different rhetorical models of writing. [A10]
a2- The art of communicating information. [A11]
a3- Implementation of information and communication technology in his future job. [A11]
b4- Methods of analyzing the engineering data. [A4]
b5- The art of writing report of projects and experiments. [A4]

b - Intellectual skills:

By the end of the course the student should be able to:

b1- Develop clear understanding of the effects of word choice, sentence structure, organization and document design on the meaning and effectiveness of documents. [B4]
b2- Recognize the elements of technical reports. [B4]
b3- Appreciate the methods of engineering writing. [B4]
b4- Use the correct expressions and analytical reading. [B4]

c - Professional and practical skills:

By the end of the course the student should be able to:

c1- Use the technical writing tools. [C2]
c2- Interact professionally with other writers and their writing. [C4]

c3- Effectively communicate his knowledge and scientific findings with other people. [C12], [C14]

d - General and transferable skills:

By the end of the course the student should be able to:

d1- Perform report and manual writing. [D6]

d2- Present findings of scientific research in seminars and workshops. [D8]

d3- Collaborative effectively with the group work and publishing strategies. [D6], [D8]

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A 4, A10, A11
B	Intellectual skills	B4
C	Professional and practical skills	C1, C2, C3
D	General and transferable skills	D1, D2, D3

3 – Contents

	Lecture hours	Tutorial hours	Practical hours
• Introduction: Paper Presentation	2		-
• Steps to a Successful Writing Assignment	2		-
• The Writing Process	2		-
• Mechanics	4		-
• Research Papers and Reports	2		-
• Technical Report Writing	4		-
• Resumes and Cover Letters	2		-
• Using Words Correctly	2		-
• Report and Thesis Layout	2		-
• Technical Writing Ethics	2		-
• A Structured Approach to Presenting Postgraduate Research Theses	2		-
• Publishing from the thesis	2		-
• Writing a research paper (Isn't it a bit early)	2		-
Total Hours	**28**		-

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving						Researches and Reports	Modeling and Simulation			Written Exam		Quizzes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1							1				1		1	1				
	a2	1			1											1		1	1	1			
	a3	1			1											1		1	1	1			
	a4	**1**	**1**	**1**	**1**	**1**						**1**				1		1	**1**	**1**			
	a5	1														1		1	1	1			
	a6	1										1							1	1			
Intellectual Skills	b1	1			1											1		1		1			
	b2	1			1	1										1		1	1	1			
	b3	1	1	1	1							1				1			1				
	b4	1	1		1							1				1		1	1	1			
Applied Prof.	c1	1	1		1	1										1		1	1	1			
	c2	1			1											1		1	1	1			
	c3	1		1		1						1							1	1			
General Tran.	d1			1		1						1							1				
	d2		1	1								1							1				
	d3	1	1									1							1	1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars assignments and reports	Bi-weekly	20 points
Quizzes	5th and 10th	20 points
Mid-Term Exam	Eighth week	20 points
Written Exam	Sixteenth week	40 points
Total		100 points

6- List of references:

6-1 Course notes:

- The Report Writing Book by Dr Neveen Samir , 2015
- Wallwork, A., (2011). English for Writing Research Papers. New York: Springer.
- Lindsay, D., (2011). Scientific Writing=Thinking in Words. Australia: CSIRO Publishing.
- Lindsay, D., (2011). Scientific Writing=Thinking in Words. Australia: CSIRO Publishing

6-2 Required books

- Deborah, C.A. & Margaret D. Blickle (2001) *Technical Writing, Principles and Forms*, 2nd Ed., MacMillan Publishing.

6-3 Recommended books:

Douglas Godfrey, *ASLE Author's Guide*, Jan. ,1977

6-4 Periodicals, Web sites, etc.

www.technical-writing.com

7- Facilities required for teaching and learning:

Internet educational lab, Computer and Data show

Course coordinator: Dr. ayah Mohamed Ezzat

Head of the Department: Prof. Dr. Ibrahim Goda

Date: July 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN112:Architectural Construction 2

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic Information

Title: Architectural Construction 1 **Code:** ARCN112 **Level:** 1st , fourth Semester
Credit Hours: 3 **Pre-requisite:** ARCN111
Contact Hours: **Lectures:** 2 **Tutorial/Exercise:**2 **Laboratory:** **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

The primary objective of this course is studying the construction processes and the main building construction elements, systems, and materials and recognizing the details of the main elements in the building and introducing the principles of preparing working drawings of small projects**.**

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

By the end of the course the student should gain the following knowledge:

a1 - the concepts, methods and techniques of the building construction processes, its stages, elements, materials, etc. (A24)
a2 - Preliminary and final design, working drawings and details of small projects (A4)
a3 -Modern and traditional construction methods, capabilities, and limitations(A24)
a4 -Materials properties and uses in different building contexts. (A3)
a5 -Construction processes, activities, and management. (A24)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Think systematically along the design process, and its details, analyze construction problems, propose alternative solutions, and select the best solutions. (B2,B12)
b2 -Solve technical and structural problems of buildings. (B22, B25)
b3 -Analyze the building elements, details, materials, and methods of execution. (B5,B11)
b4 -Select and use innovative structural models. (B14)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Prepare professionally sound architectural construction drawings and details using manual techniques. (C3, C14,C24)
c2 - Recognize Different construction and finishing materials and select appropriate material for each specific purpose. (C23,C25)
c3 - Manage construction processes(C24)
c4 - Prepare professionally sound technical scientific report. (C2, C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Collaborate effectively within multidisciplinary. (D1)
d2 - Work in stressful environment and within constraints. (D2)
d3 - Communicate effectively. (D3)
d4 - Manage tasks and resources efficiently. (D6)
d5 - Search for information and adopt life –long self-learning. (D7)
d6 - Acquire entrepreneurial skills. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A4, A24
B	Intellectual skills	B2,B5,B11, B12,B14, B22,B25
C	Professional and Practical Skills	C2, C3, C12, C14, C23,C24,C25
D	General and transferable skills	D1, D2, D3, D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction & Elements of Building.	2	3	
2. Sequence of Building Construction.	2	3	
3. Construction Systems: Bearing walls.	2	3	
4. Construction Systems: Skeleton Construction.	2	3	
5. Foundations: Surface foundations.	2	3	
6. Foundations: Deep foundations.	2	3	
7. Mid Term Exam (M. T1).	-	-	
8. Brick walls: Types of brick & mortar	2	3	
9. Brick wall bonding: English Bond & Flemish Bond.	2	3	
10. Masonry walls: Classifications of stones – walling philosophy.	2	3	
11. Masonry walls: Sills – Cornices – Copings.	2	3	
12. Roof Structures: Linear structural elements – Surface resistant.	2	3	
13. R.C. floors & Sections and details.	2	3	
14. Revision Steel floors: Sections and details.	2	3	
15. Revision	2	3	
Total hours	**28**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1							1				1			1	1			
	a2	1	1	1	1							1						1	1	1			
	a3	1	1	1			1					1		1		1							
	a4	1	1	1	1					1		1	1			1			1	1			
	a5	1	1				1	1				1	1						1	1			
Intellectual Skills	b1	1	1		1				1	1						1	1	1	1	1			
	b2	1	1		1				1										1	1			
	b3	1	1	1			1		1			1							1	1			
	b4	1		1			1		1			1				1			1				
Applied Professional Skills	c1	1	1				1		1	1		1	1			1			1	1			
	c2				1				1	1									1	1			
	c3	1	1		1		1	1	1			1				1			1	1			
	c4	1	1	1	1		1	1	1			1				1			1	1			
General Tran. Skills	d1			1				1	1			1											
	d2		1						1			1				1							
	d3	1	1	1			1	1			1	1		1					1				
	d4	1	1						1		1	1				1	1		1	1			
	d5			1				1	1			1								1			
	d6			1	1		1	1	1			1		1					1	1			

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	,Drawing Sheets	Bi-Weekly	20
	Research	one reserch per semester	5
	Assignments	Bi-Weekly	10
Practical Exam		Fifteenth week	5
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Okba, Ehab mahmoud.2005.Building Construction (Arabic).Cairo, Egypt.

6-2 6-2 Required books

Abdallah, Moh. Ahmed .1999.Building Construction (Arabic).The Anglo bookshop, Cairo, Egypt.

Hassid, Sami.1984.Architectural Construction Details (English).Dar Al Nahad Al Arabia, Beirut.

6-3 Recommended books:

McKay, W.B. "Building Construction", (English), Longman Group Limited, 1981

Abdallah, M.Ahmed. "Building Construction" (Arabic).The Anglo bookshop, Cairo, Egypt.1999

Hassid, Sami."Architectural Construction Details" (English).Dar Al Nahda Al Arabia, Beirut. 1984.

Architect's working details, Volume 10. Front Cover. Susan Dawson. Emap construct, 2004

6-4 Periodicals, Web sites, etc.

-http://www.level.org.nz/material-use/construction-systems/

- http://www.architectsjournal.co.uk/working-details/

7- Facilities required for teaching and learning:

Overhead projector / projection screen.

Data Show

Drawing hall.

Course coordinator:	Associate Professor: Ibrahim gouda
Head of the Department:	Associate Professor: Ibrahim gouda
Date:	March 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN122:Architectural Design 2

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic Information

Title: Architectural Construction 1 **Code:** ARCN122 **Level:** 1st , forth Semester
Credit Hours: 3 **Pre-requisite:** ARCN121
Contact Hours: **Lectures:** 1 **Tutorial/Exercise:** 6 **Laboratory:** **Total:** 7

C - Professional Information

1 – Course Learning Objectives:

The main objective of this course is studying the basic design processes with its various dimensions and its application on private or public residential building

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

By the end of the course the student should gain the following knowledge:

a1 -Seeking, defining, and articulating architectural problems. (A4,A14)
a2 -The concepts, methods, and techniques of Architectural Design (A13, A24)
a3 - The Principles of design process (A13)
a4 - The Concepts of Residential Buildings (A18,A22)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 -Think systematically along the design process(B3,B13)
b2 -Analyze the different elements of program as well as the site constrains (B3)
b3 - Identify the main design problems of the project (orientation cross – circulation...). (B2)
b4 - Produce innovative design ideas, forms. (B3,B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Produce manual and technical production of2D Drawings and 3D models of architectural projects.(especially residential buildings & commercial centers) (C3)
c2 - Produce new architectural forms and design solutions of the societal problems (C17)
c3 - Draw effectively sketches(C4)
c4 - Present architectural project (C13)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Ability to search for information from references and internet. (D 7)
d2- Work in stressful environment within constraints. (D3)
d3- Acquire Manual skills (D7)
d4- Communicate effectively (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A4, A24
B	Intellectual skills	B2,B3,B11,
C	Professional and Practical Skills	C3, C4, C13, C17,
D	General and transferable skills	D3, , D7,

3 – Contents

Topic	**Lecture hours**	**Tutorial hours**	**Practical hours**
Choosing one project from 5 general projects	1	6	
Analysis of program elements	1	6	
Research on the chosen project	1	6	
Zoning (bubble diagram , matrix of functions	1	6	
3D modeling (masses , site) , skis	1	6	
Concept development , skis	1	6	
Mid Term Exam	-	-	
Final plans	1	6	
Final sections	1	6	
Final elevations	1	6	
3D perspectives	1	6	
Development project till final approval	1	6	
Representing project by digital media or manual method	1	6	
Representing project by digital media or manual method	1	6	
15. Representing final project , jury	1	6	
Total hours	14	84	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1							1		1		1			1	1			
	a2	1	1		1				1	1			1						1	1			
	a3	1	1	1	1							1				1			1	1			
	a4	1	1	1	1							1							1	1			
Intellectual Skills	b1	1			1		1	1	1		1					1	1	1					
	b2			1			1	1	1														
	b3				1		1		1	1			1						1	1			
	b4	1			1		1	1	1		1					1		1					
Pro fes sio	c1	1		1	1							1				1		1					

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
	c2	1		1	1			1	1	1			1						1	1			
	c3							1	1	1			1										
	c4	1		1	1							1				1		1					
General Tran. Skills	d1			1					1			1		1	1	1		1	1	1			
	d2		1	1	1			1	1			1					1	1					
	d3			1					1			1		1	1	1		1	1	1			
	d4		1	1				1	1			1											

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	,Drawing Sheets	Bi-Weekly	20
	Research	one reserch per semester	5
	Assignments	Bi-Weekly	10
Practical Exam		Fifteenth week	5
Written Exam		Sixteenth week	40
Total			100

6- List of references:

Neufert Architect's Data, Halsied Press, a Division of John Willey & sons Inc, and New York. USA. 1998, vicent jones Blackwell Sciences ltd
Time saver standards for architectural design data –michael J. crosbie
Form, space, and order third edition – francis D.k. ching
Recommended books:
Abdallah, M.Ahmed Steele, J., "Architecture Today", Second edition, Phaeton Press Limited, London, UK, 2001.
Korean Annual competitions
Architecture: form , space and order, Francis D. K. Ching

6-4 Periodicals, Web sites, etc.

Area

- Medina
- Tasmeem
- Alem Al Benaa
- Al Benaa
- www.greatbuildings.com
  www.archinform.com

7- Facilities required for teaching and learning:

Overhead projector / projection screen.
Data Show
Drawing hall.

Course coordinator: Associate Professor: Ibrahim Gouda
Head of the Department: Associate Professor: Ibrahim Gouda
Date: March 2018

Course Specification
ARCN141: History of Architecture (1)

A- Affiliation

Relevant program/s:	Architecture Engineering and Technology BSc Program
Department offering the program:	Architecture Engineering and Technology Department
Department offering the course:	Architecture Engineering and Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: **History of Architecture (1)** **Code:** ARCN141 **Level:** 1st fourth Semester

Credit Hours: 2 **Pre-requisite: Non**

Contact Hours: **Lectures:** 2 **Tutorial:**1 **Laboratory: 0** **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course aims to illustrate the different historical civilizations and the aesthetical values in their different styles, throughout conducting an analytical study for the elements affecting on the formation of the various architectural styles and characters. It also traces the evolvement of architecture throughout history; since the dawn of history, passing by the ancient Egyptian, the Mesopotamia and until the classical architecture: Greek and Romanian. Using sketches, students will also be able to criticize and analyze the buildings with their distinguished elements in the different eras.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

By the end of the course the student should gain the following knowledge.

a1 -Concepts the History of architecture Through Time. (A19)

a2–The history of architecture. (A19)

a3 -The Impact of the Construction on architecture Development through Time(A17,A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

By the end of the course the student should be able to:

b1 -Think systematically within the Historical Features and Heritage along the design process(B4)

b2 - Produce innovative within Historical Characters Design(B20)

b3 - Identify philosophical analogies and symbolic metaphors in Historical architecture (B20)

b4 - Ability to Evaluate the Architectural building features and Characters (B21)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 -Analyze understand and make use of contexts. (C22)

c2 -Analyze Historical Architecture Features and Characters. (C21)

c3 - Draw effectively sketches. (C18,C21)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Ability to search for information's from references and internet. (D1)
d2 -Prepare convenient presentations(D2)
d3 - Communicate effectively (D3)
d4 - Search for information and adopt (D4)
d5 - Work in stressful environment within constraints. (D4)
d6 - Collaborate effectively within teamwork(D4)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A17,A19
B	Intellectual skills	B4, B20,B21
C	Professional and Practical Skills	C18,C21,C22
D	General and transferable skills	D1,D2,D3,D4

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction : about history of architecture Prehistoric architecture: Ancient Egyptian	2	1	
2. The pharaonic Character and Features	2	1	
3. The Architectural Buildings(Tombs)	2	1	
4. The Architectural Buildings (Temples)	2	1	
5. The Architectural Buildings(Temples)	2	1	
6. The Hellenistic Architecture:	2	1	
7. Mid Term Exam	-	-	
8. Greek Architecture: Character and Features	2	1	
9. The Greek Columns ,Temples, Buildings	2	1	
10. The Roman Architecture: Features -Columns-temples	2	1	
11. Buildings (theater-Amphitheater-….	2	1	
12. Seminars		3	
13. Researches Discussion		3	
14. Researches Discussion		3	
15. Revision	3		
Total hours	**23**	**19**	**42**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1	1	1				1		1		1	1	1
	a2	1	1	1				1		1		1	1	1
	a3	1	1	1				1		1			1	1
Intellectual Skills	b1	1	1	1	1			1						1

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	b2	1	1	1	1			1						1
	b3	1	1	1	1			1						1
	b4	1	1		1			1						
Applied Prof. Skills	c1	1	1	1	1			1		1		1		
	c2	1	1	1	1			1		1		1		
	c3	1	1	1				1		1		1		
General Skills	d1			1		1		1						
	d2			1				1		1				1
	d3	1	1	1				1		1		1		
	d4		1					1				1		
	d5		1					1						
	d6		1					1						

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	4 Quizzes (every 3 weeks)	20
	Reports	Two reports per semester	10
	Assignments	Bi-Weekly	10
Practical Exam		Fifteenth week	-
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- Somers C., & Engelbach, R., (2014), "Ancient Egyptian Construction and Architecture", Dover Publications, USA.
- Fletcher, B., (2000), "A History of Architecture", Bradbury, Agenw & Co. L1X Printers, UK.

Spiro, K., (1996), "History of Architecture", New York, USA.

6-1 Course notes:

6-2 Required books

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Computer
- Data show
- Gallery for models

Course coordinator: Assistant professor Reem Elhaddad
Head of the Department: Professor Ebrahim Goda
Date: February 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
MTHN106: Mathematics-6 (Statistical Mathematics for Architectural Engineering)

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department Date offering the course: Basic Sciences Department

of specifications approval: September, 2018

B - Basic information

Title: Mathematics-8(Statistical Mathematics) **Code:** MTHN106 **Level:** Sophomore **Semester**: 4th

Credit Hours: 2 **Lectures:** 2 **Tutorial:** 1 **Practical:** 0

Pre-requisite: MTHN002 **Total:** 3

C - Professional information

1 - Course Learning Objectives:

The main objective of this course is to enable the student to gain, investigate and learn the main concepts of functions, set theory, random events, probability functions, mathematical expectation, conditional probability, Binomial distribution, normal distribution, Sampling and the central limit theorem, Estimation, hypothesis testing, regression and correlation and Chi-square analysis and analysis of variance.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- main rules and notions of functions and set theory. (A1, A2, A10)

a2- basics and different rules of probability theory.(A1, A2, A10)

a3- discrete and continuous probability distributions and rules of their expectation and their standard deviation (A1, A2, A10).

a4- notions of descriptive statistics, probability concepts, binomial and normal distributions, as well as the notions of conditional probability and counting techniques. (A1, A5, A10)

a5- principles of sampling and the central limit theorem, estimation, hypothesis testing, regression and correlation and Chi-square analysis. (A1, A2, A5, A10)

a6- basic concepts of statistics, measures of location and measures dispersion. (A1, A2)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- describe discrete data graphically and compute measures of centrality and dispersion. (B1, B2)

b2- compute probabilities by applying different probability rules and theorems of probability. (B1, B2, B4, B7)

b3- construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance. (B1, B2, B7)

b4- apply basic concepts of probability functions, Mathematical expectation, variables, discrete

distribution, binomial distribution, continuous distribution, and normal distribution to applications. (B1, B2)

b5- evaluate and analyze basic concepts of statistics, sampling, the central limit theorem, estimation, hypothesis testing, regression, Chi-square analysis of variance. (B1, B2, B3, B11)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- apply probability and statistics methods to engineering problems(C1, C2, C7, C13)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Write technical reports.(D3)

d2- Communicate effectively in written form. (D3).

d3- Search for information's in references and in internet (D7).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A5, A10
B	Intellectual skills	B1, B2, B3, B4, B7,B11
C	Professional and practical skills	C1, C2, C7, C13
D	General and transferable skills	D3, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. **Introduction to statistics (Population, Sample, Frequency distributions, Histograms, Bar charts)**	4	2	
2. **Measures of location (Sample mean, Median and Mode)**	3	2	
3. **Measures of variations (Standard deviation and Mean deviation)**	3	2	
4. **Linear regression and correlation**	3	1	
5. **Basics of probability and counting principles**	4	2	
6. **Conditional probability and Baye's theorem**	2	1	
7. **Mid-Term Exam**	-	-	
8. **Discrete and continuous distributions**	3	2	
9. **Binomial distribution and normal distribution**	3	1	
10. **Functions, curve equation relationship.**	2	1	
11. **Set theory, Random events, and probability functions.**	2	1	
12. **Mathematical expectation, conditional probability.**	2	1	
13. **Binomial distribution, normal distribution.**	2	1	
14. **Sampling and the central limit theorem.**	2	1	
15. **Estimation, hypothesis testing.**	1	1	
16. **Chi-square analysis and analysis of variance.**	2	1	
Total hours	**28**	**14**	

4 - Teaching and Learning and Assessment methods:

Courses	Teaching Methods	Learning Methods	Assessment Method

		Lecture	Discussions and seminars	Tutorials	Problem solving			Researches and Reports	Modeling and Simulation			Written Exam	Quizzes	Assignments	
Knowledge & Understanding	a1	1	1	1	1			1				1	1	1	
	a2	1		1	1			1				1	1	1	
	a3	1		1	1			1				1	1	1	
	a4	1	1	1	1			1	1			1	1	1	
	a5	1	1	1	1			1	1			1	1	1	
	a6	1	1	1	1			1	1			1	1	1	
Intellectual Skills	b1	1		1	1							1	1	1	
	b2	1						1	1			1			
	b3	1	1		1			1				1			
	b4	1		1	1			1				1	1	1	
	b5	1		1				1				1			
Applied Professional Skills	c1	1	1						1			1			
General Tran. Skills	d1		1		1			1						1	
	d2	1	1	1	1			1						1	
	d3	1						1						1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: and assignments	Bi-Weekly	20
Two quizzes	5th and 10th weeks	20
Mid-Term Exam	8-th Week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes:

Sameh Shenawy, Statistical Mathematics for Architectural Engineering, Lecture Notes, Modern Academy, Egypt, 2019.

6-2 Required books

Douglas C. Montgomery and George C. Runger, Applied Statistics and Probability for Engineers, 6th ed., John Willey & Sons, Inc., 2014.

E. Kreyszig, Advanced Engineering Mathematics, 10th ed, John Willey & Sons, Inc., 2011.

R.E. Walpole, R.H. *Myers* and S.L. *Meyers*, *Probability and Statistics* for Engineers and Scientists, sixth edition. *Prentice-Hall 1998*.

6-3 Recommended books:

John Neter, G.A. Whitmore, William Wasserman, Applied Statistics, Fourth Edition, Needham Heights, MA: A *Division of Simon* & *Schuster*, Inc.,1993.

6-4 Periodicals, Web sites, etc.

www.mathworlds.com.
www.sosmath.com

7- Facilities required for teaching and learning:

- Library
- Internet

Course coordinator: Associate Dr. Sameh Shenawy
Head of the Department: Prof. Dr. Ashraf Taha
Date: September, 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification
ARCN114: Computer Applications (1)

A- Affiliation

Relevant program/s:	Architectural Engineering and Building technology BSc Program
Department offering the program:	Architectural Engineering and Building technology BSc Department
Department offering the course:	Architectural Engineering and Building technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Computer Applications (1) **Code:** ARCN114 **Level:** 1st , fourth Semester
Credit Hours: 3 **Pre-requisite:** CMPN010
Contact Hours: **Lectures:** 1 **Tutorial:** 2 **Practical:** 3 **Total:** 6

C - Professional Information

1 – Course Learning Objectives:

The course aims to identify the potential of using computers and digital methods of constructing technical drawings in the field of architecture. It focuses on graphic design and computer-aided dual dimensional drawings, throughout studying one of the current software such as AutoCAD or any equivalent software.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Basics of computer technology in architecture. (A2)
a2 - The basic 2D orders and functions in the AutoCAD program. (A2)
a3 - Principles of designing and drawing in 2D using computer software. (A4)
a4 - Current available programs used by architects. (A8)
a5– Preparing and presenting 2D drawings using AutoCAD program. (A14)
a6 - Professional standards of architectural practice using computer software. (A14)
a7 - The CAD applications in architecture and its use. (A15)
a8 - Potential computer uses in architectural applications. (A21)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Determine the best and easiest way to draw the required drawings. (B1)
b2 - Analyze drawing problems into sub-problems towards a controllable handling of elements. (B2)
b3 - Produce innovative design and creative planning ideas & concepts using 2D commands. (B3)
b4 - Integrate different scales of design, ranging from interior details to urban scales with the 2D computer applications. (B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Introduce professional 2D drawings (C5)
c2- Practice Basic techniques of computer presentation using different tools(C13)
c3 - Master the use of computer in the design process in the architectural projects (C5)
c4 - Master execution design and full working drawings for architectural projects (C14, C24)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Interact with computer (D1)

d2 - Communicate ideas verbally and visually in a clear coherent manner(D3)

d3 - Allocate amongst team members (D6)

d4 - Familiarize with 2D computer drawings. (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A2, A4, A8, A14, A15,A21
B	Intellectual skills	B1, B2, B3, B13
C	Professional and Practical Skills	C5, C12, C13, C14, C24
D	General and transferable skills	D1, D3, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction & Getting Started	1	2	3
2. Drawing & Modifying Commands	1	2	3
3. Drawing & Modifying Commands	1	2	3
4. Drawing & Modifying Commands	1	2	3
5. Layers Management	1	2	3
6. Revision & Mid Term Practical Exam	1	2	3
7. Mid Term Exam	-	-	-
8. Blocks & Modifying Commands	1	2	3
9. Hatch, Dimension & Text	1	2	3
10. Raster Image, Xref & Modifying Commands	1	2	3
11. Plotting & Paper space & Project Introduction	1	2	3
12. Practical Exam	-	-	-
13. Revision, Exam Preparation & Makeup Class	1	2	3
14. Project Submission & Makeup Class	1	2	3
15. Final Exam	-	-	-
Total hours	**12**	**24**	**36**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Laboratory	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1				1														1
	a2	1			1	1										1	1			1
	a3	1		1		1											1			1
	a4	1		1														1		
	a5	1			1	1			1				1							1
	a6	1		1		1			1				1			1				1
	a7	1		1			1									1				
	a8	1		1		1														
Intellectual Skills	b1	1				1		1								1	1			1
	b2	1				1		1								1	1			1
	b3	1		1		1		1	1						1					
	b4	1		1					1				1			1				
Applied Professional Skills	c1	1			1	1			1								1			1
	c2	1	1			1			1							1				1
	c3	1	1			1			1							1	1			1
	c4					1	1		1				1				1			
General Tran. Skills	d1			1		1											1			
	d2			1				1	1							1	1			
	d3					1											1			1
	d4	1	1			1			1			1				1				1

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work Assignments & Project	Weekly	20
Mid-Term Exam	6th – 7th Week	20
Practical Exam	12th week	20
Written Exam	15th week	40
Total		100

6- List of references:

6-1 Course notes: Computer Applications (1)

6-2 Required books

- Course Booklets
- Leach, J. A., (2016), “AutoCAD 2016 Instructor”, SDC Publication, USA.

6-3 Recommended books:

- AutoCAD 2016 Help Manual.
- Hamad, M. M., (2010), “AutoCAD 2010 Essentials”, Published by Jones and Bartlett Publishers, LLC, United Kingdom.
- McGraw−Hill Primis, (2009), “AutoCAD® 2010 Instructor: A Student Guide to Complete Coverage of AutoCAD’s Commands and Features”, 6th edition, Published by the McGraw−Hill Companies, Inc., United States of America.
- Omura, G., (2009), “Mastering AutoCAD 2010 and AutoCAD Lt 2010”, Published by Wiley Publishing Inc., Indeana, United States of America.

6-4 Periodicals, Web sites, etc.

- Electronic Pub. URL: www.autocad.com, www.autodesk.com, www. Fleixcad.com
- Architectural record, Computer Sector, Published monthly by the McGraw – Hill companies

7- Facilities required for teaching and learning:

- Laboratories with net meetings and Datashow
- Computer Laboratories and CAD software program

Course coordinator: Associate Prof. Reham Mostafa
Head of the Department: Associate Prof. Ibrahim Gouda
Date: 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN117: Theory of Structures

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Theory of Structures **Code:** ARCN117 **Level:** Sophomore -Level 1 – forth Semester
Credit Hours: 2 **Pre-requisite: none**
Contact Hours: **Lectures:** 1 **Tutorial/Exercise: 3** **Total:** 4

C - Professional Information

1 – Course Learning Objectives:
The course aims at introducing students to the basic principles of structure. Types of structures. Types of loads and supports. Resultant of loads. Reactions. Simple and compound beams. Concentrated loads and moments. Uniform and triangular loads. Trussed beams. Simple frames, frames with link members, and closed frames. Internal forces; definition and sign convention. Internal forces in beams, frames, and arches. Trusses; definition, method of joints and method of sections. Stability; conditions and determinacy. Properties of sections. Normal stresses; shear stresses, combined stresses.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire knowledge of:
a1 - Different theories of structures relevant to architectural practices (A1), (A4)
a2 - professional standards of construction practice (A4)
a3 - building codes and regulations (A8)
a4 - basic structural analyses and design methods (A5-A14)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 - Master structures analyses and manipulation. (B2)
b2 - Relate different branches of studied courses together (arch. Design- building construction). (B2),(B4)
b3 - Integrate theoretical studies with practical reality (B13)
b4 - Improve logical reasoning faculties (B5)
b5 - Improve creative problem-solving (B3)

b6 - Analyze problems into sub-problems towards a controllable handling of elements (B11),(B3)
b7 -Develop architectural and structural sense of scale and proportions (B13)

C- Professional and practical skills:

By the end of the course the student should be able to undertake:
c1 - Structural analyses (C1-C2)
c2 - Design of structural elements (C24)

D - General and transferable skills:

By the end of the course the student should be able to:
d1 - Interaction with libraries, books, periodicals, internet (D7)
d2 – Organize work and documents. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A4,A5,A8,A14
B	Intellectual skills	B2,B3,B4,B5,B11,B13
C	Professional and practical skills	C1,C2,C3,C7, C24
D	General and transferable skills	D6,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Types of structures. Types of loads and supports.	1	3	-
2. Resultant of loads. Reactions.	1	3	-
3. Simple and compound beams.	1	3	-
4. Concentrated loads and moments.	1	3	-
5. Equilibrium and stability in planner statically determined structures.	1	3	-
6. Trussed beams.	1	3	-
7. Mid-Term Exam	-	-	-
8. Simple frames, frames with link members, and closed frames.	1	3	-
9. Internal forces in beams, frames, and arches. + Internal forces definition.	1	3	-
10. Trusses; definition, method of joints and method of sections.	1	3	-
11. Stability conditions.	1	3	-
12. Uniform and triangular loads.	1	3	-
13. Normal stresses	1	3	-
14. Shear stresses	1	3	-
15. Combined stresses	1	3	-
Total hours	**14**	**42**	**-**

4 - Teaching and Learning and Assessement methods:

	ourse ILO's	Teaching Methods								Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge	a1	1								1				1		1		1
	a2	1								1				1		1		1
	a3	1								1				1		1		1
	a4	1								1				1		1		1
Intellectual	b1	1					1							1		1		1
	b2	1					1							1		1		1
	b3	1					1							1		1		1
	b4	1					1							1		1		1
	b5	1					1							1		1		1
	b6	1					1							1		1		1
	b7	1					1							1		1		1
Applied	c1	1					1							1		1		1
	c2	1					1							1		1		1
gener al	d1	1								1						1		1
	d2	1								1						1		1

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Semester Work: assignments	Bi-Weekly	20%	20
Mid-Term Exam	7-th Week	10%	10
Final Exam	16 week	70%	70
Total		100%	100

6- List of references:

6-1 course notes

Theory of Structures, Aiman Ezzat

6-2 Required books

Wrigh Wldkhak,Theory of Structures, Dar Elmaaref, 1995

6-3 Periodicals, Web sites

www.ACI.com

7- Facilities required for teaching and learning:

Projectors and data show

Course coordinator: Dr. Tamer Seliem

Head of the Department: Associate Professor: Ebrahim Goda

Date: September 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN213: Skiagraphy and perspective

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Skiagraphy and perspective	**Code:** ARCN213	**Level:** 1, 4th Semester
Credit Hours:3	**Pre-requisite: none**	
Contact Hours:	**Lectures:** 2 **Tutorial:**4	**Total:** 6

C - Professional Information

1 – Course Learning Objectives:

The course aims at the development of students' abilities for three-dimensional visualization and representation in terms of shades, shadows and perspective views.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - The fundamental engineering sciences relevant to architectural practices(A4)

a2 - The three-dimensional visualization and representation in terms of shades, shadows and perspective. (A20)

a3 - Perspective rules. (A13)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Integrate shadow for different shapes. (B4)

b2 - Relate different shadows together to an architectural elevation. (B14)

b3 - Develop visual sensitivity towards light, shades and shadows. (B4)

b4 - Integrate different perspective rules. (B14)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1– Use techniques of manual presentation using rules for shade and shadows. (C13)

c2 - Draw 3D perspective views with shades and shadows. (C18)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Communicate ideas verbally and visually in a clear coherent manner. (D3)

d2 - Determine levels in space. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A13, A20
B	Intellectual skills	B4,B14
C	Professional and Practical Skills	C13, C18
D	General and transferable skills	D3, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to shades and shadows, Shade of points and lines.	2	4	-
2. Shades of plains and surfaces	2	4	-
3. Shades of plains and surfaces	2	4	-
4. Shades of circles	2	4	-
5. Shades and shadows of objects and masses (prisms)	2	4	-
6. Shades and shadows of objects and masses (cone and cylinder)	2	4	-
7. Mid Term Exam	-	-	-
8. Architectural applications	2	4	-
9. Architectural applications	2	4	-
10. One vanishing point perspective	2	4	-
11. Interior perspective	2	4	-
12. Two vanishing points perspective	2	4	-
13. Two vanishing points perspective	2	4	-
14. Applications on two vanishing points perspective	2	4	-
15. Revision	2	4	-
Total hours	**28**	**56**	**-**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Understanding	a1	1	1			1		1	1	1			1	1
	a2	1	1			1		1	1	1			1	1
	a3	1	1			1		1	1				1	1
Intellectual	b1	1			1	1		1	1	1		1	1	1
	b2	1			1	1		1	1	1		1	1	1

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	b3	1			1	1		1	1	1		1	1	1
	b4	1			1	1		1	1	1		1	1	1
ied Prof.	c1	1	1		1	1		1	1	1		1	1	1
	c2	1	1		1	1		1	1	1		1	1	1
eral Tran	d1		1	1				1	1				1	
	d2		1	1				1	1				1	

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

Nassar, Abdel Rahman, 1980, Shades, shadows and perspective, The Anglo bookshop, Cairo.

Mc Goodwin, Henry, 1991, Architectural shades and shadows, American Institute of Architects press.

6-3 Recommended books:

Shafie, Zakia, 1977, Shades and shadows, presentation by scientific rules, Dar Al-Alam Al-Araby print, Cairo.

Shafie, Zakia, 1997, Architectural perspective, Cairo University press.

Perspective Drawing by Kenneth W. Auvil (1996, Paperback, Revised)

6-4 Periodicals, Web sites, etc.

http://www.artyfactory.com/perspective_drawing/perspective_index.html (Last accessed February 20, 2019).

7- Facilities required for teaching and learning:

White boards and markers.

Engineering tools (Triangles + Ruler + Compass + ……).

Drawing halls for exercises.

Course coordinator: Dr. Mona Albasyoni

Head of the Department: Associate Professor: Ibrahim Goda

Date: March 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN 160: Architecture Training (2)

A- Affiliation

Relevant program:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology
Department offering the course:	Architecture Engineering and Building Technology
Date of specifications approval:	December 2018

B - Basic information

Title: Architecture Training **Code:** ARCN160 **level:** Junior -Level 1 –Summer
Credit Hours: - **Lectures: --** **Tutorial/Exercise: -** **Practical:-**
Pre-requisite :ARCN060

C - Professional information

1 – Course Learning Objectives:

The objective of the course is to improve the skills and capabilities of the student in designing and building up of study modeling using different materials and various modeling techniques, In addition of developing the student's practical possibilities throughout field visits to buildings during execution to practically view some construction and finishing stages, under the supervision of faculty members and a technicians.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire the flowing knowledge and understanding:
a1 - Characteristics of engineering materials related to the discipline. (A3)
a2 - Current engineering technologies as related to disciplines. (A8)
a3 -Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions. (A14)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 - Select and appraise appropriate ICT tools to a variety of engineering problems. (B8)
b2 - Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design. (B14)
b3 - Integrate relationship of structure, building materials, and construction elements into design process. (B17)

C- Professional and practical skills:

By the end of the course the student should be able to:

c1 – Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs. (C6)

c2 -Display imagination and creativity. (C18)

D - General and transferable skills

By the end of the course the student should be able to:

d1- Communicate effectively (D3)

d2 - Acquire entrepreneurial skills. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A8, A14
B	Intellectual skills	B8, B14, B17
C	Professional and practical skills	C6, C18
D	General and transferable skills	D3, D8

3 – Contents

	Topic	**Lecture hours**	**Tutorial hours**	**Practical hours**
1	3D MODELING	-	4	6
2	SITE VISIT	-	-	6
3	RESEARCH	2	-	-
	Total hours	**2**	**4**	**12**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments	Researches and Reports		
Knowledge & Understanding	a1	1		1	1			1		1		1	1	1							1		
	a2	1		1	1			1		1		1	1	1							1		
	a3	1		1	1			1		1		1	1	1							1		
Intellectual Skills	b1	1		1	1			1		1		1	1	1							1		
	b2	1		1	1			1		1		1	1	1							1		

	b3	1		1	1			1		1		1	1	1							1		
Applied Professional Skills	c1	1			1			1		1		1	1	1							1		
	c2				1			1		1		1	1								1		
General Tran. Skills	d1			1	1			1		1		1	1	1							1		
	d2			1	1			1		1		1	1	1							1		

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Semester Work: assignments	daily	60%	60
Final Report	second week	40%	40
Total		100%	100

6- Facilities required for teaching and learning:

White boards and markers.
3d modeling equipment's.
Site visits.

Course coordinator: Dr. Marwa Elbasyoni

Head of the Department: Associate Professor: Ibrahim Gouda
Date: December 2018

JUNIOR

Second year Architecture
Level 2

Course Specifications
Credit Hours System

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JUNIOR
Second year Architecture
Level 2

S	Course	
	Code	**Title**
1	ARCN211	Architectural Construction & Building materials 1
2	ARCN222	Architectural Design 3
3	ARCN210	Building Technology
4	ARCN217	Computer Applications 2
5	ARCN226	History and Theories of planning
6	ARCN214	Reinforced concrete & Steel structures.
7	ARCN227	Theories of Architecture (2)
8	ARCN212	Architectural Construction & Building materials 2
9	ARCN221	Architecture and Human Studies
10	ARCN224	Design Methodology
11	ARCN216	Environmental Control
12	ARCN215	Foundations
13	ARCN241	History of Architecture.2
14	ARCN225	Visual Training (2)
15	ARCN223	Architectural Design 4
16	ARCN260	Architecture Training 1

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Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN211 : Architecture Construction & Building Materials 1

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architectural Engineering and Building Technology
Department offering the course: Architectural Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic Information

Title: Architectural Construction & Building Materials 1 **Code :** ARCN211 **Level :** 2nd , Fifth Semester
Credit Hours : 3 **Pre-requisite :** ARCN112
Contact Hours: **Lectures :** 2 **Tutorial / Exercise :** 3 **Total :** 5

C - Professional Information

1 – Course Learning Objectives:

The course aims to study the construction systems with their detailed implementation steps in the architectural construction projects. This is achieved throughout discussing the sequence of construction work at sites starting from formworks, survey work, etc. and reaching the preparation of a complete set of construction working drawings that include plans, sections, and elevations. It also discusses a detailed study of carpentry and metal works while illustrating some special cases for expansion joints, in addition to giving an introduction to modern construction systems and equipment.

2 - Intended Learning Outcomes (ILOS

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Principles of building technologies, structure & construction methods, technical installations, properties of materials, new concepts, Methods and techniques of building processes (A14-A24).

a2 - Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building (A15).

a3 - Physical modeling, multi-dimensional visualization, multimedia applications, and computer-aided design (A20).

a4 - The role of the architecture profession relative to the construction industry, quality management systems (A21- A25).

a5 -Various dimensions of Simple building problem and the range of approaches, policies, and practices that could be carried out to solve this problem (A23).

B - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions (B13).

b2 - Think three-dimensionally and engage images of places & times with innovation and creativity in the

exploration of design, communication skill to prepare a building site for construction (B14- B23).

b3 - Predict possible consequences, by- products and assess expected performance of design alternatives (B15).

b4 - Integrate relationship of structure, building materials, and construction elements into design (B17-B22-B25)

C - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings' techniques (C14).

c2 - Use appropriate construction techniques and materials to specify and implement different designs (C15-C23).

c3– Display imagination and creativity to transfer a specific arch element into working drawing (C18-C24).

c4 - Demonstrate environmental studies that are applicable to building technology techniques and processes. (C25.)

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 -Collaborate effectively within multidisciplinary team(D1)

d2 -Work in stressful environment and within constraints(D2)

d3 -Communicate effectively(D3)

d4 -Manage tasks and resources efficiently(D6)

d5 -Search for information and adopt life-long self-learning(D7)

d6 -Acquiers entrepreneurial skills (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A14, A15, A20, A21, A23, A24,A25
B	Intellectual skills	B14, B15, B17 ,B22,B23,B25
C	Professional and Practical Skills	C14, C15, C17, C22,C23 ,C24 , C25
D	General and transferable skills	D3, D4, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction & Revision (Symbols)	2	3	
2. Waterproofing – Heat, sound and Radiation Insulations (Methods -Types- Materials).	2	3	
3. Insulation Layers and Applying methods.	2	3	
4. Expansion, Settlement and Material Joints. (Floors-Roofs-Walls…) .	2	3	
5. Walls and Floors (Interior& Exterior) (Finishing Materials, Plaster, painting).	2	3	
6. Stairs (Design–Types-Specifications and Construction).	2	3	

7. Mid-Term Exam			
8. Reinforced Concrete Stairs (Details)-Handrail – Finishing Materials	2	3	
9. Wood (introduction–types–use in buildings)	2	3	
10. Wooden Work & Products Design and Drawing basics (Joist sizes - Joints-accessories).	2	3	
11. Wooden Doors (Interior& Exterior) (Frames, Stock and Hardware).	2	3	
12. Wooden doors Details (Solid Molded, Slat).	2	3	
13. Wood doors Details (Paneled, Flush doors).	2	3	
14. Wood doors Details (Doors Hardware Equipment).	2	3	
15. Revision: ……..Revision	2	3	
Total hours	**28**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments
Knowledge & Understanding	a 1	1	1		1		1		1			1							1	1
	a 2	1	1	1					1			1				1			1	1
	a 3	1	1				1					1		1	1				1	1
															1	1				
	a 5	1	1	1					1			1							1	1
Intellectual Skills	b 1	1	1	1					1			1		1					1	1
	b 2	1	1		1				1			1	1			1			1	1
	b 3	1	1		1					1		1	1							
	b 4	1		1			1	1	1							1			1	1
Professional	c 1				1			1	1			1							1	1

	c 2	1			1				1	1									1	1
	c 3	1		1			1	1	1			1			1	1			1	1
General Tran. Skills	d 1			1			1	1	1			1			1					
	d 2			1			1	1				1				1			1	1
	d 3			1			1	1				1			1					
	d 4	1	1	1			1		1			1				1			1	1
	d 5	1					1		1			1			1					
	d 6	1		1	1		1	1	1			1			1	1			1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Researches	Two researches per semester	20
	Assignments	Bi-weekly class and home exercises.	20
Written Exam		Sixteenth week	40
Total			**100**

6- List of references:

6-1 Course notes: Building Construction and Materials Lectures and Detailed sheets (Part 1)
Prepared by Prof. Dr. Magdy Tammam

6-2 Required books

- Ching, F., (2014), "Building Construction Illustrated", 5th Edition, John Willy & Sons Publishing Inc., New York, USA.
- Allen, E. & Iano, J., (2014), "Fundamentals of Building Construction – Materials and Methods", John Wiley & Sons, Inc., New Jersey, USA.

Abd Allah, M., (2011), "Building Construction &Building Technology", Anglo Library, Cairo, Egypt.

6-3 Recommended books:

1 – Mohamed Abd Allah , Building Construction &Building Technology, Anglo Library, Cairo 20١١.
2 – Sami Hassid, Architectural Construction Details.
3 – Farouk Abas Heidar " Building Construction " 4th edition

6-4 Periodicals, Web sites, etc.

https://sweets.construction.com/

http://www.understandconstruction.com
https://www.arcat.com/

7- Facilities required for teaching and learning:

- Design studio equipped with drawing boards, overhead projector and Data show.
- Resources available in the library.
- Computer lab with CAD software and Internet connection.
- Field and Construction sites visits and up-to-date materials researches .

Course coordinator: Dr. Magdy Tammam
Head of the Department: Assistant Professor : Ibrahim Gouda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN222: ARCHITECTURAL DESIGN 3

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department offering the course: Architecture Engineering and Building Technology Department

Date of specifications approval: December 2018

B - Basic Information

Title: Architectural Design 3 **Code:** ARCN222 **Level:** Senior 2 Fifth Semister

Credit Hours: 3 **Pre-requisite:** ARCN122

Contact Hours: **Lectures:** 1 **Tutorial/ Exercise:**6 **Laboratory:** - **Total:** 7

C - Professional Information

1 – Course Learning Objectives:

The course aims to develop the students' abilities while dealing with the architectural design, in order to solve spatial problems on different design levels, starting from the layout relationships and ending with the masses and spaces in a more complex buildings. It also emphasizes on the effect of construction in modelling the domestic spaces and architectural forms putting in consideration the functional, social and cultural needs. It creates basis for the architecture formation concepts throughout studying the elementary and new principles of the spaces and the architectural styles, on urban, environmental, structural and symbolic levels. The practical application will be on a slightly complex public project.

2 - Intended Learning Outcomes (ILOS

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Fundamental engineering sciences relevant to architectural practices(A5)

a2 - The phases, methods and approaches to design process(A5-A13)

a3 - The spatial regards for cultural context and environmental constraints (A17-A21)

a4 - The relationships between built forms, socio-economic and environmental parameters(A13)

a5 - The principles of environmental and climatic design [including natural ventilation, daylight, passive solar energy] (A23)

a6 - The relationship between aesthetics and functionality, flexibility and adaptability(A13,A14)

a7 - The spatial requirements for human needs and occupants' comfort (A21)

a8 - The principles of landscape architecture(A18)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Develop abilities to undertake data gathering tasks (B3)

b2 - Master data analyses, interpretation, and manipulation. (B4)

b3 -Deduce grounded criteria and guidelines from a given design problem(B3)

b4 - Induce theoretical models out of a particular studied context (B13)

b5 - Relate different branches of studied courses together in a holistic manner(B13)

b6 - Integrate theoretical studies with practical reality(B13)

b7 - Promote investigation and exploration abilities in research work(B3- B13)

b8 - Improve logical reasoning faculties(B4)

b9 - Distill knowledge from precedent experiences(B4)
b10 - Set alternatives (B4)
b11 - Classify, compare, examine, and assess the validity / feasibility of pre-set alternatives(B13)
b12 - Improve creative problem-solving and decision-making faculties(B13)
b13 - Ability to analyze problems into sub-problems towards a controllable handling of elements(B14)
b14 - Synthesize solution mechanisms and components properly (B13)
b15 - Improve the ability to understand numeric connotations(B13)
b16 - Develop architectural and structural sense of scale and proportions(B13)
b17 - Stimulate imaginative abilities(B13)
b18 - Improve environmental sense(B13)
b19 - Develop philosophical analogies and symbolic metaphors in architectural context(B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Professional techniques of manual presentation using different tools and media(C6)
c2 - Architectural model-making with different materials and techniques(C3)
c3 - Introducing professional 2D drawings(C6)
c4 - Developing architectural designs that are functionally sound, environmentally appropriate aesthetically plausible, users' friendly and technologically up-to-date. (C17)
c5 - Designing projects of various scales and levels of complexity (C17)
c6 - Mastering architectural morphology and spatial organization within sound geometric relations (C17)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Communicating ideas verbally and visually in a clear coherent manner (D3)
d2 - Active involvement in-group discussions and mutual critiques(D3)
d3 - Improved communication skills with versatile backgrounds in field research -(D7)
d4 - Defending ideas and convincing others (D7)
d5 - Presenting seminars and public talks (D7)
d6 - Ability to work in team environments(D3)
d7 - Sound task allocation amongst team members(D3)
d8 - Working under pressure(D3)
d9 - Familiar interaction with libraries, books, periodicals, internet (D7) …
d10- Organization and documentation skills (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A5, A13 ,A14,A17,A18, A21
B	Intellectual skills	B3, B4, B13, B14
C	Professional and Practical Skills	C3, C6, C17
D	General and transferable skills	D3,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. 1st project : Central library	1	6	
2. Library project + site analysis	1	6	
3. Design criteria of library buildings	1	6	
4. Bubble diagram + zoning of elements	1	6	

5. Site model	1	6	
6. Masses – model - Concept development	1	6	
7. Mid-Term Exam			
8. Drawing master plan	1	6	
9. Solving design – problems in plan	1	6	
10. Final plans	1	6	
11. Drawing main sections	1	6	
12. Drawing elevations	1	6	
13. Formation development in elevations	1	6	
14. Drawing 3d perspectives or isometric	1	6	
15. Final site design Final preservation of project + jury	1	6	
Total hours	**14**	**84**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1							1	1	1						1			
	a2	1	1	1	1		1	1	1			1	1	1		1		1		1			
	a3	1	1	1	1							1	1	1						1			
	a4	1	1	1	1		1	1	1			1		1						1			
	a5	1	1	1	1		1	1	1			1		1					1	1			
	a6	1	1		1			1	1						1				1	1			
	a7	1	1		1			1	1						1	1			1	1			
	a8	1	1		1			1	1						1				1	1			
Intellectual Skills	b1	1		1	1		1	1	1	1			1						1	1			
	b2	1		1	1		1	1	1	1			1						1	1			
	b3	1		1	1		1	1	1	1			1			1			1	1			
	b4		1	1			1	1	1										1				
	b5		1	1			1	1	1										1				
	b6		1	1			1	1	1										1				
	b7	1	1	1	1		1	1	1	1			1						1				
	b8			1	1		1	1	1				1		1					1			
	b9			1	1		1	1	1				1		1					1			
	b10			1	1		1	1	1				1		1	1				1			
	b11		1	1			1	1	1										1				
	b12		1	1			1	1	1										1				
	b13	1	1					1	1			1		1	1	1				1			
	b14		1	1			1	1	1										1				
	b15		1	1			1	1	1										1				
	b16		1	1			1	1	1										1				
	b17		1	1			1	1	1										1				
	b18		1	1			1	1	1										1				

	Course ILO's	Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
	b19		1	1			1	1	1										1				
Applied Professional	c1	1	1	1	1		1		1	1		1	1			1			1	1			
	c2				1				1	1		1				1				1			
	c3	1	1	1	1		1		1	1		1	1			1			1	1			
	c4				1		1	1	1			1				1			1				
	c5				1		1	1	1			1				1			1				
	c6				1		1	1	1			1				1			1				
General Tran. Skills	d1	1	1	1			1	1				1		1									
	d2	1	1	1			1	1				1		1									
	d3			1					1			1							1	1			
	d4			1					1			1							1	1			
	d5			1					1			1							1	1			
	d6	1	1	1			1	1				1		1									
	d7	1	1	1			1	1				1		1									
	d8	1	1	1			1	1				1		1									
	d9			1					1			1							1	1			
	d10	1	1	1			1	1				1		1									

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	sketches	1 sketch (every week)	20
	project	1project	10
	research	1 research	10
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: lecture notes & handouts

6-2 Required books

- • Lockard, M. S., (2017), "The Nature of Design: Principles, Processes and the Preview of the Architect", ORO Editions, USA.
- Boswell, C. K., (2013), "Exterior Building Enclosures: Design Process and Composition for Innovative Facades", Wiley Publishing, USA.
- Steele, J., (2001), "Architecture Today", Second Edition, Phaeton Press Limited, London, UK.

.**6-3 Recommended books: Non**

6-4 Periodicals, Web sites, etc.

www.archinform.com

www.greatbuildings.com
Arca
Medina
Alem Al Benaa

7- Facilities required for teaching and learning:

- White board
- overhead projector / Data Show
- Audio Video facilities: Video, T.V, P.C.
- Computer labs

Course coordinator: Professor Asamer Zakaria
Head of the Department: Professor Ibrahim Goda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN210: BUILDING TECHNOLOGY

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department offering the course: Architecture Engineering and Building Technology Department

Date of specifications approval: December 2018

B - Basic Information

Title: Building Technology **Code:** ARCN210 **Level:** Senior 2 Fifth Semister

Credit Hours: 2 **Pre-requisite:** None

Contact Hours: **Lectures:** 2 **Tutorial:** - **Laboratory:** - **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The course aims to introduce several definitions and essential basics related to building technology and its evolution throughout different eras in addition to its levels and relations. It provides students with the required understanding of advanced equipment, building materials, techniques and its practices used in the construction sites. In addition, it presents a general information about the historical development of construction systems and their implementation until reaching the latest modern systems.

2 - Intended Learning Outcomes (ILOS

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- definitions &concepts related to tech. &building technology.(A1)

a2- development of building technology through ages until modern age. (A1).

a3- construction Equipments (their names ,functions & specifications). (A4, A18)

a4- classification of construction materials& systems. (A4, A18).

a5- the effect of science development on building technology. (A4).

a6- prefabricated buildings (historic view ,concepts disciplines). (A1, A18).

a7- structural units & connection in prefabricated building. (A4, A18).

a8- the expected future of construction in Egypt (problems, potentials…). (A1)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Recognize the differences &compare between construction Equipments(B4)

b2- Recognize the differences between construction systems and its execution methods (B4)

b3- Discover &analyze the advantages and disadvantages of construction systems and materials. (B5)

b4- Recognize the differences &compare between structural units in prefabricated building. (B4)

b5 - compare between different construction systems (traditional, new &prefab). (B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- managing the choice of contruction equipments to achieve specific tasks at site and suggesting alternatives (C1)

c2- find and implement different systems & alternatives in execution methods (C2).

c3- merge between construction systems to reach better solutions for constructions problems (C2).

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in a team and involve in group discussion and seminars (D1, D3,D5).

d2- Communicate effectively and present data and results orally and in written form (D3).

d3- Use ICT facilities in presentations (D4).

d4- Search for information's in references, internet& achieve tasks on limited time (D6,D7).

d5- Practice self-learning by observing,searching&concluding (D7).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A4, A18,
B	Intellectual skills	B4, B5, B13,
C	Professional and Practical Skills	C1, C2
D	General and transferable skills	D1, D3, D4,D5,D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to building Technology.	2		
2. Introduction to building Technology (Historical overview)	2		
3. Construction Equipment (classifications & types).	2		
4. Construction Equipments(site,transportation&concrete equipments)	2		
5. Construction methods (traditional methods)	2		
6. Construction methods (new construction methods)1	2		
7. Midterm Exam			
8. Construction methods (new construction methods)3	2		
9. Construction methods (new construction methods)4	2		
10. Future building technology &expected development in construction systems	2		
11. Prefabricated buildings.	2		
12. Modules of Prefabricated buildings.	2		
13. Structural units of Prefabricated buildings	2		
14. Prefabrication industry & construction future in Egypt	2		
15. Revision.	2		
Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO	Teaching Methods	Learning Methods	Assessement Method

		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	sketches	Brain storming	projects	Site visits	Researches and Reports	Discovering	Selfl-earning	cooperative	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a 1	1													1	1		1					
	a 2	1						1							1	1		1					
	a 3	1	1									1		1		1				1			
																1		1					
	a 5	1	1					1				1		1	1	1				1			
	a 6	1	1					1								1		1					
	a 7	1	1					1				1				1				1			
	a 8	1												1	1	1							
Intellectual Skills	b 1	1	1	1		1						1	1	1		1			1	1			
	b 2	1	1			1		1	1			1	1			1			1	1			
	b 3	1	1	1		1						1	1			1				1			
	b 4	1	1					1				1	1			1		1					
	b 5	1	1	1		1			1				1	1		1		1					
Applied Professional Skills	c 1	1	1	1					1			1	1	1	1	1		1					
	c 2	1	1	1					1			1	1	1	1	1		1					
	c 3	1	1	1					1			1	1	1	1	1		1					
General Tran. Skills	d 1			1		1			1			1			1								
	d 2		1	1								1	1	1		1		1					
	d 3	1	1									1											
	d			1		1						1		1		1		1					

	4																						
	d 5		1	1		1						1	1	1	1	1		1					

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	1 Quizz (every week)	10
	Reseach	1 research	20
	Assignments	3 through the whole semester	10
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Zakaria Ahmed, Dr. Asamer, "Building Technology "(Arabic), 2008

6-2 Required books

- Michael, C. Y. L., (2017), “Construction Technology for Tall Buildings”, 5th Edition, World Scientific Publishing Company, Singapore .
- Brayan, T., (2010), “Construction Technology: Analysis and Choice”, 2nd Edition, Wiley Blackwell Publication.
- Hawass. Z., (1985), “The Art of contemporary Building (Arabic)”, Alam El Kottob, Cairo, Egypt

.**6-3 Recommended books: Non**

6-4 Periodicals, Web sites, etc. Non

7- Facilities required for teaching and learning:

- White board
- overhead projector / Data Show
- Audio Video facilities: Video, T.V, P.C.

Course coordinator: Professor Asamer Zakaria
Head of the Department: Professor Ibrahim Goda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN217:computer applications 2

A- Affiliation
Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architecture Engineering and Building Technology BSc Program
Department offering the course: Architecture Engineering and Building Technology BSc Program
Date of specifications approval: December 2018

B - Basic Information
Title: Computer Applications 2 **Code:** ARCN217 **Level:** level two , 5th Semester
Credit Hours: 3 **Pre-requisite:** ARCN114
Contact Hours: **Lectures:** 1 **Tutorial:**2 **Laboratory:** 3 **Total:** 6

C - Professional Information
1 – Course Learning Objectives:
Following one semester of two dimensional digital modelling, this course introduces three dimensional object generation and surfacing, through lectures and demonstrations with different digital tools (AutoCAD, 3D Max, or any equivalent software). This course allows students to understand and investigate technology's potential as a tool for creative exploration and presentation. Students will explore 3D modeling, cameras, lighting, surface textures, material mapping and rendering output.

2 - Intended Learning Outcomes (ILOS)
a - Knowledge and understanding:
On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1- Fundamental engineering sciences relevant to architectural practices(A1,A4)
a2- Recognizing professional standards of architectural practice (A13)
a3- Realizing materials properties and uses in different building contexts (A14)
a4- Potential computer uses in architectural applications(A20)
a5- Three dimensional visualization and representation in terms of shades, shadows and perspective using different computer applications(A20)

b - Intellectual skills:
On successful completion of the course, the student should be able to:
b1 - Analyze, interpret-, and manipulate data. (B1)
b2 - Integrate different scales of design, ranging from interior details to urban development and town planning schemes(B21)
b3 - Relate different branches of studied courses together in a holistic manner(B14)
b4 - Integrate theoretical studies with practical reality(B13)
b5 - Improve logical reasoning faculties(B4)
b6 - Analyze problems into sub-problems towards a controllable handling of elements(B15)
b7 - Synthesize solution mechanisms and components properly (B15)
b8 - Stimulate imaginative abilities(B14)
b9 - Improve environmental sense(B9)
b10 - Develop visual sensitivity towards materials, colors and texturesUsing this course in design

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- Model-making with different materials and techniques(C14,C15)
c2- Draw 3D perspective views with shades and shadows(C17)
c3-Master computer architectural applications in: drafting, presentation, modeling, geographic information systems, project management and building economics(C14)
c4- Design projects of various scales and levels of complexity (C14)
c5-Master architectural morphology and spatial organization within sound geometric relations (C21)

d - General and transferable skills:
On successful completion of the course, the student should be able to:
d1- Communicate ideas verbally and visually in a clear coherent manner (D1)
d2- Present seminars and public talks (D3)
d3- Work in team environments(D5)
d4- allocation amongst team members(D5)
d5 - management to meet deadlines(D2)
d6- Work coordination amongst various sites and parties(D6)
d7- Work under pressure(D2)
d8- Interact with libraries, books, periodicals, internet … (D7)
d9- Master computer and applications(D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A4, A13, A14, A20
B	Intellectual skills	B1, B4, B9, B13, B14, B15 ,B21
C	Professional and Practical Skills	C14,C15,C17,C21
D	General and transferable skills	D1,D2, D3, D5,D6 D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction, basic definitions and terminology extruding & revolving objects	١	٢	٣
2. Solid editing in autocad 3d, ucs	١	٢	٣
3. 3d operations, sweep & loft in autocad	١	٢	٣
4. Cameras in autocad – modeling shapes .	١	٢	٣
5. Introduction to 3dmax program interface	١	٢	٣
6. Creating standard primitives objects in 3d max	١	٢	٣
7. Creating compound objects	١	٢	٣
8. Mid term exam			
9. Drawing 2d shapes in 3dmax	١	٢	٣
10. Modifier list applications	١	٢	٣
11. Modifier list applications	١	٢	٣
12. Using lights , materials , cameras	١	٢	٣
13. Using lights , materials , cameras	١	٢	٣
14. Practical exam	١	٢	٣
15. Revision	١	٢	٣
Total hours	**14**	**28**	**42**

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessment Method

		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1		1		1	1			1		1		
	a2	1				1								
	a3	1		1		1				1				
	a4	1	1	1		1	1							
	a5	1	1	1		1	1							
	b1					1	1	1						
	b2						1	1				1		
	b3	1	1			1	1							
	b4					1		1				1		
	b5	1	1			1	1	1						
Intellectual Skills	b6	1				1	1			1				
	b7	1				1	1			1				
	b8	1	1			1	1							
	b9	1		1		1	1	1		1				
	b10	1				1	1			1				
Applied Prof. Skills	c1				1	1				1				
	c2					1	1	1		1		1		
	c3				1	1				1				
	c4				1	1				1				
General Skills	c5	1	1		1	1	1			1		1		
	d1			1			1	1		1				
	d2			1			1	1		1				

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		8-th Week	20
Semester Work	Weekly calss work	4 Quizzes (every 3 weeks)	20
Practical Exam		Fourteenth week	20
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

- Omura, G. & Benton, B. C., (2015), "Mastering AutoCAD 2016 and AutoCAD LT 2016", Autodesk Official Press, Wiley, USA .
- Sham, T., (2013), "Autodesk 3D Max Design 2014: A Tutorial Approach", CADCIM Technologies Publisher, USA.
- Hamed, M., (2010), "AutoCAD 2010 Essentials Sudbury", Jones and Bartletts, Massachusetts.

6-3 Recommended books:

6-4 Periodicals, Web sites, etc.

6 Autodesk home page

7 MAX Script references

7- Facilities required for teaching and learning:

- Lap with networking – AutoCAD and 3Dmax programs – net meeting program
- Data show

Course coordinator: Dr hosam mohamed abd el aziz
Head of the Department: Professor ibrahem gouda
Date: December 2018

Modern Academy for Engineering
and Technology in Maadi

Course Specification
ARCN226: History & Theory of Planning

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic information

Title: History &Theory of planning **Code:** ARCN 226 **Level :** 2ed, Fifth Semester
Credit Hours:2 **Lectures: 2** **Tutorial/Exercise:-** **Practical: -**
Pre-requisite : ARCN120

C - Professional information

1 – Course Learning Objectives:

The course aims to introduce the factors of human settlement in various civilizations, while discussing their civilization properties in addition to the history of urban planning origination in order to identify their stability factors, urban centers, and their features. The course discusses and compare between the ancient Egyptian, Mesopotamia, Greek and Romanian civilizations. Students will also be introduced to the city in the middle ages, Renaissance and Islamic periods, in addition to the industrial revolution with its resulted ideas and trends in a trial to visualize the ideal society. They will be able to also identify urban planning theories to solve existing cities' urban problems.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should gain the following knowledge.

a1 – The significance of urban spaces and the interaction between human behaviour, built environment and natural environment.(A16)

a2 - Theories and histories of architecture, planning, urban design, and other related disciplines. A16)

a3 - The concepts, methods of the city planning processes, its stages, building types, elements, etc. (A17)

a4 - History of the city and evolution of urban planning theory from the past up to recent times. (A18)

B - Intellectual skills:

By the end of the course the student should be able to:

b1 - Think systematically along the analyze urban problem, solutions(B2)

b2 - select the best solutions- with high concern of the history of city, urban planning, the evolution of its theories and applications over the years. (B3)

b3 - Select and use solve design problems concentrating on analyzing specific groups of needs and producing urban and planning projects (B18)

b4 - Analyze innovative design ideas and concepts. (B21)

C- Professional and practical skills:

By the end of the course the student should be able to:
c1 - apply different historical types of city planning construction. (C13)
c2 - use understands and makes use of environmental circumstances and contexts. (C13)
c3 –Able to Prepare and present technical reports (C12)

D - General and transferable skills:

By the end of the course the student should be able to:
d1 - references Communicate effectively, journals and internet. (D2)
d2 - Search for information and adopt life-long self-learning (D7)
d3 - Use the Email for communication(D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A16, ,A17,A18
B	Intellectual skills	B2,B3,B18, ,B21
C	Professional and practical skills	C13,C12
D	General and transferable skills	D2,D7,D8

3 – Contents

	Topic	Lecture hours	Tutorial hours	Practical hours
1	The beginning of the city	2		
2	Mesopotamia cities.	2		
3	Ancient Egyptian civilization	2		
4	Planning of Greek cities	2		
5	Planning of roman cities.	2		
6	Analysis for the planning theories in that ear	2		
7	Midterm Exam			
8	Analysis for the plannin theories in that era (research)	2		
8	Cities in the middle eras	2		
9	Islamic cities	2		
10	Islamic city (case studies)	2		
11	The renaissance cities.	2		
12	Applications for the model towns	2		
13	Theories for city planning	2		
14	The Contemporary Egyptian city and its problems-environmental problems-pollution-slum areas	2		
	Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1		1															1				
	a2	1		1								1							1				
	a3	1		1								1							1				
	a4	1		1								1							1				
Intellectual Skills	b1	1	1					1	1			1			1			1	1	1			
	b2	1	1					1	1			1			1			1	1	1			
	b3	1	1					1	1			1			1			1	1	1			
	b4	1	1					1	1			1			1			1	1	1			
Applied Professional Skills	c1	1	1				1					1						1		1			
	c2	1	1				1					1			1			1		1			
	c3	1	1				1					1			1			1		1			
General Tran. Skills	d1		1						1									1					
	d2		1						1						1				1				
	d3		1						1						1								

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Mid-Term Exam	7-th Week	20%	20
Semester Work: assignments	Quizzes	10%	10
	Reports	10%	10
Practical research	Fifteen week	20%	20
Final Exam	Sixteenth week	40%	40
Total		100%	100

6- List of references:

6-1 Course notes

Dr. Nahed Omran, City History & Theory of urban Planning *(lecture notes)*

6-2 Essential books (text books)

Non

6-3 Recommended books

- Fainstein, S. S., & DeFilippis, J., (2016), "Readings in Planning Theory: Studies in urban and social change", John Wiley & Sons, USA.
- Kostof, S., (1993), "The City Shaped: Urban Patterns and Meaning through History", Thames and

Hudson, London, UK.
(احمد عفيفي، 2000" نظريات في التخطيط المدن"، القاهرة، مصر.)

6-4 Periodicals, Web sites, etc.

www.googleearth.com
www.Islamicart- Wikipedia, the free encyclopedia.mht

7- **Facilities required for teaching and learning:**

Course coordinator:	Associate Professor: Nahed Omran
Head of the Department:	Associate Professor :Dr. Ebrahim Guoda
Date:	December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN214: Reinforced concrete & steel structures

A- Affiliation

Relevant program/s:	Archtecture Engineering and Building Technology BSc Program
Department offering the program:	Archtecture Engineering and Building Technology Department
Department offering the course:	Archtecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Reinforced concrete & steel structures **Code:** ARCN214 **Level:** 2nd , Fifth Semester

Credit Hours: 3 **Pre-requisite:** ARCN117

Contact Hours: **Lectures:** 2 **Tutorial:**2 **Laboratory:** - **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

The course aims to provide students with the fundamentals of designing concrete and steel structures. The reinforced concrete part will introduce the students to the fundamentals of designing concrete structures, analyzing and designing of sections subjected to bending, load distribution, details of beam reinforcement, solid slabs, columns, stairs, ribbed and hollow block slabs, paneled beams and flat slabs. As for the steel structures part, it will include structural systems for steel structures, design loads, design of sections subjected to axial loads, design of bolted and welded connections, structural details of trusses and frames and finally details of connections.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Fundamental knowledge about reinforced concrete & steel structures relevant to architectural practices (A4).
a2- Building codes and regulations of reinforced concrete & steel structures (A4).
a3- Properties and uses of reinforced concrete & steel sections (A4).
a4- Basic reinforced concrete & steel structural analyses and design methods (A5).
a5- The principles of reinforced concrete & steel construction and design criteria (A5).

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Deduct grounded criteria and guidelines from a given R.C & steel structure design problem (B2).
b2- Master data analyses, interpretation, and manipulation (B3).
b3- Integrate theoretical studies with practical reality (B3).

b4- Improve creative problem-solving and decision-making faculties (B6-B25-B27).
b5- Classify, compare, examine and assess the validity / feasibility of pre-set alternatives (B11).

c - Professional and practical skills:
On successful completion of the course, the student should be able to:
c1- Introduce professional 2D drawings (C1).
c2- Master execution skills and site work of R.C & steel structures (C3-C7).
c3- Coordinate between architectural, structural, technical and economic considerations of a project (C3-C25).
c4- Design R.C & steel projects of various scales and levels of complexity (C3).

d - General and transferable skills:
On successful completion of the course, the student should be able to:
d1- Manage tasks and resources efficiently (D6).
d2- Search for information and adopt life-long self- learning (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A5
B	Intellectual skills	B2, B3, B6, B11,B25,B27
C	Professional and Practical Skills	C1, C3, C7,C25
D	General and transferable skills	D6, D7

3 – Contents

Topic		Lecture hours	Tutorial hours	Practical hours
1	Introduction to reinforced concrete.	2	2	
2	Design fundamentals for concrete structures.	2	2	
3	Analysis and design of sections under bending moment	2	2	
4	Load distribution	2	2	
5	Details of beams' reinforcement	2	2	
6	Solid slabs.	2	2	
7	Mid-Term Exam			
8	Columns.-Stairs.	2	2	
9	Special slabs.	2	2	
10	Design fundamentals of steel structures.	2	2	
11	Details for trusses.	2	2	
12	Details for steel frames	2	2	
13	Design of columns	2	2	
14	Design o beams	2	2	
15	Design of connections	2	2	
Total hours		**28**	**28**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1						1		1		1	1	
	a2	1			1					1		1	1	1
	a3	1			1					1		1	1	1
	a4	1			1									
	a5	1			1									
Intellectual Skills	b1	1			1	1		1		1		1		1
	b2	1			1	1				1		1	1	1
	b3	1			1	1								
	b4	1			1	1								
	b5	1			1	1								
Applied Prof. Skills	c1	1	1		1	1				1	1	1	1	1
	c2	1			1					1		1	1	1
	c3	1		1	1	1		1	1				1	1
	c4	1			1	1								
General Skills	d1			1	1			1						1
	d2			1				1						1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	5 Quizzes (every 3 weeks)	15
	Reports	Two reports per semester	10
	Assignments	Weekly	15
Practical Exam		---	--
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Reinforced Concrete and Steel Structures.

6-2 Required books

- Bhavikatti, S. S., (2014), “Design of Steel Structures”, I. K. International Publishing House Pvt. Ltd., India.
- Egyptian code of practice for steel construction and bridges – allowable stress design, (2008), Egypt.
- Egyptian code of practice for design and construction of reinforced concrete structures, (2007), Egypt.
- Park, R., & Paulay, T. (1975), “Reinforced concrete structures”, John Wiely & Sons, Inc., USA.

Mashhou G, and Mahmoud M. "Design of reinforced concrete structures", faculty of Engineering, Cairo University, second edition, 2008.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

http://www.ACI.com.
https://www.ASCE.com.
https:// www.hbrc.edu.eg.

7- Facilities required for teaching and learning:

- Data show and Computer programs.

Course coordinator: Dr Aiman Ezzat Mohamed
Head of the Department: Professor Ibrahim Gouda
Date: Desember 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification

ARCN227: Theories of Architecture (2)

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department offering the course: Architecture Engineering and Building Technology Department

Date of specifications approval: December 2018

B - Basic Information

Title: Theories of Architecture (2) **Code:** ARCN227 **Level:** Junior -Level 3 – Fifith Semester

Credit Hours: 2 **Pre-requisite:** ARCN120

Contact Hours: **Lecturs:** 2 **Tutorial:**1 **Laboratory:** - **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course aims to illustrate the design parameters for public and services buildings. It includes educational and cultural buildings, libraries, museums, theaters, health and recreational buildings; active and inactive, community centers, commercial buildings, markets of all kinds, office buildings, and touristic projects. The practical application will be through conducting an applied research.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions. (A14-A24)

a2 - Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building. (A15)

a3 - Physical modeling, multi-dimensional visualization, multimedia applications, and computer-aided design. (A20)

a4 - The role of the architecture profession relative to the construction industry and the overlapping interests of organizations representing the built environment. (A21- A24)

a5 -Various dimensions of Simple building problem and the range of approaches, policies, and practices that could be carried out to solve this problem. (A23)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions. (B13)

b2 - Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design. (B14- B23)

b3 - Predict possible consequences, by- products and assess expected performance of design alternatives. (B15)

b4 - Integrate relationship of structure, building materials, and construction elements into design (B17 ,B22,B25)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings'
techniques. (C14)
c2 - Use appropriate construction techniques and materials to specify and implement different designs. (C15- C23)
c3– Display imagination and creativity. (C18, ,C24)
c4- Demonstrate environmental studies that are applicable to building technology techniques and processes.(C25.)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 -Collaborate effectively within multidisciplinary team(D1)
d2 -Work in stressful environment and within constraints(D2)
d3 -Communicate effectively(D3)
d4 -Manage tasks and resources efficiently(D6)
d5 -Search for information and adopt life-long self-learning(D7)
d6 -Acquire entrepreneurial skills(D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A14, A15, A20, A21, A23,A24
B	Intellectual skills	B13, B14, B15, B17 , B22,B25
C	Professional and Practical Skills	C15, C14, C18, C25 , C24
D	General and transferable skills	D1, D2,D3, D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. building types	2	1	
2. Educational building	2	1	
3. Educational building	2	1	
4. office building	2	1	
5. hotels	2	1	
6. Commercial buildings	2	1	
7. Mid-Term Exam	-	-	
8. Restaurants	2	1	
9. Restaurants	2	1	
10. Theatres	2	1	
11. Theatres	2	1	
12. Museum	2	1	
13. Hospitals – parking	2	1	
14. architectural themes	2	1	
15. architectural themes	2	1	
Total hours	**28**	14	

4 - Teaching and Learning and Assessment methods:

Course ILO	Teaching Methods	Learning Methods	Assessement Method

		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1		1		1		1			1							1	1			
	a2	1	1	1					1			1				1			1	1			
	a3	1	1				1					1		1	1				1	1			
	a4	1	1	1			1	1				1			1	1			1	1			
	a5	1	1	1					1			1							1	1			
Intellectual Skills	b1	1	1	1					1			1		1					1	1			
	b2	1	1		1				1			1	1			1			1	1			
	b3	1	1		1					1		1	1										
	b4	1		1			1	1	1							1			1	1			
Applied Professional Skills	c1				1			1	1			1							1	1			
	c2	1			1				1	1									1	1			
	c3	1		1			1	1	1			1			1	1			1	1			
General Tran. Skills	d1			1			1	1	1			1			1								
	d2			1			1	1				1				1			1	1			
	d3			1			1	1				1			1								
	d4	1	1	1			1		1			1				1			1	1			
	d5	1					1		1			1			1								
	d6	1		1	1		1	1	1			1			1	1			1	1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Assignments and term papers	Bi-weekly class and home exercises .	40
Mid-term exam	7TH –Week	20
Final exam	Sixteen –week	40
Total		100

6- List of references:

6-1 Course notes:

6-2 Required books

- Ching, F. D., (2014), “Architecture: Form, Space and Order”, John Wily & Sons, Inc., USA.

- علي رأفت، (١٩٩٧)،" الابداع الفني والابداع المعماري -البيئة والفراغ"، مطابع الأهرام، القاهرة، مصر.

6-3 Recommended books:

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Design studio equipped with drawing boards, overhead projector and Data show.
- Resources available in the library.

Course coordinator:	Dr. marwa abbas
Head of the Department:	Associate Prof. Ibrahim Gouda
Date:	Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN212 : Architecture Construction & Building Materials 2

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architectural Engineering and Building Technology
Department offering the course: Architectural Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic Information

Title: Architectural Construction & Building Materials 2 **Code :** ARCN212 **Level :** 2nd , Sixth Semester
Credit Hours : 3 **Pre-requisite :** ARCN211
Contact Hours: **Lectures :** 2 **Tutorial / Exercise :** 3 **Total :** 5

C - Professional Information

1 – Course Learning Objectives:

The course aims to continue with introducing the building construction materials in addition to quality control, maintenance and renovation works. This is achieved by discussing concrete technology; additions, mixtures design, properties of fresh and solidified concrete, special types of concrete and precast concrete. It also aims to study the insulating and finishing materials and how to deal with building cracks; types, causes, and methods of prevention and treatment. Through this course, students will be able to understand the quality and technical inspection, in addition to the new trends of maintenance and renovation of buildings while giving an introduction for plumbing and electrical works. The practical application will be on a small project.

2 - Intended Learning Outcomes (ILOS

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Principles of building technologies, structure & construction methods, technical installations, properties of materials, new concepts, Methods and techniques of building processes (A14-A24).

a2 - Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building (A15).

a3 - Physical modeling, multi-dimensional visualization, multimedia applications, and computer-aided design (A20).

a4 - The role of the architecture profession relative to the construction industry, quality management systems (A21- A25).

a5 -Various dimensions of Simple building problem and the range of approaches, policies, and practices that could be carried out to solve this problem (A23).

B - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Integrate different forms of knowledge, ideas from other disciplines, and manage information

retrieval to create new solutions (B13).

b2 - Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design, communication skill to prepare a building site for construction (B14-B23).

b3 - Predict possible consequences, by- products and assess expected performance of design alternatives (B15).

b4 - Integrate relationship of structure, building materials, and construction elements into design (B17-B22-B25)

C - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings' techniques (C14).

c2 - Use appropriate construction techniques and materials to specify and implement different designs (C15-C23).

c3– Display imagination and creativity to transfer a specific arch element into working drawing (C18-C24).

c4 - Demonstrate environmental studies that are applicable to building technology techniques and processes. (C25.)

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 -Collaborate effectively within multidisciplinary team(D1)
d2 -Work in stressful environment and within constraints(D2)
d3 -Communicate effectively(D3)
d4 -Manage tasks and resources efficiently(D6)
d5 -Search for information and adopt life-long self-learning(D7)
d6 -Acquiers entrepreneurial skills (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A14, A15, A20, A21, A23, A24
B	Intellectual skills	B13 , B14, B15, B17 ,B22, B25
C	Professional and Practical Skills	C14, C15, C18, C24 , C25
D	General and transferable skills	D1 , D2 , D3, D6, D7 , D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction & Revision	2	3	
2. Steel works(types-sections-materials-usage)	2	3	
3. Steel connections & welding	2	3	
4. Steel columns – frames – beams – roofing – cladding	2	3	
5. Steel stairs (Design – types – specifications & construction) and mechanical works	2	3	
6. Steel doors & windows (intro – types – usage – joints – accessories – details – equipment)	2	3	

7. Mid-Term Exam			
8. Intro in working drawing projects , plans of project with check list & finishing tables	2	3	
9. Sections of projects	2	3	
10. Elevations of project with check list & finishing table	2	3	
11. Layout (softscape – hardscape) with finishes table	2	3	
12. Sanitary works & its drawing with symbols	2	3	
13. Electrical works of its drawing with symbols	2	3	
14. Mechanical works (elevations – sections)	2	3	
15. Revision: ……..presentation	2	3	
Total hours	**28**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments
Knowledge & Understanding	a 1	1	1		1		1		1			1							1	1
	a 2	1	1	1					1			1				1			1	1
	a 3	1	1				1					1		1	1				1	1
	.														1	1				
	a 5	1	1	1					1			1							1	1
Intellectual Skills	b 1	1	1	1					1			1		1					1	1
	b 2	1	1		1				1			1	1			1			1	1
	b 3	1	1		1					1		1	1							
	b 4	1		1			1	1	1							1			1	1
Applied Professional Skills	c 1				1			1	1			1							1	1
	c 2	1			1				1	1									1	1
	c 3	1		1			1	1	1			1			1	1			1	1
General Tran.	d 1			1			1	1	1			1			1					
	d			1			1	1				1				1			1	1

	2																			
	d 3			1			1	1				1			1					
	d 4	1	1	1			1		1			1				1			1	1
	d 5	1					1		1			1			1					
	d 6	1		1	1		1	1	1			1			1	1			1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Researches	Two researches per semester	20
	Assignments	Bi-weekly class and home exercises.	20
Written Exam		Sixteenth week	40
Total			**100**

6- List of references:

6-1 Course notes: Building Construction and Materials Lectures and Detailed sheets (Part 2)
Prepared by Prof. Dr. Magdy Tammam

6-2 Required books

- Ching, F., (2014), "Building Construction Illustrated", 5th Edition, John Willy & Sons Publishing Inc., New York, USA.
- Allen, E. & Iano, J., (2014), "Fundamentals of Building Construction – Materials and Methods", John Wiley & Sons, Inc., New Jersey, USA.

Abd Allah, M., (2011), "Building Construction &Building Technology", Anglo Library, Cairo, Egypt.

6-3 Recommended books:

1 – Mohamed Abd Allah , Building Construction &Building Technology, Anglo Library, Cairo 20١١.
2 – Sami Hassid, Architectural Construction Details.
3 – Farouk Abas Heidar " Building Construction " 4th edition

6-4 Periodicals, Web sites, etc.

https://sweets.construction.com/
http://www.understandconstruction.com
https://www.arcat.com/

7- Facilities required for teaching and learning:

- Design studio equipped with drawing boards, overhead projector and Data show.
- Resources available in the library.
- Computer lab with CAD software and Internet connection.
- Field and Construction sites visits and up-to-date materials researches .

Course coordinator: Dr. Magdy Tammam
Head of the Department: Assistant Professor : Ibrahim Gouda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN221: Architecture and Human Studies

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Architectural and human studies **Code:** ARCN221 **Level:** Junior -Level 2 –6th Semester

Credit Hours: 2 **Pre-requisite:** ARCN122

Contact Hours: **Lecturs:** 2 **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The course aims to define architecture as a framework for humanity and to understand humanitarian considerations and concepts associated with architectural design, since they are considered inputs to designing. This is based on understanding the various theories' principles, the basis to communities' creation, man's relationship with the environment and its reflection on the built environment, private humanitarian needs associated with social concepts, in addition to humanitarian principles in the modern architecture. It also includes a study to the scientific methods in data collection and various .analyzing methods, while students will be trained on the procedures of a scientific applied research

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should gain the following knowledge.

a1 - Defining and articulating human behaviors considerations and problems (A5).

a2 - The concepts, methods of the building designing, its stages, elements, material in human behaviors, culture, local communities (A4).

a3 - The concept of Interrelation between behavior and the built environment(A17)

a4 - The pattern and problems of city at the local, urban and regional levels (A17).

a5 - Significance of urban spaces and the replicable effects between man and the visual elements of the city, Humanistic principles in modern architecture(A24)

B - Intellectual skills:

By the end of the course the student should be able to:

b1 - Think in a creative way in the design process, analyze architectural and urban problem, and propose, alternative solutions with high concern of the history of human needs in architecture over the years (B3).

b2 - Select and combine and assess different ideas,design situations, problems concentrating on analyzing specific groups of human needs and producing new solutions and designs at various levels of the system of design process of architectural, urban and planning projects under the challenge of culture environment requirement and information flow of the general design system(B4).

b3 - Produce innovative design ideas and concepts(B19)

C- Professional and practical skills:

By the end of the course the student should be able to:

c1 - Use a wide range of analytical tools (C6).
c2 - Present architectural projects, models for local, regional culture(C12).
c3 - Recognize different types and finishing materials and select appropriate material for each human needs, culture, and purpose (C17).
c4 - Analyze and make use of environmental circumstances and contexts (C25).
c5 - Design and compare analyze and interpret the results of societal and culture needs (C21).
c6 - Produce new architectural forms and design solutions of real societal problems (C21).
C7- Contribute positively to the aesthetic, architecture and urban identity, and cultural life of the community.(C22.)

D - General and transferable skills:

By the end of the course the student should be able to:
d1 - Collaborate effectively within multidisciplinary team (D1).
d2 - Communicate effectively (D3).
d3 - Lead and motivate individuals (D5).
d4 - Manage tasks and resources efficiently (D6).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4,A5,A17,A24
B	Intellectual skills	B3,B4,B19
C	Professional and practical skills	C6,C12,C21,C22, C25
D	General and transferable skills	D1,D3, D5,D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Human needs.	2		
2. The influencing factors for the architect in society.	2		
3. Preciptions, feeling and agreements.	2		
4. Security and Safety in architecture design.	2		
5. Social behaviour and design.	2		
6. Measurments in spaces.	2		
7. Mid-Term Exam			
8. Design Concepts.	2		
9. Behaviour units in open spaces.	2		
10. Colours and design.	2		
11. The influencing of colors in design mode.	2		
12. The children and urban spaces.	2		
13. Urban spaces design due to childrens needs.	2		
14. Revision	2		
Total hours	**26**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments
Knowledge & Understanding	a1	1						1							1				1	
	a2	1						1							1				1	
	a3	1						1							1	1			1	
	a4	1						1							1	1			1	
	a5	1						1							1					
Intellectual Skills	b1	1	1	1				1	1			1				1			**1**	**1**
	b2	1	1					1	1			1				1			**1**	**1**
	b3	1	1	1				1	1			1				1		1	**1**	**1**
Applied Professional Skills	c1	1	1									1				1		1	1	1
	c2	1	1									1				1		1	1	1
	c3	1	1									1				1		1	1	1
	C4		١	1																
	C5		١	1																
	C6		١	1																
General Tran. Skills	d1		1	1					1			1		١					1	
	d2		1	1					1			1		١					1	
	d3		1	1					1			1		١					1	
	D4	1						1				1								

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Mid-Term Exam	7th week	20
Researches	15th week	40
Final Exam	16th week	40
Total		100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Essential books (text books)

- Deasy, C. M., & Lasswell, T. E., (1990), "Designing Places for People: A Handbook on Human Behavior for Architects, Designers, and Facility Managers", Whitney Library of Design, USA.
- يحي عبد الله، (٢٠١٣)،" عمران الحياة والأنسان"، مكتبة الأنجلو، القاهرة، مصر.

، دار الفكر العربي، القاهرة، مصر."محسن محمد عطية، (٢٠٠٣)،" الفنون والأنسان

6-3 Recommended books

علي رأفت –الابداع الفني &الابداع المعماري (البيئة والفراغ)، مطابع الأهرام،١٩٩٧

يحي عبد الله ، عمران الحياة والأنسان ، مكتبة الأنجلو ،٢٠١٣ .

6-4 Periodicals, Web sites, etc.

- Architectural Periodicals
- www.worldarchitecture.org
- www.humanarchitecture.org

7- Facilities required for teaching and learning:

- White board
- Data show
- Internet

Course coordinator: Dr. Mohamed Thabat

Head of the Department: Associate Professor: Ibrahim Goda

Date: December 2018

Modern Academy for Engineering and Technology

Course Specification

ARCN224:Design Methodology

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architectural Engineering and Building Technology
Department offering the course: Architectural Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic information

Title: Design Methodology **Code:**ARCN224 **Level:**Junior -Level 2 –6th Semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARCN122

C - Professional information

1 – Course Learning Objectives:

The course aims to enhance the student's performance and organizational skills in relation to the design process, throughout illustrating the traditional, creative, scientific design methodologies and their various tools, ways and methods. It conducts a review for the comprehensive design steps which includes; program preparation in relation to the needs and limitations, in addition to analyzing the project components' which contains the parts, relationships and variables. Students will be able to identify and develop goals and basic ideas for the project, compare the alternatives and recognize the tools and methods to assist them during the design process. They will also understand the communication methods they can use to illustrate the concept and design.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - defining and articulating architectural designing problem (A5).
a2 - The concepts, methods of designing process (A4)
a3 - The impact of advanced building technology on design (A8,A11).
a4 - Ethics and morals of practicing the architectural profession. (A9)
a5 -The relationships between built forms, socio-economic and environmental parameters(A9-A11)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 -Think systematically along the design process, analyze architectural propose alternative solutions, and select the best solutions, the evolution of its theories and applications over the years(B4).
b2 - Select and use design situations and solve design problems concentrating on analyzing specific groups of needs and producing new solutions and designs at various levels of the system of design process of architectural, urban and planning projects under information flow of the general design system(B4).
b3 - Solve problems of buildings and analyze their elements, details, materials and methods of execution (B4).

b4 - Analyze problems into sub-problems towards a controllable handling of elements(B7)
b5 - Develop philosophical analogies and symbolic metaphors in architectural context(B7)
b6 -Produce innovative design ideas and concepts (B20).

C- Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Analyze architectural projects of various scales and levels of complexity (C4, 12)
c2 - Recognize different construction& finishing materials and the concept of each one. (C3,15)
c3 - Manage architectural designing processes. (C8,C9)
c4- Analyze, understand and make use of environmental and Scio-culture circumstances and contexts. (C8,C20)
c5 - Design and compare analyze and interpret the results. (C15)
c6 - Produce new architectural forms and design solutions of real societal problem(C18)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Search for information's from references, journals and internet. (D3)
d2 - Communicate effectively. (D3)
d3 - Lead and motivate individuals. (D5)
d4 - Manage tasks and resources efficiently. (D6)
d5 - Adopt life-long self-learning. (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A5,A8, A9, A11
B	Intellectual skills	B5, B7, B20
C	Professional and practical skills	C3, C4, C8, C12,C15,C18,C20
D	General and transferable skills	D3, D5, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Traditional methods of thinking	2		
2. Architectural problem & objectives	2		
3. Main Goals ,Secondary Goals	2		
4. Pyramid of Goals	2		
5. Architectural Invention process	2		
6. Phases of design process Tools of Architectural invention	2		
7. Mid Term Exam			
8. Methods of Architectural process Methods of Data Collection	2		
9. Architectural Design Process phases	2		
Examples of Different Building Design ,Goals , Zoning	2		
10. Different components forms ,shapes, in Architecture	2		
11. Different Architectural ,icons Ideas	2		
12. Explain Different Architectural examples ,concept ,idea	2		
13. Researches Presentation, revision	2		
14. Traditional methods of thinking	2		
Total hours	**26**		

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1		1							1				1							
	a2	1		1								1											
	a3	1														1		1		1			
	a4	1		1			1									1		1		1			
	a5	1		1			1									1		1		1			
Intellectual Skills	b1	1		1			1	1					1										
	b2	1		1			1	1					1										
	b3	1		1			1	1					1										
	b4	1		1	1		1	1				1				1				1			
	b5	1		1	1		1	1				1				1				1			
	b6	1		1								1											
Applied Professional Skills	c1	1	1					1	1				1										
	c2	1	1						1			1								1			
	c3	1	1				1	1				1	1			1							
	c4	1	1				1	1				1	1			1							
	c5	1	1	1	1			1					1							1			
	c6	1	1										1										
General Tran. Skills	d1			1				1				1											
	d2			1				1				1											
	d3	1	1	1			1	1								1		1		1			
	d4	1	1				1	1				1											
	d5			1								1			1					1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Assignments and term papers	Bi-month	40
Mid-term exam	Seven week	20
Final exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes: Digital notes

6-2 Required books

Lectures of systematic design (3rd year) By : Dr. Nahed Omran ,cairo,

6-3 Recommended books:

- Ching, F. D., (2014), “Architecture: Form, Space and Order”, John Wily & Sons, Inc., USA.

- Gllancy, J., (2002), “The Story of Architecture”, D.K. Publishing, NY, USA.

6-4 Periodicals, Web sites, etc.، مطابع الأهرام، القاهرة، مصر.“علي رأفت، (١٩٩٧)،” الابداع الفني والابداع المعماري -البيئة والفراغ

www.greatbuildings.com

7- Facilities required for teaching and learning:

traditional system - the board.
Presentation methods – Projector-data show.
Books, Magazine, internet .
Researches and Applied Researches

-

Course coordinator: Dr. Al Moataz Bellah
Head of the Department: Associate Professor: Ibrahim Gouda
Date: Desember 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification

ARCN216: Environmental Control

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic information

Title: Environment Control **Code:** ARCN 216 **Level:** two –sixth Semester
Credit Hours:2 **Lectures:** 2 **Tutorial/Exercise:**-1 **Practical:** 0
Pre-requisite: ARCN 210

C - Professional information

1 – Course Learning Objectives:

The course aims to introduce the basics of environmental design, throughout discussing the concepts of environment and its elements; climate types, impacts of climate change on human, climatic regions of Egypt. In addition, it illustrates other concepts such as; achieving thermal comfort, heat transfer in buildings, solar design, and natural ventilation and lighting in buildings. Students will also be introduced to some modern concepts related to environmental architecture and sustainability.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - The natural sciences, engineering information relevant to architectural practices and the role of the architect in simulating and modeling of physical environment and its processes, and application of such information on the built environment. (A1)
a2 - The relationships between built forms and environmental parameters(A12)
a3 -The principles of environmental and climatic design [including solar radiation, heat transfer, natural ventilation, daylight, energy saving…](A12)
a4 - Spatial requirements for human comfort. (A4)
a5-Criteria and specifications appropriate to specific problems,and plan strategies for their solution (A5)
a6-the role of the architect in maintaining the balance between the building and its environment(A5) .
a7-The current and underlying technologies thatsupport environmental approaches in architecture (A24)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Think systematically along the design process, analyze design problems, propose alternative solutions, and select the best solutions. (B2)
b2 -Produce innovative design ideas and concepts from environmental point of view(B15-B13)
b3 - Solve environmental problems of buildings and analyze their elements, details, material (B3-B17)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Develop architectural designs that are functionally sound, environmentally appropriate aesthetically plausible, users' friendly and technologically up-to-date. (C1-C17)
c2 - Analyze , understand and make use of environmental circumstances and contexts(C2-C19)
c3 – Develop arrange of fundmental research skills to prepare professionally sound technical scientific report ,through the use of online resources technical repositories and library- based material(C11)
c4 -. Demonstrate environmental studies that are applicable to building technology techniques and processes.(C25)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Collaborate effectively within multidisciplinary. (D1)
d2 - Work in stressful environment and within constraints. (D2)
d3 - Communicate effectively. (D3)
d4 - Demonstrate efficient IT capabilities. (D4)
d5 - Lead and motivate individuals. (D5)
d6 - Manage tasks and resources efficiently. (D6)
d7 - Search for information and adopt life –long self-learning. (D7)
d8 - Acquire entrepreneurial skills. (D8)
d9_ Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for life-long learning . (A1,A4,A5 ,A12,A24).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A5, A8, A12,A24
B	Intellectual skills	B2, B3, B13, B15, B17
C	Professional and practical skills	C1, C2, C11, C17, C19,C25
D	General and transferable skills	D1, D2,D3, D4,D5,D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction –Environment and its physical aspects	2	1	
2. Sun path and directions of building	2	1	
3. climatic regions and levels of design	2	1	
4. Climatic Elements affecting design process	2	1	
5. Solar Radiation and its properties	2	1	
6. Design of sun breakers	2	1	
7. Mid-Term Exam	2	1	
8. heat and thermal behavior of the building			
9. wind movement and buildings	2	1	
10. Basics of natural ventilation of the building	2	1	
11. Elements of human comfort	2	1	
12. Components of day lighting Day lighting 13. design tools	2	1	
14. Environmental building anylisis	2	1	
15. Research presentation & Discussion	2	1	
Total hours	**26**	**13**	

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1				1					1				1		1		1			
	a2	1	1	1			1					1						1		1			
	a3	1	1	1	1			1				1											
	a4	1	1	1			1					1						1					
Intellectual Skills	b1	1	1				1	1				1				1							
	b2	1	1		1		1	1				1	1			1				1			
	b3	1	1		1		1	1				1	1			1				1			
Applied Professional Skills	c1	1		1			1	1				1				1		1		1			
	c2	1		1			1	1				1				1		1		1			
	c3			1			1					1											
General Tran. Skills	d1			1				1				1	1		1				1				
	d2			1			1	1				1				1				1			
	d3			1				1				1	1		1				1				
	d4	1	1	1			1	1				1				1							
	d5			1				1				1	1		1				1				
	d6						1					1				1			1	1			
	d7			1								1								1			
	d8	1	1				1	1				1			1	1				1			

5- Assessment Timing and Grading:1

Assessment Method	1Timing	Grade (Degrees)
Mid-term exam	7th week	20
quizzes	2-3-8-12week	10
Assignments (problems)	Every week	15
Final research	13 th week	15
Final exam	16th week	40
Total		100

6- List of references:

6-1 Course notes: Non

6-2 Required books

6-3 Recommended books:

- Randall Thomas ,(2006) "Environmental Design- An introduction for architects and engineers", , Published by Taylor & Francis Inc.
- Mary, J., (2015), “Architecture and Passive Design”, Design Media Publishing Limited, UK.

- Moore, F., (1993), “Environmental Control (heating, cooling, lighting)”, McGraw-Hill. Inc., USA.
- شفق الوكيل، (٢٠١٦)،” المناخ وعمارة المناطق الحارة“، مكتبة دار المعارف، القاهرة.

6-4 Periodicals, Web sites, etc.

- https: // www.sbv.org
- https://eere-exchange.energy.gov

7- Facilities required for teaching and learning:

- Data Show
- Overhead projector
- Projection screen

Course coordinator: Dr. Heba Mahrous Ali
Head of the Department: Associate Professor: Ibrahim Gouda
Date: July , 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN215: Foundations

A- Affiliation

Relevant program/s:	Archtecture Engineering and Building Technology BSc Program
Department offering the program:	Archtecture Engineering and Building Technology Department
Department offering the course:	Archtecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Foundations **Code:** ARCN215 **Level:** 2nd, Sixth Semester
Credit Hours: 2 **Pre-requisite:** ARCN214
Contact Hours: **Lectures:** 2 **Tutorial:**- **Laboratory:** - **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The course aims to introduce students with some fundamental concepts in the study of soil mechanics and foundation throughout studying basic soil properties and its classification. It also includes soil compaction, stresses transfer in soil, and soil consolidation. It will also discuss lateral earth pressure, design of shallow footings, pile foundation, soil investigation, and finally how to determine and test the suitable type of foundation.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- soil investigation. (A3)
a2- Principles of determining bearing capacity of soil. (A4)(A5)
a3- Basics of foundation design. (A4)(A5)(A15)
a4- The use of deep foundation. (A9)(A15)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Select the type of foundation to be used for building. (B2)-(B22)
b2- Choose the most suitable way for soil classification. (B2)
b3- Use the principles of Design-to-Design economical foundation. (B5)
b4- Choose the suitable types of piles to be used. (B5)(B6)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Utilize the soil investigation report. (C1)(C12)
c2- Design different types of foundations. (C3)(C13)
c3- Check if the foundation can be safe or not.(C14)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Supervise foundation work in the site.(D6)
d2- Cooperate with other students. (D6)

Course Contribution in the Program ILO's

ILO's	Program ILO's

A	Knowledge and understanding	A3, A4 A5 A9, A15
B	Intellectual skills	B2, B5, B6, B22,
C	Professional and Practical Skills	C2,C12, C13, C14
D	General and transferable skills	D6

3 – Contents

	Topic	Lecture hours	Tutorial hours	Practical hours
1	Introduction to Soil Mechanics	2	1	
2	Soil Exploration	2	1	
3	Soil classification	2	1	
4	Physical properties of soil	2	1	
5	Mechanical properties	2	1	
6	Active soil pressure	2	1	
7	Mid-Term Exam			
8	Bearing Capacity of the types of soil Compaction of soil	2	1	
9	Foundation introduction	2	1	
10	Design of isolated square footing	2	1	
11	Design of isolated rectangular footing	2	1	
12	Design of combined footing	2	1	
13	Design of raft foundation	2	1	
14	Deep foundation	2	1	
15	Deep foundation	2	1	
	Total hours	**28**	**14**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1						1		1		1	1	
	a2	1			1					1		1	1	1
	a3	1			1					1		1	1	1
	a4	1			1									
Intellectual Skills	b1	1			1	1		1		1		1		1
	b2	1			1	1				1		1	1	1
	b3	1			1	1								
	b4	1			1	1								
Applied Prof. Skills	c1	1	1		1	1				1	1	1	1	1
	c2	1			1					1		1	1	1
	c3	1		1	1	1		1	1				1	1
n er al S	d1			1	1			1						1

Course ILO's	Teaching Methods						Learning Methods		Assessment Method				
	Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
d2			1				1						1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	5 Quizzes (every 3 weeks)	15
	Reports	Two reports per semester	10
	Assignments	Weekly	15
Practical Exam		---	--
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Foundations.

6-2 Required books

- Saran, S., (2017), "Shallow Foundations and Soil Constitutive Laws", CRC Press, USA.
- Radwan, A., (2010), "Fundamental of Soil Mechanics", Dar Elkotob, Cairo, Egypt.

Muni, B., (2010), "Soil Mechanics and Foundations", Vol. 3, Wiley.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

http://www.ACI.com.
https://www.ASCE.com.
https:// www.hbrc.edu.eg.

7- Facilities required for teaching and learning:

- Data show and Computer programs.

Course coordinator: Professor Adham El Alfy
Head of the Department: Professor Ibrahim Gouda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN241: History of Architecture.(2)

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: History of Architecture.(2) **Code:** ARCN241 **Level:** 2 ,Sixth Semester

Credit Hours: 2 **Pre-requisite:** ARCN141

Contact Hours: **Lectures:** 2 **Tutorial:**1 **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course aims to continue with studying the ideas that affected on the formation of architecture until the end of the European Renaissance. It involves conducting an analytical study of the different historical periods starting with Early Christianity passing by the Coptic dawn in Egypt, Byzantine and Romanesque architecture, Gothic-style in Europe and until reaching the age of the European renaissance. Students will continue with developing their criticizing and analyzing skills by making sketches for some buildings and their distinguished elements.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - History of architecture. (A19)

a2 - New concepts for buildings forms through history. (A19)

a3 - basic feature of the early Christian architecture. (A12, A19)

a4 - basic feature of the Romanesque and gothic architecture. (A12, A19)

a5 - Comprehending the main features of historic art and architectural styles(A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Develop abilities to undertake data gathering tasks (B7)

b2 - Master data analyses, interpretation, and manipulation. (B13,B14)

b3 -Deduct grounded criteria and guidelines from a given design problem(B14)

b4 - Induct theoretical models out of a particular studied context (B14,B21)

b5 -Integrate different scales of design, ranging from interior details to urban development and town planning schemes(B20,B21)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1–Practice manual drafting and freehand sketching(C13)

c2 - Identify the difference between styles of Architecture & interpret their concepts. (C18)

c3 - Present architectural project in digital research & produce it visually to the audience. (C12)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Work in team environments(D2)

d2 - Write reports and prepare visual presentations(D9)

d3 - Present researches in teamwork (D3- D4-D5)

d4- Use the Email for communication (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A12,A19
B	Intellectual skills	B7,B13,B14,B20,B21
C	Professional and practical skills	C12,C13.C18
D	General and transferable skills	D2,D3,D4,D5,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. General introduction for the course	2	1	-
2. Christian age	2	1	-
3. Christian age	2	1	-
4. Coptic architecture	2	1	-
5. Byzantine architecture	2	1	-
6. Byzantine architecture	2	1	-
7. Mid-Term Exam			-
8. Romanesque architecture	2	1	-
9. Gothic style in France	2	1	-
10. Gothic style in Italy	2	1	-
11. Gothic style in Europe	2	1	-
12. Digital Presentation of the Final Researches: 13. (Jury) : *Staff's Criticism / Evaluation for each Student*	2	1	-
14. Digital Presentation of the Final Researches:	2	1	-
15. (Jury) : *Staff's Criticism / Evaluation for each Student*	2	1	
Total hours	**28**	14	-

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessment Method

		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1			1					1				1							
	a2	1	1	1			1					1				1							
	a3	1	1	1	1		1	1				1				1				1			
	a4	1	1	1	1		1	1				1				1				1			
	a5	1	1	1			1					1				1							
Intellectual Skills	b1	1	1		1		1					1		1		1				1			
	b2	1	1	1		1	1	1				1			1	1				1			
	b3	1	1	1		1	1	1				1			1	1				1			
	b4	1	1	1		1	1	1				1			1	1				1			
	b5				1			1		1		1								1			
Applied Professional Skills	c1	1	1	1	1		1					1				1				1			
	c2		1	1	1		1					1	1		1	1				1			
	c3				1							1				1				1			
General Tran. Skills	d1	1	1	1			1					1								1			
	d2	1	1									1								1			
	d3	1		1	1							1			1	1				1			
	d4	1	1	1			1	1				1											

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments ,seminars ,quizes assignments and reports	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Non

6-2 Required books: Reham Ibrahem momtaz – 2009

6-3 Recommended books:

- Koch, G., (2012), "Early Christian Art and Architecture", Hymns Ancient & Modern Ltd, UK.
- Gllancy, J., (2002), "The Story of Architecture", D.K. Publishing, NY, USA.
  Mcnutt, S., (1997), "Church & Cathedrals Masterpieces of Architecture", Smithmark Publishers, New York, USA.

6-4 Periodicals, Web sites, etc.

- Progressive Architecture
- www.Greatbuilgings.com
- www.Archinform.com

7- Facilities required for teaching and learning:

- Blackboard / whiteboard & chalk.
- Listing methods.
- Books, scientific references, specific internet sites.
- Data Show projects.

Course coordinator: Associate Professor Reham Momtaz
Head of the Department: Associate Professor: Ibrahim Goda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN225: Visual Training (2)

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architecture Engineering and Building Technology Department
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: December 2018

B - Basic Information

Title: Visual Training (2) **Code:** ARCN225 **Level:** 2 rd ,Sixth Semester
Credit Hours: 2 **Pre-requisite: ARCN123**
Contact Hours: **Lectures:** 1 **Tutorial:**3 **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

Following one semester of visual training, the course aims to continue with enhancing the students' presentational skills, throughout using colors. This is achieved by studying the colour elements such as homogeneity and harmony of colours and how to present different materials illustrating their depth and shadows, in addition to studying the various colour principles. Students will be trained to practically apply colours using materials and tools, such as water colours or any other equivalent colour technique, to enhance their presentational skills in rendering the various architectural elements, throughout many practical applications.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1 - Naturally Definition of color The fundamentals of. (A1)
a2 - Different color theories and philosophy of color(A19)
a3 - The coloring techniques in architectural presentation (A13)
a4 - Different elements of presentation of architectural projects(A13)

b - Intellectual skills:

On successful completion of the course, the student should be able to.
b1 - Think systematically along the design process, and its color scheme, propose alternative solutions. (B16)
b2 - Integrate theoretical studies of colors with practical reality(B14)
b3 - select the best color scheme for architectural projects(B13)
b4 - Develop visual sensitivity towards materials, colors and textures(B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Practice Manual drafting and freehand sketching(C14)
c2 - Practice techniques of manual presentation using different tools and media(C14)
c3 - Introduce professional 2D drawings(C13)
c4 - Draw 3D perspective views with full presentation of colors ,shades and shadows(C13)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Collaborate effectively within multidisciplinary. (D1)
d2 - Work in stressful environment and within constraints. (D2)
d3 - Communicate effectively. (D3)

d4 - Manage tasks and resources efficiently. (D6)
d5 - Search for information and adopt life –long self-learning. (D7)
d6 - Acquire entrepreneurial skills. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A19, A13
B	Intellectual skills	B13, B14, B16
C	Professional and practical skills	C13, C14
D	General and transferable skills	D1, D2, D3, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction of color as phenomena, color symbol, properties, and psychology of color effect	1	3	
2. Painting circle of (3)basic color (6 -12)	1	3	
3. color theory of Ostwald and coloring techniques	1	3	
4. color notation (Mansell theory) and coloring techniques	1	3	
5. Color value and Grey scale	1	3	
6. Intensity of color (chrome)	1	3	
7. Mid-Term Exam			
8. Cool & warm colors	1	3	
9. Research presentation & Discussion	1	3	
10. Combining & contrasting colors	1	3	
11. Harmony & disharmony of colors	1	3	
12. Introduction water colors naturally	1	3	
13. Drawing architectural water colors project and manual presentation	1	3	
14. water colors in presenting layout and plans	1	3	
15. water colors in presenting elevations	1	3	
Total hours	**14**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1			1	1				1			1	1
	a2	1			1	1				1			1	1
	a3	1			1	1							1	1
	a4	1			1	1							1	1
Intellectual Skills	b1	1	1		1	1		1	1	1		1	1	1
	b2	1	1		1	1		1	1	1		1	1	1
	b3	1	1		1	1		1	1	1		1	1	1
	b4	1	1		1	1		1	1	1		1	1	1
ied Prof.	c1	1	1		1	1		1	1	1		1	1	1
	c2	1	1		1	1		1	1	1		1	1	1

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	c3	1	1		1	1		1	1	1		1	1	1
General Tran.	d1		1	1				1	1				1	
	d2		1	1				1	1				1	
	d3		1	1				1	1				1	
	d4	1	1									1	1	1
	D5										1			
	d6	1	1							1			1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Lecture notes and hand outs

6-2 Required books

- Needham, T., (2013), "The Art of Watercolor Painting: Master Techniques for Creating Stunning Works of Art in Watercolor", Walter Foster Publisher, USA.
- David, R. B., (1999), "Understanding Colors at Home", Thames & Hudson. USA.

، الانجلو المصرية، القاهرة، مصر."(١٩٩٧)،" الاظهار المعماري محمد عبد الله،

6-3 Recommended books

Leslie Redhead- Tricks and TechniquesPaperback – February 15, 2017

6-4 Periodicals, Web sites, etc.

https://watercolorpainting.com// / (Last accessed February 12, 2019).

https://www.wikihow.com/Approach-Watercolor-Painting-As-a-Beginner/ (Last accessed February 12, 2019).

7- Facilities required for teaching and learning:

White boards and markers. Drawing halls for exercises.

Course coordinator: Dr. Amira Mostafa

Head of the Department: Associate Professor: Ibrahim Goda

Date: December 2018

Modern Academy

for Engineering and Technology in Maadi

Course Specification

ARCN223: ARCHITECTURAL DESIGN 4

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department offering the course: Architecture Engineering and Building Technology Department

Date of specifications approval: December 2018

B - Basic Information

Title: Architectural Design 4 **Code:** ARCN223 **Level:** Senior 2, Sixth Semister

Credit Hours: 3 **Pre-requisite:** ARCN222

Contact Hours: **Lectures:** 1 **Tutorial/ Exercise:**6 **Laboratory:** - **Total:** 7

C - Professional Information

1 – Course Learning Objectives:

The course aims to continue with guiding and developing the students' abilities and talents while dealing with different building constructions, as a main constrain in modeling spaces and architectural forms. This was achieved throughout different applications, depending on the structural concept as a defining element for spaces and aesthetical architectural design, while fulfilling the functional and environmental needs. The practical application will be on a slightly complex public project with a structural and formal dimension.

2 - Intended Learning Outcomes (ILOS

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Fundamental engineering sciences relevant to architectural practices(A5)

a2 - The phases, methods and approaches to design process(A5-A13)

a3 - The spatial regards for cultural context and environmental constraints (A17-A21)

a4 - The relationships between built forms, socio-economic and environmental parameters(A13)

a5 - The principles of environmental and climatic design [including natural ventilation, daylight, passive solar energy] (A23)

a6 - The relationship between aesthetics and functionality, flexibility and adaptability(A13,A14)

a7 - The spatial requirements for human needs and occupants' comfort (A21)

a8 - The principles of landscape architecture(A18)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Develop abilities to undertake data gathering tasks (B3)

b2 - Master data analyses, interpretation, and manipulation. (B4)

b3 -Deduce grounded criteria and guidelines from a given design problem(B3)

b4 - Induce theoretical models out of a particular studied context (B13)

b5 - Relate different branches of studied courses together in a holistic manner(B13)

b6 - Integrate theoretical studies with practical reality(B13)

b7 - Promote investigation and exploration abilities in research work(B3- B13)

b8 - Improve logical reasoning faculties(B4)

b9 - Distill knowledge from precedent experiences(B4)

b10 - Set alternatives (B4)

b11 - Classify, compare, examine and assess the validity / feasibility of pre-set alternatives(B13)

b12 - Improve creative problem-solving and decision-making faculties(B13)

b13 - Ability to analyze problems into sub-problems towards a controllable handling of elements(B14)

b14 - Synthesize solution mechanisms and components properly (B13)

b15 - Improve the ability to understand numeric connotations(B13)
b16 - Develop architectural and structural sense of scale and proportions(B13)
b17 - Stimulate imaginative abilities(B13)
b18 - Improve environmental sense(B13)
b19 - Develop philosophical analogies and symbolic metaphors in architectural context(B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Professional techniques of manual presentation using different tools and media(C6)
c2 - Architectural model-making with different materials and techniques(C3)
c3 - Introducing professional 2D drawings(C6)
c4 - Developing architectural designs that are functionally sound, environmentally appropriate aesthetically plausible, users' friendly and technologically up-to-date. (C17)
c5 - Designing projects of various scales and levels of complexity (C17)
c6 - Mastering architectural morphology and spatial organization within sound geometric relations (C17)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Communicating ideas verbally and visually in a clear coherent manner (D3)
d2 - Active involvement in-group discussions and mutual critiques(D3)
d3 - Improved communication skills with versatile backgrounds in field research -(D7)
d4 - Defending ideas and convincing others (D7)
d5 - Presenting seminars and public talks (D7)
d6 - Ability to work in team environments(D3)
d7 - Sound task allocation amongst team members(D3)
d8 - Working under pressure(D3)
d9 - Familiar interaction with libraries, books, periodicals, internet (D7) …
d10- Organization and documentation skills (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A5, A13, A14, A17, A18, A21
B	Intellectual skills	B3, B4, B13, B14
C	Professional and Practical Skills	C3, C6, C17
D	General and transferable skills	D3,D7

3 – Contents

Topic		Lecture hours	Tutorial hours	Practical hours
1	1st project : Central library	1	6	
2	Library project + site analysis	1	6	
3	Design criteria of library buildings	1	6	
4	Bubble diagram + zoning of elements	1	6	
5	Site model	1	6	
6	Masses – model - Concept development	1	6	
7	Mid-Term Exam			

8	Drawing master plan	1	6	
9	Solving design – problems in plan	1	6	
10	Final plans	1	6	
11	Drawing main sections	1	6	
12	Drawing elevations	1	6	
13	Formation development in elevations	1	6	
14	Drawing 3d perspectives or isometric	1	6	
15	Final site design Final preservation of project + jury	1	6	
Total hours		**14**	**84**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1							1	1	1						1			
	a2	1	1	1	1		1	1	1			1	1	1		1		1		1			
	a3	1	1	1	1							1	1	1						1			
	a4	1	1	1	1		1	1	1			1		1						1			
	a5	1	1	1	1		1	1	1			1		1					1	1			
	a6	1	1		1			1	1						1				1	1			
	a7	1	1		1			1	1						1	1			1	1			
	a8	1	1		1			1	1						1				1	1			
Intellectual Skills	b1	1		1	1		1	1	1	1			1						1	1			
	b2	1		1	1		1	1	1	1			1						1	1			
	b3	1		1	1		1	1	1	1			1			1			1	1			
	b4		1	1			1	1	1										1				
	b5		1	1			1	1	1										1				
	b6		1	1			1	1	1										1				
	b7	1	1	1	1		1	1	1	1			1						1				
	b8			1	1		1	1	1				1		1					1			
	b9			1	1		1	1	1				1		1					1			
	b10			1	1		1	1	1				1		1	1				1			
	b11		1	1			1	1	1										1				
	b12		1	1			1	1	1										1				
	b13	1	1					1	1			1		1	1	1				1			
	b14		1	1			1	1	1										1				
	b15		1	1			1	1	1										1				
	b16		1	1			1	1	1										1				
	b17		1	1			1	1	1										1				
	b18		1	1			1	1	1										1				
	b19		1	1			1	1	1										1				
Pro fes	c1	1	1	1	1		1		1	1		1	1			1			1	1			
	c2				1				1	1		1				1				1			

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
	c3	1	1	1	1		1		1	1		1	1			1			1	1			
	c4				1		1	1	1			1				1			1				
	c5				1		1	1	1			1				1			1				
	c6				1		1	1	1			1				1			1				
General Tran. Skills	d1	1	1	1			1	1				1		1									
	d2	1	1	1			1	1				1		1									
	d3			1					1			1							1	1			
	d4			1					1			1							1	1			
	d5			1					1			1							1	1			
	d6	1	1	1			1	1				1		1									
	d7	1	1	1			1	1				1		1									
	d8	1	1	1			1	1				1		1									
	d9			1					1			1							1	1			
	d10	1	1	1			1	1				1		1									

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	sketches	1 sketch (every week)	20
	project	1project	10
	research	1 research	10
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: lecture notes & handouts

6-2 Required books

- Lockard, M. S., (2017), "The Nature of Design: Principles, Processes and the Preview of the Architect", ORO Editions, USA.
- Boswell, C. K., (2013), "Exterior Building Enclosures: Design Process and Composition for Innovative Facades", Wiley Publishing, USA.

Steele, J., (2001), "Architecture Today", Second Edition, Phaeton Press Limited, London, UK..

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

www.archinform.com

www.greatbuildings.com

Arca

Medina

Alem Al Benaa

7- Facilities required for teaching and learning:

- White board
- overhead projector / Data Show
- Audio Video facilities: Video, T.V, P.C.
- Computer labs

Course coordinator: Professor Asamer Zakaria
Head of the Department: Professor Ebrahim Goda
Date: Desember 2018

Architecture Trainning

Modern Academy for Engineering and Technology

Course Specification

ARCN 260: Architecture Training (1)

A- Affiliation

Relevant program:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology
Department offering the course:	Architecture Engineering and Building Technology
Date of specifications approval:	December 2018

B - Basic information

Title: Architecture Training **Code:** ARCN 260 **level:**Junior -Level 2 –Summer

Credit Hours:3 **Lectures: --** **Tutorial/Exercise: -** **Practical:-**

Pre-requisite :ARCN 211 – ARCN 160

C - Professional information

1 – Course Learning Objectives:

The objective of the course is to develop students' practical capabilities by practicing. in one of the national construction companies and learning computer skills such as Primavera Program Level (1) .

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire the flowing knowledge and understanding:

a1 - Technical language and report writing. (A10)

a2 - The specifications, programming, and range of application of CAD and CAD/CAM facilities. (A14)

B - Intellectual skills:

By the end of the course the student should be able to:

b1 - Select appropriate solutions for engineering problems based on analytical thinking(B2)

b2 - Interpret numerical data and apply analytical methods for engineering design purpose. (B16)

b3 - Select appropriate manufacturing method considering design requirements. (B18)

C- Professional and practical skills:

By the end of the course the student should be able to:

c1 - Apply numerical modeling methods to engineering problems. (C7)

c2 - Apply safe systems at work and observe the appropriate steps to manage risks (C8)

D - General and transferable skills

By the end of the course the student should be able to:

d1- Improving design skills. (D8)

d2 - Work in groups. (D1)

d3 - Present work documentation in written and oral form. (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A10,A 14
B	Intellectual skills	B2,B16,B 18
C	Professional and practical skills	C7, C 8
D	General and transferable skills	D1,D3, D8

3 – Contents

	Topic	**Lecture hours**	**Tutorial hours**	**Practical hours**
1	Computer Skills (CAD –REVIT -3D MAX ……)	-	-	6
3	Progect management	-	-	6
4	Site Visit	-	-	6
	Total hours	**-**	**-**	**18**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments	Researches and Reports		
Knowledge & Understanding	a1	1		1				1				1		1				1			1		
	a2	1		1										1				1			1		
Intellectual Skills	b1	1		1				1				1	1							1			
	b2	1		1				1				1						1			**1**		
	b3	1		1				1				1						1			**1**		
Applied Professional Skills	c1	1		1						1		1		1				1			1		
	c2	1		1						1		1		1				1			1		
General Tran. Skills	d1		1	1								1		1							1		
	d2		1	1								1		1							1		
	d3		1	1								1		1							1		

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Semester Work: assignments ,Research	Bi-Weekly	60%	60
Final Report	Fourth week	20%	20
Oral Test	Fourth week	20%	20
Total		100%	100

6- Facilities required for teaching and learning:

White boards and markers.
Well equipped space for lectures and digital presentation.
Site visits

Course coordinator: Dr. Nahed Omran

Head of the Department: Associate Professor: Ibrahim Gouda
Date: December 2018

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Senior 1
Third year Architecture
Level 3

Course Specifications
Credit Hours System

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Senior 1
Third year Architecture
Level 3

S	Course	
	Code	Title
1	ARCN321	Architectural Design 5
2	ARCN323	Housing & City Planning (1)
3	ARCN325	Theories of Architectural and Art (3)
4	ARCN310	Technical Installations in buildings (1)
5	ARCN312	Working Drawing & Construction Methods (1)
6	GENN341b	Project Management
7	ARCN330	Elective3 Housing in developing countries
8	ARCN332	Elective3 Design, Environment planning & Power
9	ARCN335	Elective3 Landscape Design
10	GENN351b	Elective1 Engineering Economy
11	GENN352	Elective1 Environmental Effects of Electromagnetic Waves.
12	GENN353b	Elective1 Engineering Laws and Professional ethics.
13	GENN354	Elective1 Risk Management
14	ARCN322	Architectural Design 6
15	ARCN324	Housing & City Planning (2)
16	ARCN340	History of Architecture (3)
17	ARCN311	Technical Installations in buildings (2)
18	ARCN313	Working Drawing & Construction Methods (2)
19	ARCN331	Elective4 SustainableArchitecture
20	ARCN333	Elective4 Building technology and structure systems
21	ARCN334	Elective4 Advanced Studies in Interior Design
22	ARCN360	Architecture Training 2

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Modern Academy for Engineering and Technology
Course Specification

ARCN321: Architectural Design 5

A- Affiliation

Relevant program:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic information

Title: Architectural Design 5	Code: ARCN321	Level:Senior 1,Level 3, 7th Semester	
Credit Hours: 3	Pre-requisite: ARCN223	Tutorial/Exercise:6	Practical: -
Contact Hours :	Lectures : 1	ToTal : 7	

C - Professional information

1 – Course Learning Objectives:

The course aims to continue with studying the design principles of public buildings with mixed programs throughout following the steps of the scientific approach in design (BASDAC). It involves conducting various analytical studies for the project including environmental, site analysis, uses, structure system, interior and exterior spaces, etc. The practical application will be on complex public project with various structural systems and many masses, while studying the landscape and site organizing elements in between them.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Professional ethics and impacts of architectural design on human. (A11)

a2 - Principles of architectural design, human dimensions as a prime determinant of the scale, proportions, and spatial arrangement of a building spaces. (A4-A13)

a3 - Regulatory factors and zoning ordinance. (A13)

a4 - The role of the grid pattern (module) in the design process in reinforcing the functional, structural and spatial organization of a building design. (A13)

a5 - The use of various structural systems and its role in the design product. (A13)

a6 - The preparation and presentations of design projects in a variety of contexts, scales, types and degree of complexity. (A13)

a7- Principles of environmental and contextual forces that influence how we might situate a building, layout, and orient its spaces, articulate its enclosure, and establish its relation to the landscape. (A23)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Think in a creative and innovative way in problems based on analytical manner and informed design process. (B3)

b2 - Combine exchange and assess different ideas, views and knowledge from given architectural designs and projects. (B4)

b3 - Integrate site analysis tools, architectural data and design principles with analyzed project examples to create new solutions. (B13)

b4 - Think three-dimensionally and engage images of spaces and masses in the exploration of design. (B14)

b5 - Reconcile conflicting functional, regulatory and contextual objectives to reach optimum solutions. (B16)

b6 - Integrate relationship of appropriate structural solutions into the design process. (B17)

b7 - Appraise the spatial, aesthetic, technical, cultural and social qualities of a design within the scope of a wider context. (B19)

b8 - Discuss research and formulate informed opinions appropriate to specific context affecting design and

architectural practice. (B20)

C- Professional and practical skills:
On successful completion of the course, the student should be able to:
c1 - Practice the neatness and aesthetics in design and approach. (C4)
c2 - Produce a fully presented architectural projects using appropriate range of media and techniques. (C13)
c3 - Use appropriate construction and structural techniques to achieve creative designs. (C15)
c4 - Demonstrate professional competence in developing innovative and appropriate solutions of architectural problems. (C17)
c5 - Display imagination and creativity. (C18)
c6 - Respect all alternative solutions. (C19)
c7 - Provide designs with reference to sustainable design principles. (C20)
c8 - Respond effectively to the broad constituency of determinants with consideration of functional, regulatory and contextual realities. (C21)

D - General and transferable skills:
On successful completion of the course, the student should be able to:
d1 - Practice teamwork in the research work of a certain project. (D1)
d2 - Ability to present and explain concepts and ideas. (D3)
d3 - manage to order an architectural project. (D6)
d4 - Search for information from different sources. And effectively refer to it. (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4,A11,A13,A23
B	Intellectual skills	B3,B4,B13,B14,B16,B17,B19,B20
C	Professional and practical skills	C4. C13. C15 . C17. C18 . C19 . C20 . C21
D	General and transferable skills	D1,D3,D6,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Introduction to the design 1st project (A type of a project with a complex and multipurpose functions and spaces)	1	6	
Research: relevant architectural data and similar projects either International or local projects.	1	6	
Research: Data gathering, site analysis, climatic studies, zoning and analysis of similar projects	1	6	
Sketch 1 (Schematic / conceptual design)	1	6	
Sketch 2 (focuses on designing and formulating project plans)	1	6	
Sketch 3 (Design development for plans) + Sketch 4 (focuses on designing and formulating project elevations)	1	6	
Mid-Term Exam			
Sketch 5 (focuses on preparing project sections)		6	
Semi final sketch (Design Development for Layout, plans, elevations, sections and 3d models)	1	6	
Final sketch (Presenting Layout, plans, elevations, sections and 3d		6	

Topic	Lecture hours	Tutorial hours	Practical hours
models for approval). Presentation and rendering sessions			
Final Submission and Project Discussion	1	6	
Introduction to 2nd project(A type of a building of symbolic and structural implications)	1	6	
Sketch 1 (Schematic / conceptual design)	1	6	
Sketch 2 (Presenting proposed layout, plans, elevations, sections and 3d models) Final Submission and Project Discussion	1	6	
Introduction to the design 1st project (A type of a project with a complex and multipurpose functions and spaces) Research: relevant architectural data and similar projects either International or local projects.	1	6	
Total hours	14	84	

4 - Teaching and Learning and Assessment methods:

		Teaching Methods										Learning Methods				Assessment Method							
	Course ILO's	Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1												1		1							
	a2	1	1		1				1	1			1			1				1			
	a3	1	1						1	1			1							1			
	a4	1	1		1				1	1			1			1				1			
	a5	1	1		1				1	1			1							1			
	a6	1	1		1				1	1			1			1				1			
	a7	1							1			1											
Intellectual Skills	b1			1				1	1							1							
	b2								1	1			1			1							
	b3	1			1			1	1														
	b4				1			1	1			1											
	b5			1				1								1							
	b6	1		1					1					1									
	b7							1	1							1							
	b8	1			1				1					1		1							
Applied Professional Skills	c1	1							1	1													
	c2							1				1				1				1			
	c3				1	1			1	1			1										
	c4	1		1				1							1	1							
	c5	1							1				1			1							
	c6				1				1	1			1		1								
	c7			1				1	1							1							
	c8			1				1				1											

		Teaching Methods										Learning Methods				Assessment Method							
	Course ILO's	Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
General Tran. Skills	d1			1				1				1		1									
	d2	1		1				1		1					1	1							
	d3								1			1											
	d4											1		1	1	1				1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	40
Mid Term Exam	7th week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:
6-1 Course notes:
Handouts, Research papers and lectures will be given at appropriate time of the project progress depending on the studied project
6-2 Required books -
6-3 Recommended books:
Ching, F. D. K., (2014), “Building Structures Illustrated: Patterns, Systems and Design”, John Wiley & Sons Ltd., UK.
Jencks, C., (2000), “Architecture 2000 and Beyond”, John Wiley & Sons Ltd, UK.
Edward, W., (1975), “A vocabulary of Architectural Forms”, Architectural Media, USA.6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:
Appropriate teaching design studios including presentation board, data show, models, computer lab

Course coordinator: Dr. El Moataz Bellah
Head of the Department: Associate Professor: Ibrahim Gouda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN323 Housing & City Planning 1

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program
Department offering the program: Architecture Engineering and Building Technology Department
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: July 2018

B - Basic Information

Title: Housing & City Planning 1 **Code:** ARCN323 **Level:** Seventh Semester(level three)
Credit Hours: 2 **Pre-requisite:** ARCN226
Contact Hours: **Lectures:** 1 **Tutorial:3** **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

A study of this course will enable the student to know about: Urban theory and interdisciplinary explanations offered by urban geographers, sociologists, economists, and historians, The 'city' as a modular for planning ,Land-use theories and fundamentals& Residential communities

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1- Planning Principles. (A16,19)
a2- Geographic information systems concepts & application . (A17)
a3- Housing principles & how to plan a complete complex . (A22)

b - Intellectual skills:

On successful completion of the course, the student should be able to.
b1- Develop a design by linking different related subjects essential for the design such as: urban, financial, environmental & topographic studies. (B10,B12)
b2- Develop new ideas during the design process using the principles of planning(B13).
b3- Analyze data affecting the design process. (B11)
b4- Solve urban problems. (B10,B12)
b5- Apply Planning principles in new urban areas(B13).

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- Computerize the studies of site analysis with assistance of the (GIS) . (C6)
c2- Collect & analyze data that will make him / her develop a design for a complete complex. (C5)
c3- Design a residential complex in existing urban areas. (C21)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Learn methods to solve problem.
d2- communicate via digital techniques and present data using different software . (D2,3,5)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A11,A16,A17,A19
B	Intellectual skills	B10,B11
C	Professional and Practical Skills	C6,C20
D	General and transferable skills	D2,D3,D5

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Planning definition , elements & level	1	3	-
2. Thinking methodology	1	3	-
3. Thinking methodology	1	3	-
4. Site analysis studies	1	3	-
5. Site analysis studies	1	3	-
6. Following up the project	1	3	-
7. Mid-Term Exam			
8. Following up the project	1	3	-
9. Evaluating site analysis studies	1	3	-
10. Simian on neighbor hoods (Introducing neighbor hoods)	1	3	-
11. Following up the alternatives + Evaluation	1	3	-
12. Following up the alternatives + Evaluation	1	3	-
13. Evaluating alternatives	1	3	-
14. Semi final presentation (Following up the project)	1	3	-
15. Final Presentation	1	3	-
16. Planning definition , elements & level	1	3	-
17. Thinking methodology	1	3	-
Total hours	**14**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods										Learning Methods				Assessment Method							
	Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			

Knowledge & Understanding	a1	1	1			1			1	1		1	1	1									
	a2	1	1	1					1							1							
	a3	1		1								1				1							
Intellectual Skills	b1	1							1			1				1				1			
	b2				1			1		1				1									
	b3	1	1						1							1							
	b4	1	1						1							1				1			
	b5								1			1		1		1							
AppliedProfessional Skills	c1				1	1			1	1			1							1			
	c2				1	1			1	1			1			1				1			
	c3	1							1														
General Tran. Skills	d1	1		1				1	1						1	1							
	d2			1				1	1			1											

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Weekly assignments	weekly	5
Researches	Week 2, 4	10
Oral discussion	weekly	10
Mid-term exam	Week 7	20
Project	Week 14	15
final Exam	Week 16	40
Total		100

6- List of references:

- Reed, R., (2014), “Town Planning: RIBA Plan of work 2013 Guide”, RIBA Publishing, USA.
- Ford, K., (2010), “The Trouble with City Planning”, Yale University Press, USA.

شفق الوكيل، “التخطيط العمراني”، (٢٠٠٧). مصر، القاهرة، دار المعارف، الجزء الاول ،

6-1 Course notes: The Residential neighborhood – M. HasanAllana

6-2 Required books The Residential neighborhood – M. HasanAllana

6-3 Periodicals, Web sites, etc.

www.clac.com

www.googleearth.com

7- Facilities required for teaching and learning:

- Data Show
- Blackboard / white board and chalk

Course coordinator: Dr. Shahenaz Taie

Head of the Department: Associate Professor: Ibrahim Goda

Date: July 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN325 Theories of Architectural (3)

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology BSc Program
Department offering the course:	Architecture Engineering and Building Technology BSc Program
Date of specifications approval:	December 2018

B - Basic Information

Title: : Theories of Architecture & Arts (3)	**Code** ARCN325	**Level:** Senior 1,Level3**,** 7thSemester
Credit Hours: 2	**Pre-requisite:** ARCN227	
Contact Hours:	**Lectures:** 2	**Tutorial:**1 **Laboratory: 0** **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course aims to examine the architectural trends in the eighteenth and nineteenth century and their governing philosophical and artistic concepts, in addition to their effect on the architectural product, as an introduction to contemporary architectural trends. This is achieved throughout studying many periods such as; renaissance, baroque, rococo, and romantic period with its two schools; revivalism and eclecticism. It also illustrates the new art schools and logical architecture trend represented in steel and high rise architectures, and the appearance of Chicago school in the united states in the 19th century in parallel to school of fine arts in Paris. The study is conducted by using a comparative analytical approach for every school and trend and the reciprocal effects between art and architecture to illustrate the pros and cons for the architectural product of every period.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - History of architecture (renissence & 19th centry era). (A19)
a2 - New concepts for buildings forms through history. (A19)
a3 - Basic Architectural theories of (Renaissance & Enlightenment) Eras. (A4, A13)
a4 - basic feature of 19th century architecture. (A4, A13)
a5 - New ideas of building construction systems and their technology. (A24)
a6 - The main features of historic art and architectural styles. (A13, A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Analyze the given examples of the architectural works with high concern of the history of architecture & the evolution of its theories and applications over years. (B12- B21)
b2 - Produce innovative design ideas and concepts. (B14)

b3 - Develop his/her creativity & innovation. (B14)
b4 - Solve design problems. (B3)

c - Professional and practical skills:
On successful completion of the course, the student should be able to:
c1 - Produce creative & innovative designs. (C17,C18)
c2 - Identify the difference between styles of Architecture & interpret their concepts. (C19)
c3 - Present architectural project in digital research & produce it visually to the audience. (C13)

d - General and transferable skills:
On successful completion of the course, the student should be able to:
d1- Write reports and prepare visual presentations. (D9)
d2 - Present researches in teamwork . (D3, D4, D5)
D3-Use the Email for communication. (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4 ,A13,A19,A21,A24
B	Intellectual skills	B3,B12 ,B14,B21
C	Professional and Practical Skills	C13,C17,C18,C19
D	General and transferable skills	D3,D4,D5,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
General introduction for the course	2	1	
Architectural characteristics of Renaissance Era Analyzing projects of Architects.	2	1	
Architectural characteristics of Renaissance Era Analyzing projects of Architects.	2	1	
Architectural characteristics of BAROQUE, Analyzing projects of Architects	2	1	
Architectural characteristics of The Age of Enlightenment	2	1	
Social, technical and urban transformation in19th century The influences of the industrial revolution on art and architecture in 19th century	2	1	
Mid term exam	0	0	
Architectural trends and schools in 19thcentury	2	1	
Architectural trends and schools in 19thcentury	2	1	
Architectural trends and schools in 19thcentury	2	1	
The impact of new materials on architecture	2	1	
Architecture of steel and reinforced concrete in19th century	2	1	
Architecture of steel and reinforced concrete in19th century	2	1	
Digital Presentation of the Final Researches: (Jury) : *Staff's Criticism / Evaluation for each Student*	2	1	
Final Revision	2	1	
Total hours	**28**	**14**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1							1		1	1	1									
	a2	1	1							1		1	1	1									
	a3	1		1				1				1				1							
	a	1		1				1				1				1							
	a5	1		1								1		1						1			
	a6	1		1				1				1				1							
Intellectual Skills	b1	1	1					1					1										
	b2		1										1										
	b3	1										1			1								
	b4	1		1			1	1								1							
Applied Professional Skills	c1			1								1				1		1		1			
	c2				1					1		1	1			1							
	c3	1	1																	1			
General Tran. Skills	d1											1				1				1			
	d2			1				1				1											
	d3			1				1				1			1								

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	4 Quizzes (every 3 weeks)	8
	Reserch	Two reserch per semester	20
	paper	Bi-Weekly	12
Practical Exam		No	0
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes:

6-2 Required books

6-3 Recommended books:

- Ching, F. D., (2014), “Architecture: Form, Space and Order”, John Wily & Sons,

Inc., USA.

- ، دار نافع للطباعة والنشر، القاهرة، "عرفان سامي،" نظريات العمارة -مقرر السنة الاولى عمارة مصر.

6-4 Periodicals, Web sites, etc.

- Progressive Architecture
- www.Greatbuilgings.com
- www.Archinform.com

7- Facilities required for teaching and learning:

- Gallery to present the best researches.
- Computer, Data show

Course coordinator:	Dr / faten salah soliman
Head of the Department:	Prof / Ebrahim Gouda
Date:	December 2018

Modern Academy for Engineering and Technology in Maadi

ARCN310 **: Technical Installations in Buildings (1)**

A- Affiliation

Relevant program/s: Architectural Engineering & Building Technology B.Sc.Program

Department offering the program: Architectural Engineering & Building Technology B.Sc.Program

Department offering the course: Architectural Engineering & Building Technology B.Sc.Program

Date of specifications approval: December 2018

B - Basic Information

Title: Technical Installations in buildings1 **Code:** ARCN310 **Level:** 3rd (7th Semester)

Credit Hours:2 **Pre-requisite:** ARCN212

Contact Hours: **Lecturs:** 1 **Tutorial:**3 **Laboratory:** 1 **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

The course aims to illustrate the design principles and implementation requirements for industrial control inside buildings in the fields of air conditioning and lighting. Students will be able to understand the standards of thermal comfort, thermal conduction; storage and isolation, HVAC systems, heating and cooling loads, design criteria, central distribution and separate units. Additionally, they will gain the knowledge of artificial lighting throughout studying visual mechanisms, sources of artificial lighting and its design according to standards.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

- Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Concepts and theories of mathematics and sciences, appropriate to the discipline. (A1)

a2 - Principles of design including elements design, process and/or a system related to specific disciplines. (A4)

a3- Methodologies of solving engineering problems. (A5)

a4 - Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues. (A6)

a5- Contemporary engineering topics. (A12)

a6 - The concepts, methods and techniques of the building construction processes, its stages, elements, material, etc. (A24)

a7- The concepts, methods and techniques of mechanical installations' processes including structural, water, sewage, air conditioning systems. (A14)

a8 - The impact of advanced building technology on design. (A11,A24)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Select appropriate solutions for engineering problems based on analytical thinking. (B2)

b2 - Assess and evaluate effectively the characteristics and performance of components, systems and processes. (B5)
b3 - Analyze systems, processes and components critically. (B11)
b4 - Select and use design situations and solve design problems concentrating on analyzing specific groups of needs and producing new solutions and designs at various levels of the system of design process of architectural projects under the challenge of resource management and information flow of the general design system. .(B4,B7,B24)
b5 - Produce innovative design ideas and concepts. (B3)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Integrate knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems. (C1)
c2 - Merge engineering knowledge and understanding to improve design, products and/or services. (C15–C23)
c3 - Prepare professionally sound technical scientific reports. (C12)
c4 - Analyze, understand and make use of environmental circumstances and contexts(C19,C22,,C25)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Work in stressful environment and within constraints. (D6)
d2 - Manage tasks and resources efficiently. (D6)
d3 - Search for information and adopt life-long self-learning. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A4, A5,A6 ,A11,A12,A14 ,A24
B	Intellectual skills	B2, B3, B4,B5, B7,B11,B24
C	Professional and practical skills	C1, C12,C15, C19,C22 ,C23,C25
D	General and transferable skills	D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Principles of light. Principles of heat.	1	3	
2. Nature of light. Nature of heat.	1	3	
3. Nature of vision. Thermal load on buildings.	1	3	
4. Measurement of lighting. U – values.	1	3	
5. Measurement of lighting. U – values.	1	3	
6. Measurement of lighting. Thermal load upon building envelope.	1	3	
7. Mid-Term Exam.			
8. Artificial lighting. Luminaries. Thermal load upon building envelope.	1	3	
9. Artificial Lighting costs. Heat gain \ loss in buildings.	1	3	
10. Natural lighting. Heat gain \ loss in buildings.	1	3	
11. Natural light sources. Heat gain \ loss in buildings.	1	3	
12. Daylight factors. Thermal insulation.	1	3	
13. Combined lighting. Thermal insulation.	1	3	
14. Principles of light. Principles of heat.	1	3	

15. Nature of light. Nature of heat.	1	3	
Total hours	**14**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1		1			1									1							
	a2	1					1	1				1				1		1					
	a3	1		1								1											
	a4	1	1													1							
	a5	1		1									1			1				1			
	a6	1										1	1			1				1			
	a7	1		1			1																
	a8	1	1					1												1			
Intellectual Skills	b1			1			1	1					1			1		1					
	b2						1	1										1					
	b3			1			1	1				1						1					
	b4	1		1								1				1							
	b5	1										1			1					1			
Applied Professional Skills	c1	1		1			1	1										1		1			
	c2					1	1									1				1			
	c3			1			1	1		1			1			1							
	c4				1					1			1										
General Tran. Skills	d1			1								1				1		1					
	d2			1								1				1		1					
	d3			1								1				1		1					

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	40
Mid-Term Exam	7-th Week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:

-1 Course notes: Non

6-2 Required books

6-3 Recommended books:

- Mcmullan, R., (2016), "Environmental science in Building", 7th edition, Ashford Colour Press Ltd, Palgrave.

- Lechner, N., (2015), “Heating, Cooling, Lighting – Sustainable Methods for Architects”, 4th edition, John Wiley & Sons, Inc., Hoboken, New Jersey, USA.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Data Show
- Blackboard / white board and chalk.

Course coordinator: Dr. Sayed Abd El Kalek
Head of the Department: Asociate Prof. ibrahim Gouda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN312: Working Drawing & Construction Methods 1

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	July 2018

B - Basic Information

Title: Working Drawing & Construction Methods 1 **Code:** ARCN312 **Level3**rd ,Seventh Semester

Credit Hours: 3 **Pre-requisite:** ARCN212

Contact Hours: **Lectures:** 2 **Tutorial:**3 **Laboratory: -** **Total:** 5

C - Professional Information

1 – Course Learning Objectives:

By the end of this course, students should demonstrate the knowledge and understanding of construction drawings that follow the design intent. They should be able to prepare a graphic representation that communicate how to construct a project providing related information such as roofing, space designations, doors, windows, and fixture locations; dimensions; finishing materials; and other details.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Principles of working drawings and executive designs including elements, process and/or systems related to construction methods (A4).

a2- Current engineering technologies as related to disciplines (A8,A22).

a3- Principles of building technologies, structure & construction methods, technical installations, and the way they may influence design decisions (A14,A24).

a4- Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building (A15,A24)

a5- The role of the architecture profession relative to the construction industry (A21).

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Deduce the appropriate type of construction for a certain building (B3).

b2- Assign finishing materials for exterior and interior elements (B4).

b3- Integrate relationship of structure, building materials, and construction elements into design (B17,B24,B25).

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Transfer and interpret specific architectural elements into working drawings that could be implemented considering the common standards and requirements needed to communicate with other disciplines in the construction process (C14, C24).

c2- Practice the neatness and accuracy in the representation of how an object looks and how it is constructed (C4).

c3- Apply established architectural graphic conventions to indicate sizes, material, and related information that is needed to bring the objects or spaces into reality (C10, C24).
c4- Produce professional workshop and technical drawings using both manual and computer aided drawing techniques (C14,).
c5- Use appropriate construction techniques and materials to specify and implement different designs (C15).
c6- Display creativity in transforming design ideas into construction drawings by selecting and adopting the appropriate structural and architectural elements (C18).

d - General and transferable skills:

n successful completion of the course, the student should be able to:
d1- Work in stressful environment carrying out a working drawing project within given constrains and time (D2).
d2- Communicate and display work effectively either manually drafted or elecreconically via computer aided design and drafting applications (CADD) (D3).
d3- Manage and coordinate tasks and deciplins to fulfill a complete set of working drawings (D6).
d4- Search for required informayion and construction details online and in references (D7).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A8,,A13 A14, A15, A21,A24
B	Intellectual skills	B3, B4, B17 ,B22,B24,B25
C	Professional and Practical Skills	C4, C10, C14, C15,C18,C23,C25,C24
	General and transferable skills	D2, D3, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to Working Drawing and construction methods	2	3	
2. Concrete Structure Systems	2	3	
3. Floor plans (Ground floor plans)working drawings . Lecture discusses basic information in how to delineate lengths, thicknesses, and character of the outside walls and inside partitions at the particular floor level. It also shows how to mark out the axis, dimensions, widths and locations of doors and windows, and other utility features.	2	3	
4. Typical floor plans	2	3	
5. Basement plans	2	3	
6. Site plan (Layout)(Lecture discuses the essential data for laying out the building considering any contours, boundaries, roads, utilities, trees, structures, and any other significant physical features on or near the construction site.)	2	3	
7. Mid-Term Exam			
8. Sections(Lecture discusses how a structure looks when cut vertically by a cutting plane, providing important information about construction systems, heights, levels and materials used.)	2	3	
9. Elevations(Lecture discusses how to draw the front, rear, and sides of a structure, as they would appear projected on vertical planes in order to give a working idea of the appearance and overall shape and finishes of the structure)	2	3	

10. Concrete Stairs Plans	2	3	
11. . Concrete Stairs Sections	2	3	
12. Doors & Windows .	2	3	
13. Final Project submission and discussion.	2	3	
14. Revision and late submissions	2	3	
Total hours	**28**	**42**	

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving		Self-learning	Discovering	Written Exam	Project	Quizzes	Research	Assignments
Knowledge & Understanding	a1	1			1					1		1		1
	a2	1			1					1		1		1
	a3	1	1		1	1		1	1	1		1	1	1
	a4	1	1						1			1		
	a5	1	1		1	1		1	1	1		1	1	1
	a6	1	1		1					1		1	1	1
	a7	1			1					1		1	1	1
	a8	1												1
	a9	1	1		1	1			1	1		1	1	1
	a10										1		1	
Intellectual Skills	b1	1			1				1	1		1	1	1
	b2	1	1		1				1	1	1	1	1	1
	b3	1			1				1	1	1	1	1	1
	b4	1	1		1				1	1	1	1	1	1
	b5	1		1	1	1		1	1	1		1	1	1
Applied Prof. Skills	c1										1			
	c2	1			1	1			1	1		1	1	1
	c3	1	1		1							1	1	1
	c4										1		1	
General Skills	d1							1	1				1	1
	d2							1					1	1
	d3							1					1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	2 Quizzes	10
	Assignments	Weekly	10
	Project	13-th week	20
Practical Exam		-	-

Written Exam	Sixteenth week	40
Total		100

6- List of references:

- Ching, F., (2014), “Building Construction Illustrated”, 5th Edition, John Willy & Sons Publishing Inc., New York, USA.
- فاروق عباس حيدر، (١٩٩٤)،” الموسوعة الحديثة في تشييد المباني“، الطبعة الرابعة، منشأة المعارف، الإسكندرية، مصر.

، مكتبة الأنجلو المصرية، القاهرة، مصر.“محمد عبد الله، (١٩٨٩)،” الرسومات التنفيذية والتفاصيل المعمارية

6-1 Course notes: -------

6-2 Required books

- د.عزه جمال حجاج, د. شيماء حسن " الرسومات التنفيذية وطرق الانشاء" مذكرات الأكاديمية الحديثة للهندسة والتكنولوجيا - للسنة الرابعـــة عمارة

Barry, R., (2010) "The Construction of Buildings ", Blackwell, USA

6-3 Recommended books:

G G Schierle, "Architectural Structures Excerpts ", Los Angeles, 2003,

Ching, F., "Building Construction Illustrated ", 3rd Ed. John Willy & Sons Publishing Inc., New York, 2001

McKay, W.B., "Building Construction", 5th Ed. Longmans, 1971

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Laptop ,Data show and Computer programs; CAD.

Course coordinator: Dr /Azza Gamal Haggag
Head of the Department: Professor Dr. Ebrahim Gouda
Date: July 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
GENN341b:Project Mangement

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology
Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: Feb. 2019

B - Basic Information

Title: **Project Mangement** **Code:** **GENN341b** **Level:** 3rd Seventh Semester
Credit Hours: 2 **Pre-requisite:**NONE
Contact Hours: **Lectures:** 2 **Tutorial:** **Laboratory:** **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The objective of this course is to present and discuss the management of field construction projects. These projects involve a great deal of time and expense, so close management control is required if they are to be completed within the established time and cost limitations. The course also develops and discusses management techniques directed toward the control of cost, time, resources, and project finance during the construction process.
Effective management of a project also requires a considerable background of general knowledge about the construction industry .

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Project mangement fundamentals (A1.A7,A25).
a2- Project planning techniques (A5,A6)
a3- Time and financial mangement in construction project(A4,A5)
a4- Eatimating and tendering in construction (A4)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Select new planning methods for a project (B2)
b2- Study properties of different tendering(B16)
b3- Determine suitable time and cost for different project design (B3,B18)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Estimate cost budgeting, control, …(C2, C3)
c2- Schedule,crash,and control time (C3,C9).
c3- Manage resources (C2,C12)
c4- Use experimental facilities to control costs (C3).

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Search for information's from diverse references and internet (D7).
d2- Design reports and prepare convenient presentations (D9)
d3- Use the Email for communication (D3, D4)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A6 ,A7, A25
B	Intellectual skills	B3, B15
C	Professional and Practical Skills	C2, C3, C9
D	General and transferable skills	D3, D4, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
• Introduction, basic definitions and terminology	2		
• Project management fundamentals	2		
• Project planning	2		
• Project planning	2		
• Project planning	2		
• Project planning analysis	2		
• Time reduction	2		
• Time management	2		
• Financial management	2		
• Resource management	2		
• Cost estimating	2		
• Tendeing	2		
• Construction contracts	2		
• Sample peroject	2		
Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1								1		1		1
	a2	1								1		1		1
	a3	1	1			1		1	1	1		1	1	1
	a4	1	1						1			1		
	a5	1	1			1		1	1	1		1	1	1
	a6	1	1							1		1	1	1
	a7	1								1		1	1	1
	a8	1												1
	a9	1	1			1			1	1		1	1	1
	a10						1				1		1	
Intellectual Skills	b1	1							1	1		1	1	1
	b2	1	1						1	1	1	1	1	1
	b3	1					1		1	1	1	1	1	1

	b4	1	1				1		1	1	1	1	1	1
	b5	1				1		1	1	1		1	1	1
Applied Prof. Skills	c1						1				1			
	c2	1				1			1	1		1	1	1
	c3	1	1									1	1	1
	c4						1				1		1	
General Skills	d1							1	1				1	1
	d2							1					1	1
	d3							1					1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	4 Quizzes (every 3 weeks)	20
	Reports	Two reports per semester	
	Assignments	Bi-Weekly	20
Practical Exam		Fifteenth week	
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- Sears, S. K., & Sears, G. A., & Clough, R. H., (2015), "Construction Project Management – A Practical Guide To Field Construction Management", 7th edition, John Wiley & Sons Inc., USA.
- Gahlot P. S.& Dhir, B., (2014), "Construction Planning & Management", 5th edition, Indian BK, India.
- James P. Lewis, (2007), "Fundamentals of project Management" , AMACOM 3rd Edition Mc Graw-Hill,NY.

6-1 Course notes: Lecturer notes

6-2 Required books

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

http://csd.newcastle.edu.au/course_notes.html, (Last accessed October 20, 2018).
http://www.williamsonic.com/BodeNyquist/index.html, (Last accessed October 20, 2018).
https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-06-principles-of-automatic-control-fall-2012/lecture-notes/, (Last Accessed October 20, 2018)

7- Facilities required for teaching and learning:

- Data show.

Course coordinator: Professor Amira abdelaziz Gouhar
Head of the Department: Associate Professor Ebrahem Goda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN330: Elective 3 Housing in Developing Countries

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	July 2018

B - Basic Information

Title: Housing in Developing Countries **Code:**ARCN330 **Level:**3, 7th Semester
Credit Hours:2 **Pre-requisite:** ARCN226
Contact Hours: **Lectures:**2 **Tutorial:**0 **Total:**2

C - Professional Information

1 – Course Learning Objectives:

The course The Cource aims at defining housing problems in developing countries specially in Egypt, and introducing several approaches to deal with these problems, with emphasizing on the complex efforts for development: including the need of the keen awareness of all the social, cultural, and economical roles of the participants. The Course also aims at defining Housing Categories and the Characteristics of each category in Egypt.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1– Topics related to humanitarian interests and moral issues. (A9)
a2– Various dimensions of housing problem and the range of approaches, policies and practices that could be carried out to solve this problem. (A22)
a3 – Theories and legislations of housing projects. (A16)
a4 - Ideas Applied to solve the housing problem in Egypt. (A5)
a5 - Contemporary Housing topics. (A12)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 – Select appropriate solutions for housing projects problems based on analytical thinking.. (B2)
b2 –Combine, exchange, and assess different ideas, views, and knowledge from a range of sources. (B4)
b3– Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions for housing problems. (B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 -Use appropriate construction techniques and materials to specify and implement different housing designs (C15)
c2- Participate professionally in managing housing projects construction processes (C16)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1– Collaborate effectively within multidisciplinary team. (D1)
d2– Manage tasks and resources efficiently (D6)
d3- Acquire entrepreneurial skills (D8)
d4– Refer to relevant literature effectively. (D9)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A5,A9,A12, A16,A22
B	Intellectual skills	B2,B4,B13
C	Professional and Practical Skills	C15,C16
D	General and transferable skills	D1,D6,D8,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction & Getting Started	2	-	-
2. Housing definitions and Concepts.	2	-	-
3. Traditional Developing Countries` policies to provide Housing	2	-	-
4. Non-Traditional Developing Countries` policies to provide Housing	2	-	-
5. Housing Projects Forming Rules	2	-	-
6. Characteristics of housing models that affect shaping	2	-	-
7. Mid-Term Exam		-	-
8. Housing categories and levels	2	-	-
9. Study of Housing Demand and income Categories in Egypt by Timeline.	2	-	-
10. Characteristics of Housing Categories in Egypt.	2	-	-
11. Comparison between Housing Categories	2	-	-
12. Principles of Housing categories Distribution	2	-	-
13. Contemporary Housing Projects In Egypt	2	-	-
14. Project Submission	2	-	-
Total hours	**26**	**-**	**-**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
e & Understa	a1	1	1	1				1		1		1		
	a2	1	1	1		1		1		1		1		
	a3	1	1	1						1				

	a4	1	1	1		1		1		1				1
	a5	1	1	1				1		1		1		
Intellectual Skills	b1	1	1			1		1						
	b2			1				1						
	b3							1		1		1		
ied Prof.	c1	1		1										
	c2			1										1
General Tran. Skill	d1							1						
	d2			1		1				1				
	d3			1				1						
	d4					1				1				

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes:

Lecture notes

6-2 Required books:

6-3 Recommended books:

- John F.C. "Turner, Housing by People, Towards Autonomy in Building Environments", Pantheon Books, New York.
- Alexa, Batch, "Ten Principles for Developing Affordable Housing" , Urban Land Institute, 2007.
- Inita, Heanlane, " Housing Concept and Analysis of Housing Classification", 2016.
- سعيد على حطاب، " **المناطق الممتلئة عمرانياً وتطويرها الاسكان العشوائي"**, ١٩٩٣، دار الكتب العلمية

6-4 Periodicals, Web sites, etc.

- http://marsadomran.info/en/policy_analysis/2019/03/.(Accessed on: 10/2019)
- https://www.britannica.com/place/Egypt/Housing. (Accessed on: 10/2019)
- https://www.housesolutionegypt.com/ (Accessed on: 10/2019)

7- Facilities required for teaching and learning:

- Data show
- White Board

Course coordinator: Dr. Doaa Abd El Latif
Head of the Department: Associate Professor: Ibrahim Goda
Date: July 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN332: Elective 3 Design, Environment planning & Power

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Design, Environment planning & Power **Code:** ARCN332 **Level:** 3 , 7th Semester

Credit Hours: 2 **Pre-requisite:** ARCN216

Contact Hours: **Lectures:** 2 **Tutorial:** - **Laboratory: -** **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The course introduces students to the basic principles of environmental performance in the built envelope. Environmental fields and its level – climatic zone in Egypt Integrated Environmental design – definition of saving Energy comfort degrees and human needs – Ecological system saving from natural condition: sand movement – Beaches .

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - The natural sciences, engineering information relevant to architectural practices and the role of the architect in simulating and modeling of physical environment and its processes, and application of such information on the built environment. (A18)

a2 - The relationships between built forms and environmental parameters(A11-A21)

a3 -The principles of environmental and climatic design [including solar radiation, heat transfer, natural ventilation, daylight, energy saving…](A24

a4 - Spatial requirements for human comfort. (A11)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- Think systematically along the design process, analyze design problems, propose alternative solutions, and select the best solutions (B2,B22,B25).

b2 -Produce innovative design ideas and concepts from environmental point of view(B15-B13)

b3 - Solve environmental problems of buildings and analyze their elements, details, materials. (B3-B17,B24

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Develop architectural designs that are functionally sound, environmentally appropriate aesthetically plausible, users' friendly and technologically up to date. (C1-C17)

c2 - Analyze , understand and make use of environmental circumstances and contexts(C2-C19)

c3 - Prepare professionally sound technical scientific report. (C12)

c4- Demonstrate environmental studies that are applicable to building technology techniques and

processes. (C25)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Collaborate effectively within multidisciplinary. (D1)
d2 - Work in stressful environment and within constraints. (D2)
d3 - Communicate effectively. (D3)
d4 - Demonstrate efficient IT capabilities. (D4)
d5 - Lead and motivate individuals. (D5)
d6 - Manage tasks and resources efficiently. (D6)
d7 - Search for information and adopt life –long self-learning. (D7)
d8 - Acquire entrepreneurial skills. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A11,A18,A21, A24
B	Intellectual skills	B2, B3, B13, B15, B17,B22,B24.
C	Professional and Practical Skills	C1, C2, C12, C17, C19,C25
	General and transferable skills	D1, D2,D3, D4,D5,D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Environmental fields and its level	2		
2. Environmental fields and its level	2		
3. climatic zone in Egypt Integrated Environmental design	2		
4. climatic zone in Egypt Integrated Environmental design	2		
5. definition of saving Energy comfort degrees and human needs	2		
6. definition of saving Energy comfort degrees and human needs	2		
7. Mid-Term Exam			
8. Ecological system saving from natural condition: sand movement – Beaches/ Ecological system saving from natural condition: sand movement – Beaches	2		
9. Floods – facing Air earth pollution	2		
10. Environmental effects , forms and site Design	2		
11. Daylight needs – Aerodynamics Architecture	2		
12. ventilation Design and protection from wind	2		
13. renewed energy – solar energy and its efficiency	2		
14. renewed energy – solar energy and its efficiency.	2		
15. Revision	2		
Total hours	28		

4 - Teaching and Learning and Assessement methods:

	Teaching Methods	Learning Methods	Assessment Method

		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1				1					1				1		1		1			
	a2	1	1	1			1					1						1		1			
	a3	1	1	1	1			1				1											
																		1					
Intellectual Skills	b1	1	1				1	1				**1**				1							
	b2	1	1		1		1	1				1	1			1				1			
	b3	1	1		1		1	1				1	1			1				1			
Applied Professional Skills	c1	1		1			1	1				1				1		1		1			
	c2	1		1			1	1				1				1		1		1			
	c3			1			1					1											
General Tran. Skills	d1			1				1				1	1		1				1				
	d2			1			1	1				1				1				1			
	d3			1				1				1	1		1				1				
	d4	1	1	1			1	1				1				1							
	d5			1				1				1	1		1				1				
	d6						1					1				1			1	1			
	d7			1								1								1			
	d8	1	1				1	1				1			1	1				1			

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	2 Quizzes	10
	Assignments	Papers	10
	Research	13-th week	20
Practical Exam		-	-
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes:

6-2 Required books

Okba, Ehab mahmoud.2007. Environmental Control (Arabic).Cairo, Egypt

Koesinger, " Environmental Control Handbook", 2000

References:

- MED – ENEC, (2013), "Energy Efficiency Urban Planning Guidelines for Middle East and North Africa (MENA) Region", The European Union, Egypt.
- Beer, A. R., & Higgins, C., (2000), "Environmental Planning for Site Development; A Manual for Sustainable Local", Taylor & Francis, London, UK.

6-3 Recommended books:

Anne R. Beer, Catherine Higgins, Environmental Planning for Site Development; A Manual for Sustainable Local, Published by Taylor & Francis, 2000.
- Donald Watson, FAIA and Kenneth labs, Climatic Design. McGraw-Hill, Inc. U.S.A. 1983.
-Fuller Moore, “Environmental Control (heating cooling lighting)”, McGraw-Hill, Inc. U.S.A. 1993.
-أ.د. على رأفت، ثلاثية الإبداع المعمارى (البيئة والفراغ)، مركز أبحاث أنتركونسلت، مطابع الشروق، فبراير ١٩٩٦.
- أ.د. شفق العوضى الوكيل، محمد عبد الله سراج، "المناخ وعمارة المناطق الحارة"، شركة الطوبجى للطباعة ،الطبعة الثانية، القاهرة، ١٩٨٥.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Laptop ,Data show and Computer programs; CAD.

Course coordinator: Dr /Azza Gamal Haggag
Head of the Department: Professor Dr. Ebrahim Gouda
Date: Desember 2018

Modern Academy for Engineering
and Technology in Maadi

Course Specification
GENN351b: Elective 1 Engineering Economy

A- Affiliation

Relevant program/s:	Architectural Engineering and Building technology BSc Program
Department offering the program:	Architectural Engineering and Building technology BSc Department
Department offering the course:	Architectural Engineering and Building technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Engineering Economy Code: GENN351b Level: senior 1 level 3 7th Semester
Credit Hours: 2 Pre-requisite: None
Contact Hours: Lectures: 2 Tutorial: - Practical: - Total: 2

C - Professional Information

1 – Course Learning Objectives:

The course aims to develop the engineering awareness of some engineering economic issues through the following:
Defining science of economy – The most important branches of economy
Knowing the most important economic problems - The most important economic resources and production elements.
Studying the relationship between economy and natural resources (material – water – energy).
Differences between (feasibility Study – economic impact – economic growth).
The concepts of (Supply & Demands - Added value - value engineering) and (Project management - Life cycle cost).

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:
On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1 -The nature of economic problem and need. (A2,A5)
a2 - Resources, utilities, demand and supply related to building & construction. (A14)
a3 - Definition of construction systems; markets types, and factors of production (A6)
a4 - how to deal with costs and revenues of construction projects. (A15)

b - Intellectual skills:
On successful completion of the course, the student should be able to.
b1 -Use economic terms, tools in construction field, (B2,B10)
b2 -Analyze construction. Economic problem, (B7-B22)
b3 -Utilize the relationship between competitiveness and economic terms (B22)

c - Professional and practical skills:
On successful completion of the course, the student should be able to:
c1 -Solve economic functions, relationships and laws, (C2)
c2 -Use the resources available in project evaluation, (C15)
c3 - calculate costs, and demand and supply. (C2)

d - General and transferable skills:
On successful completion of the course, the student should be able to:
By the end of the course the student should be able to:
d1 -Use different aspects of analysis in projects. (D3)

d2 -Apply Resources in studies. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A2,A5. A6, A14,A15
B	Intellectual skills	B2, B9, B16, B22
C	Professional and Practical Skills	C2, C15, C25,C9
D	General and transferable skills	D3, D8,

3 – Contents

	Topic	Lecture hours	Tutorial hours	Practical hours
	Background to Building Economy	2		
	The most important branches of economy	2		
	Building cost elements	2		
	Knowing the most important economic problems affects building construction	2		
	Studying the relationship between economy and natural resources	2		
	the building life cycle activities.	2		
	Mid Term Exam	-		
	Differences between feasibility Study – economic impact – economic growth	2		
	Supply & Demands - Added value - value engineering	2		
	Project management - Life cycle cost	2		
	Concepts of cost and it's different parties – Cost estimations	2		
	Different ways to assess and calculate the economy of building cost element	2		
	tenders – funding control – building management , maintenance and demolishing	2		
	General Review	2		
	Final exam	-		
	Total hours	28		

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessement Method

		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1			1					1				1		1	1				
	a2	1														1		1	1	1			
	a3	1														1		1	1	1			
Intellectual Skills	b1	1														1		1		1			
	b2	1				1										1		1	1	1			
	b3	1	1	1			1					1				1	1		1				
Applied Professional	c1	1	1			1	1									1	1	1	1	1			
	c2	1					1									1		1	1	1			
	c3	1		1		1	1					1	1						1	1			
General Tran. Skills	d1			1		1						1							1				
	d2		1	1								1							1				

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work Assignments & Project	Weekly	20
Mid-Term Exam	6th – 7th Week	20
Pre final exercise	12th week	20
Final Written Exam	-	40
Total		100

6- List of references:

E.J Rothwell and M.J. Cloud (2001). Electromagnetic. New York: CRC press.
C.A Balanis (1989). Advanced Engineering Electromagnetic. New York: John Wiley.

6-1 Course notes:

Lecture notes

6-2 Required books

6-3 Recommended books:

Ruegg, R., & Marshall, H., (2013), “Building Economics: Theory and Practice”, Springer Science & Business Media, USA.
Sullivan W. G. , Wick E. M. and luxhoj J.T. (2003). " Engineering Economics" , NJ : Preutice Hall,12th
6-4 Edition.Electronic
Pub. URL: www.riba.com

7- Facilities required for teaching and learning:
Lecture room equipped with Data show

Course coordinator:	Dr Amr Soliman AlGohary
Head of the Department:	Associate Prof. Ibrahim Gouda
Date:	Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
GENN352 Elective 1 Environmental Effects of Electromagnetic Waves

A- Affiliation			
Relevant program:	Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology BSc Program Manufacturing Engineering and Production Technology BSc Program Architecture Engineering and Building Technology BSc Program		
Department offering the program:	Electronic Engineering and Communication Technology BSc Dept Computer Engineering and Information Technology BSc Dept Manufacturing Engineering and Production Technology BSc Dept Architecture Engineering and Building Technology BSc Dept		
Department offering the course:	Basic Science Department		
Date of specifications approval:	June 2018		
B - Basic information			
Title: Environmental Effects of EMW.	Code: GENN352	Level: 3, Seventh Semeser	
Credit Hours: 2	Lectures: 2	Tutorial/Exercise:0	Practical: 0
Pre-requisite: None			
C - Professional information			
1 – Course Learning Objectives: The Environmental Studies of electromagnetic Waves major prepares students for understanding and addressing complex environmental issues of EMW from a problem-oriented, interdisciplinary perspective.			
2 - Intended Learning Outcomes (ILOS) A- Knowledge and understanding On successful completion of the course, the student should demonstrate knowledge and understanding of: a1. main concepts and methods from physical sciences and their application in environmental problem solving. A1, A5 a2. basic information about electromagnetic waves. A1 a3. the concepts and terminology for electromagnetic waves applications and uses. A1, A2 a4. the EMW environmental problems and ways of addressing them, including interactions across local to global scales. A1, A2 a5. critical reflection about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world. A11 a6. different types of environmental effects of electromagnetic fields. A9 B - Intellectual skills Through intellectual skills, students will be able to: b1. analyze the concepts of electromagnetic waves. B1 b2. analyze the EMW production and properties. B4 b3. develop deep understanding and analysis of EMW environmental effects design. B4 b4. critically analyze EMW environmental effect issues in communication as well as provide innovative solutions. B2, B3 C - Professional and practical skills Non D - General and transferable skills On successful completion of the course, the student should be able to: d1- work in a team environment. D1			

2- communicate effectively during perform oral presentation D3
d3. use computing and information technology and synthesize information. D4
d4- manage time effectively and work within a deadline. D6
d5- practice self-learning. D7

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A5, A9, A11
B	Professional and practical skills	B1, B2, B3, B4
C	Intellectual skills	None
D	General and transferable skills	D1, D3, D4, D6, D7

– Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Maxwell's equations	1		
Optical properties of electromagnetic waves	1		
Physical properties of electromagnetic waves	1		
Electromagnetic radiation	1		
Electromagnetic waves spectrum	2		
Antenna and transmission lines	2		
Mid-Term Exam	2		
Ground waves, sky waves, and space waves - Radio waves	1		
Fading of electromagnetic waves	1		
Applications of electromagnetic waves	1		
Absorption of electromagnetic waves	1		
Health and environmental effects of electromagnetic waves	2		
Health and environmental effects of non-ionizing radiation	2		
Radio frequency radiation	2		
Microwave oven	1		
Radar and human health	1		
Infrared radiation health effect	2		
Visible light health effect	1		
Ultraviolet radiation health effect	1		
International recommendations for radiation exposure	2		
Total hours	28		

- Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge	a1	1	1	1								1				1		1	1	1			
	a2	1	1	1								1				1		1	1	1			
	a3	1	1	1								1				1		1	1	1			
	a4	1	1	1								1				1		1	1	1			
	a5	1	1	1								1				1		1	1	1			
	a6	1	1	1								1				1		1	1	1			
Intellectual	b1	1	1	1								1				1		1	1	1			
	b2	1	1	1								1				1		1	1	1			
	b3	1	1	1								1				1		1	1	1			
	b4	1	1	1								1				1		1	1	1			
General	d1	1		1								1								1			
	d2	1		1								1								1			
	d3	1		1								1								1			
	d4	1		1								1				1		1	1	1			
	d5	1		1								1								1			

Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Assignments and Reports	Bi-Weekly	20
Mid-Term Exam	6-th Week	20
Quizzes	5th and 10th	20
Written Exam	Sixteenth week	40
Total		100

List of references:

Serway, Raymond(2003) Physics for scientists and engineers 6th Ed, San Francisco.
Walker, James S. (2007) Physics 3rd Ed. Pearson Education.

Course notes

Nagat A. Elmahdy, Enviromental Effects of Electromagnetic Waves. Modern Academy Press, 2016

6-1 Required books

Physics for Scientists and Engineers, Raymond A. Serway, Thomson Brooks, 2004; 6th Edition. Introduction to RF Propagation, John S. Seybold,by John Wiley& Sons, Inc: 2005.

6-2 Recommended books:

Halliday, David, Robert Resnick, Jearl Walker.

6-3 Periodicals, Web sites, etc.

- http://www.slideshare.net/bleonacoba/history-of-electromagnetic-waves-discovery
- http://www.infocellar.com/networks/wireless/spectrum.htm
- Serway, RAYMOND Physics for scientists and engineer's 6th Ed. San Francisco: (2003).
- Health Effects of Electromagnetic Fields– Department of Communications, Marine and Natural Resources. Expert Group on Health Effects of Electromagnetic Fields. 29–31 Adelaide Road, Dublin 2, Ireland. www.dcmnr.gov.ie

7- Facilities required for teaching and learning:

- Library
- Computer, Internet, and Data Show

Course coordinator:	Dr. Marwa Shoaeb
Head of the Department:	Prof. Dr. Ashraf Taha
Date:	September, 2019

Modern Academy for Engineering
and Technology in Maadi

Course Specification

GENN353b: Elective 1 Engineering Laws and Professional Ethics

A- Affiliation

Relevant program/s:	Architectural Engineering and Building technology BSc Program
Department offering the program:	Architectural Engineering and Building technology BSc Department
Department offering the course:	Architectural Engineering and Building technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Engineering Laws and Professional Ethics	Code: GENN353b	Level: 3, Seventh Semester
Credit Hours: 2	Pre-requisite: None	
Contact Hours:	Lectures: 2 Tutorial: -	Practical: - Total: 2

C - Professional Information

1 – Course Learning Objectives:

The course aims to study many legal terminologies and concepts in addition to introducing the Egyptian legislations and laws in the field of study. This is achieved throughout studying the codes, legislation and engineering regulation and law for protecting the Egyptian environment. Additionally, the course provides the student with the main knowledge about the following:

Responsibilities, rights, and duties of the engineer while practicing the profession.

The different relationships with clients, other consultants, and contractors

Some factors affecting design and construction

The importance of achieving the profession ethics and principles.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - The architects and the contractor's legal responsibilities. (A7)

a2 - Building codes and land legislation. (A16,A25,)

a3 - Contracts between owners and architect and between owner and contractor. (A7)

a4 - Legislations, rules, regulations for urban planning and building construction. (A16,A25)

a5 - Redistribution scheme rebuilding scheme, re-housing scheme, street scheme, street widening scheme building scheme. (A7)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 – Analyze contractor and consultants in their own enterprise. (B12-B20,B25)

b2 – Studying as an architect in a construction company to regulate the relation between him, owner and contractor. (B12-B20)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - overall responsibility for design, construction and relation with owner and contractor. (C1-C8)

c2 - design and building regulations. (C1-C8)

c3 - providing construction know ledge. (C1-C8)

c4 - arrange the relation with contractor. (C1-C8)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Make consultations decisions on different levels. (D6-D7)
d2 - Manage tasks and resources efficiently (D6-D7)
d3 - Search for information and adopt life-long self-learning (D6-D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A7, A16, A25
B	Intellectual skills	B12, B20,B25
C	Professional and Practical Skills	C1, C8
D	General and transferable skills	D6, D7

3 – Contents

	Topic	Lecture hours	Tutorial hours	Practical hours
	Background to Building Regulations and Law (Problems - Codes – Rating Systems)	2		
	General Building regulation Terminologies -Penalties	2		
	Organization of construction work (Heights - Projection – Courts)	2		
	Organization of construction work (Ventilation – Lighting – Stairs)	2		
	Organization of construction work (License obligations – Local authorities - insurance)	2		
	Maintaining real estate wealth	2		
	Mid Term Exam	-		
	Organization of construction work (License Model)	2		
	Introduction to Urban Planning of cities and villages	2		
	Urban Planning City Strategic Plan	2		
	Urban Planning City Detailed Plan	2		
	Urban Planning Land division	2		
	Urban Planning Land division	2		
	General Review	2		
	Final exam	-		
	Total hours	28		

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessment Method

		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1								1				1		1	1				
	a2	1			1											1		1	1	1			
	a3	1		1								1				1		1	1	1			
	a4	1			1																		
	a5	1		1								1											
Intellectual Skills	b1	1			1	1						1				1		1		1			
	b2	1			1	1										1		1	1	1			
Applied Professional	c1	1	1		1	1										1	1	1	1	1			
	c2	1			1											1		1	1	1			
	c3	1			1	1																	
	c4	1	1		1	1																	
General Tran. Skills	d1			1	1							1								1			
	d2			1								1								1			
	d3			1																			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work Assignments & Project	Weekly	20
Mid-Term Exam	6th – 7th Week	20
Pre final exercise	12th week	20
Final Written Exam	-	40
Total		100

6- List of references:

Spector, T., (2012), “The Ethical Architect: The Dilemma of Contemporary Practice”, Unabridged Edition, Chronicle Books, USA.

بشأن توجيه وتنظيم أعمال البناء2008 لسنه 119قانون البناء المصري رقم .

محجوب على محجوب (٢٠٠١). قواعد اخلاقيات المهنة: مفهومها، اساس الزامها ونطاقه: دراسة مقارنة. القاهرة: دار النهضة العربية

6-1 Course notes:

Lecture notes

6-2 Required books

Course Booklets

بشأن توجيه وتنظيم أعمال البناء2008 لسنه 119قانون البناء المصري رقم .

6-3 Recommended books:

Spector, T., (2012), “The Ethical Architect: The Dilemma of Contemporary Practice”, Unabridged

Edition, Chronicle Books, USA.
محجوب على محجوب (٢٠٠١). قواعد اخلاقيات المهنة: مفهومها، اساس الزامها ونطاقه: دراسة مقارنة. القاهرة: دار النهضة العربية.

6-4 Periodicals, Web sites, etc.
Electronic Pub. URL: www.riba.com

7- Fa cilities required for teaching and learning:
Lecture room equipped with Data show

Course coordinator:	Dr Amr Soliman AlGohary
Head of the Department:	Associate Prof. Ibrahim Gouda
Date:	Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
GENN354: Elective 1 Risk Management

Relevant program:	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology BSc Program Architecture Engineering and Building Technology BSc Program
Department offering the program:	Manufacturing Engineering and Production Technology Department Electronic Engineering and Communication Technology Department Computer Engineering and Information Technology Department Architecture Engineering and Building Technology Department
Department offering the course:	Basic science department
Date of specifications approval:	June 2018

B - Basic information

Title: Risk Management	Code: GENN354	Level: three, Seventh Semester	
Credit Hours: 2	Lectures: 2 Pre-requisite: non	Tutorial/Exercise: -	Practical: -

C - Professional information

1 – Course Learning Objectives:

On successful completion of the course, the student will be able to synthesize and respond to the complexity of legal issues within their risk management practice and demonstrate the ability to operate effectively in complex and unpredictable situations within professional contexts.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

The graduate should acquire knowledge and understanding of:

a1- Basic concepts of risk assessment. (A1, A2, A4)
a2- Basic concepts of hazards and risk factors. (A1, A2)
a3- Principles of rating the extent of potential harm and evaluating the likelihood that harm will occur. (A1, A2)
a4- Principles of controlling the risks. (A1, A2)
a5- Deciding priorities for action. (A1,A5)
a6- Strategies for managing the risks. (A1, A5, A6)
a7- Principles of strategic approaches for dealing with risks. (A6, A11)

b - Intellectual skills:

The graduate should have the ability to:

b1- Relate general theory to specific contexts. (B1,B2)
b2- Compare and analyze different risk situations and risk environments. (B3, B4)
b3- Develop problem solving approaches and controlling the risk. (B3, B4, B7,B9)
b4- Select and use appropriate Strategies, methods, and techniques for identifying, diagnosing and dealing with risks. (B1, B4,B9)

c - Professional and practical skills:

The graduate should have the ability to:
c1- Apply risk identification and risk assessment techniques. (C1, C2)
c2- Create risk strategies and plans in different and changing contexts. (C1, C2, C6)
c3- Manage hazards more efficiently. (C1, C2)
c4- Undertake crisis management planning and implementation. (C1, C2, C11)

d - General and transferable skills:
The graduate should have the ability to:
d1- Enhance the ability to critically reflect on own and others' practice in order to improve own/others 'actions. (D1, D3)
d2- Effectively manage tasks, time, and resources. (D2, D6)
d3- Search for information and engage in life-long self-learning discipline. (D2, D7,D9)
d4- Enhance the capability of working autonomously and within groups. (D1,D3,D5)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A2, A4, A5, A6, A11
B	Intellectual Skills	B1, B2, B3, B4, B7, B9
C	Professional and practical skills	C1, C2, C6, C11
D	General and transferable skills	D1, D2, D3, D5, D6, D7, D9

3 – Contents

Topics	Lecture hours	Tutorial hours	Practical hours
1- Identify risk assessment, hazards, and risk factors	2	-	-
2- Evaluating the hazards and risks.	4	-	-
3- Rating the extent of potential harm, and the likelihood that harm will occur.	4	-	-
4- Controlling the risks, Control measures.	4	-	-
5- Systems of control, Deciding priorities for action.	2	-	-
6- Case study 1: health services, Case study 2: call centers.	4	-	-
7- Case study 3: food production and processing, Case study 4: engineering and manufacture.	3	-	-
8- Strategies for managing the risks, Planning, Range of strategic approaches for dealing with risks.	3	-	-
9- Stakeholders and spreading the risks, and Policies.	2	-	-
Total hours	28		

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessment Method

		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self-Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
Knowledge & Understanding	a1	1	1	1		1		1			1	1	1	1	
	a2	1	1	1		1		1			1	1	1	1	
	a3	1	1	1		1		1			1		1	1	
	a4	1	1	1		1		1			1		1	1	
	a5	1	1	1		1		1		1	1		1	1	
	a6	1	1	1		1		1		1	1	1	1	1	
	a7	1	1	1		1		1		1	1		1	1	
Intellectual Skills	b1	1	1	1		1		1		1	1		1	1	
	b2	1	1	1		1		1		1	1	1	1	1	
	b3	1	1	1		1		1		1	1		1	1	
	b4	1	1	1		1		1		1	1	1	1	1	
Applied Professional Skills	c1	1	1	1		1		1		1			1	1	
	c2	1	1	1		1		1		1			1	1	
	c3	1	1	1		1		1		1			1	1	
	c4	1	1	1		1		1		1			1	1	
General Tran. Skills	d1	1	1	1						1					
	d2			1		1		1	1	1		1	1		
	d3		1	1				1	1	1					
	d4			1				1							

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Assignments and Reports	Bi-Weekly	20
Quizzes	5th and 10th	20
Mid-Term Exam	6-th Week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes: Risk Management

6-2 Required books

J. Jeyras (2002), "Risk management principles", planta Tree, UK

6-3 Recommended books:

E. J. Vaughan, T. Vaugan (2007), 9th Edition, "Fundamentals of risk and insurance", John Wiley,
M. Keegan (2004): The orange book of risk management- Principles and concepts", HM treasury concepts, London, UK
E. Baranoff (2012)" Enterprise and individual risk management", Harvard Business Review US

6-4 Periodicals, Web sites, etc.:

https://www.investopedia.com/terms/r/riskmanagement.asp
http://www.freebookcentre.net/

7- Facilities required for teaching and learning:

Lectures room equipped with OHP and data show facility.

Course coordinator:	Dr. Nagat A. Elmahdy
Head of the Department:	Prof. Dr. Ashraf Taha
Date:	September, 2019

Modern Academy for Engineering and Technology

Course Specification

ARCN322: Architectural Design 6

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: December 2018

B - Basic information

Title: Architectural Design 6 **Code:** ARCN322 **Level:** Senior 1,Level 3,8th Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**6 **Practical:** -
Pre-requisite: ARCN321

C - Professional information

1 – Course Learning Objectives:

This course aims to continue with studying the design of complex public buildings while emphasizing on large span structure systems and modern construction systems and materials. It includes a study for the visual relations of different buildings for the same project and their relationship with the surrounding context, environment, and composition. The practical application will be on public projects which includes modeling and rendering of perspectives during the different project stages.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Professional ethics and impacts of architectural design on human. (A11)
a2 - Principles of architectural design, human dimensions as a prime determinant of the scale, proportions, and spatial arrangement of a building spaces. (A4-A13)
a3 - Regulatory factors and zoning ordinance. (A13)
a4 - The role of the grid pattern (module) in the design process in reinforcing the functional, structural and spatial organization of a building design. (A17)
a5 - The use of various structural systems and its role in the design product. (A14)
a6 - The preparation and presentations of design projects in a variety of contexts, scales, types and degree of complexity. (A13)
a7- Principles of environmental and contextual forces that influence how we might situate a building, layout, and orient its spaces, articulate its enclosure, and establish its relation to the landscape. (A23)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1- Think in a creative and innovative way in problems based on analytical manner and informed design process. (B3)
b2 - Combine, exchange and assess different ideas, views and knowledge from given architectural designs and projects. (B4)

b3 - Integrate site analysis tools, architectural data and design principles with analyzed project examples to create new solutions. (B13)
b4 - Think three-dimensionally and engage images of spaces and masses in the exploration of design. (B14)
b5 - Reconcile conflicting functional, regulatory and contextual objectives to reach optimum solutions. (B16)
b6 - Integrate relationship of appropriate structural solutions into the design process. (B17)
b7 - Appraise the spatial, aesthetic, technical, cultural and social qualities of a design within the scope of a wider context. (B19)
b8 - Discuss research and formulate informed opinions appropriate to specific context affecting design and architectural practice. (B20)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Practice the neatness and aesthetics in design and approach. (C4)
c2 - Produce a fully presented architectural projects using appropriate range of media and techniques. (C13)
c3 - Use appropriate construction and structural techniques to achieve creative designs(C15)
c4 - Demonstrate professional competence in developing innovative and appropriate solutions of architectural problems. (C17)
c5 - Display imagination and creativity. (C18)
c6 - Respect all alternative solutions. (C19)
c7 - Provide designs with reference to sustainable design principles. (C20)
c8 - Respond effectively to the broad constituency of determinants with consideration of functional, regulatory and contextual realities. (C21)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Practice teamwork in the research work of a certain project. (D1)
d2 - Ability to present and explain concepts and ideas. (D3)
d3 - manage to order an architectural project. (D6)
d4 - Search for information from different sources. And effectively refer to it. (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4,A11,A13,A14,A17,A23
B	Intellectual skills	B3,B4,B13,B14,B16,B17,B19,B20
C	Professional and practical skills	C4,C13,C15,C17,C18,C19,C20,C21
D	General and transferable skills	D1,D3,D6,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to 3rd project (A Multi-story Residential and commercial Building)	1	6	
2. Research: relevant architectural data and similar projects either	1	6	

International or local projects.			
3. Sketch 1 (Schematic / conceptual design)	1	6	
4. Sketch 2 (focuses on designing and formulating project plans)	1	6	
5. Sketch 3 (Design development for plans)	1	6	
6. Sketch 4 (focuses on designing and formulating project elevations and main sections)	1	6	
7. Mid-Term Exam			
8. Sketch 5 - Semi final sketch (Design Development for Layout, plans, elevations, sections and 3d models)	1	6	
9. Sketch 6 - Final sketch (Presenting Layout, plans, elevations, sections and 3d models for approval). Presentation and rendering sessions	1	6	
10. Final Submission and Project Discussion	1	6	
11. Introduction to 4th project (A type of a project with both function and structural implications)	1	6	
12. Research: Data gathering, site analysis, climatic studies, zoning and analysis of similar projects	1	6	
13. Sketch 1 (Schematic / conceptual design)	1	6	
14. Sketch 2 (Design development for plans)	1	6	
15. Sketch 3 (Presenting proposed layout, plans, elevations, sections and 3d models)	1	6	
Total hours	**14**	**84**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1												1		1							
	a2	1	1		1				1	1			1							1			
	a3	1	1						1	1			1							1			
	a4	1	1		1				1	1			1			1				1			
	a5	1	1		1				1	1			1							1			
	a6	1	1		1				1	1			1			1				1			
	a7	1							1			1											
Intellectual Skills	b1			1				1	1														
	b2								1	1			1										
	b3	1			1			1	1							1							
	b4				1			1	1			1											
	b5			1				1															
	b6	1		1					1					1		1							
	b7							1	1														

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
	b8	1			1				1					1		1							
Applied Professional Skills	c1	1							1	1													
	c2							1				1								1			
	c3				1	1			1	1			1										
	c4	1		1				1							1								
	c5	1							1				1			1							
	c6				1				1	1			1		1	1							
	c7			1				1	1														
	c8			1				1				1											
General Tran. Skills	d1			1				1				1		1									
	d2	1		1				1		1					1	1							
	d3								1			1				1							
	d4											1		1	1					1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	40
Mid Term Exam	7th week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes:

Handouts, Research papers and lectures will be given at appropriate time of the project progress depending on the studied project

6-2 Required books -

- **6-3 Recommended books:**
- Ching, F. D. K., (2014), "Building Structures Illustrated: Patterns, Systems and Design", John Wiley & Sons Ltd., UK.
- Jencks, C., (2000), "Architecture 2000 and Beyond", John Wiley & Sons Ltd., UK.
- Edward, W., (1975), "A vocabulary of Architectural Forms", Architectural Media, USA.**6-4 Periodicals, Web sites, etc.**

7- Facilities required for teaching and learning:

- Appropriate teaching design studios including presentation board, data show, models, computer lab

Course coordinator: Dr. El Moataz Bellah
Head of the Department: Associate Professor: Ibrahim Goud
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN324 Housing & City Planning 2

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	July 2018

B - Basic Information

Title: Housing & City Planning 1 **Code:** ARCN323 **Level:** 8th Semester(level three)
Credit Hours: 2 **Pre-requisite:** ARCN323
Contact Hours:- **Lectures:** 1 **Tutorial:3** **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

A study of this course will enable the student to know about: Urban theory and interdisciplinary explanations offered by urban geographers, sociologists, economists, and historians, The 'city' as a modular for planning, Land-use theories and fundamentals& Residential communities.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Planning Principles (A16,19)
a2- Geographic information systems concepts & application (A17)
a3- Housing principles & how to plan a complete complex (A22)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Develop a design by linking different related subjects essential for the design such as: urban, financial, environmental & topographic studies.
b2 - Develop new ideas during the design process using the principles of planning (B13) .
b3 - Analyze data affecting the design process. (B11)
b4 - Solve urban problems. (B10,B12)
b5 - Apply Planning principles in new urban areas (B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1Computerize the studies of site analysis with assistance of the (GIS) (C6)-
c2- Collect & analyze data that will make him / her develop a design for a complete complex. (C5)
c3- Design a residential complex in existing urban areas. (C21)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Learn methods to solve problem.
d2 - communicate via digital techniques and present data using different software (D2,3,5)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A16,A17,A19, A22
B	Intellectual skills	B10,B11,B12,B13
C	Professional and Practical Skills	C5,C6,C21
D	General and transferable skills	D2,D3,D5

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Planning elements & introducing the project	1	3	-
2. Site analysis studies (GIS Application)	1	3	-
3. Site analysis studies	1	3	-
4. Site analysis studies (following up the project)	1	3	-
5. Following up the site analysis studies & evaluation	1	3	-
6. Following up the site analysis studies & evaluation	1	3	-
7. Mid-Term Exam			-
8. Evaluating the site analysis studies	1	3	-
9. Solving strategies (following up the alternatives)	1	3	-
10. Solving strategies (following up the alternatives)	1	3	-
11. Solving strategies (following up the alternatives)	1	3	-
12. Evaluating alternatives	1	3	-
13. Evaluating alternatives	1	3	-
14. Semi-final presentation (following up the project)	1	3	-
15. Final presentation	1	3	-
Total hours	**14**	**28**	**-**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1			1			1	1		1	1	1									
	a2	1	1	1					1							1							
	a3	1		1								1				1							
Intellectual Skills	b1	1							1			1				1				1			
	b2				1			1		1				1									
	b3	1	1						1							1							

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
	b4	1	1						1							1				1			
	b5								1			1		1		1							
Applied Professional Skills	c1				1	1			1	1			1							1			
	c2				1	1			1	1			1							1			
	c3	1							1														
General Tran. Skills	d1	1		1				1	1						1	1							
	d2			1				1	1			1											

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Weekly assignments	weekly	5
Researches	Week 2, 4	10
Oral discussion	weekly	10
Mid-term exam	Week 7	20
Project	Week 14	15
final Exam	Week 16	40
Total		100

6- List of references:

- Un-Habitat, (2015), "A Practical Guide to Designing, Planning and Executing Citywide Slum Upgrading programmers", USA.
- Caroline, M., & Landy, F., (2013), "Megacity Slums: Social Exclusion, Space and Urban Policies", Imperial College Press, USA.

Bajor E. M., (2008), "Approaches To Urban Slums", World Bank Publications, USA.

6-1 Course notes: The Residential neighborhood – M. HasanAllana

6-2 Required books The Residential neighborhood – M. HasanAllana

6-3 Periodicals, Web sites, etc.

www.clac.com

www.googleearth.com

7- Facilities required for teaching and learning:

- GPS
- Internet access

- Updated computers
- Educational Software License
- Data Show

Course coordinator: Dr. ShahenazTaie
Head of the Department: Associate Professor: Ibrahim Goda
Date: July 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN340: History of Architecture.3

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: History of Architecture.3 **Code:** ARCN340 **Level:** 3, 8th Semester
Credit Hours:2 **Pre-requisite:** ARCN241
Contact Hours: **Lectures:** 2 **Tutorial:**1 **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course examines the formation and development of architectural, artistic, and urban traditions in the Islamic world. The course includes Early Islamic, Umayyad and Abbasid periods, Seljuk and Ottoman periods. Islamic Architecture in Egypt, Mesopotamia, Persia, Syria, and Spain. Study of selected examples of religious, civic, and residential buildings in chronological order.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1 - The relationship between the development of the ecological sittings (socio-culture, technological and physical factors in different societies) and development architecture. (A18)
a2 - The main features of Early Islamic reign, as well recognize the art schools and its pioneers in 19th and 20th century. (A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to:
b1- Criticize objectively the architectural forms and styles and understanding the influences, which oriented guide them. (B4,B22)
b2 - Identify the development process of architecture within its historical context. (B13)
b3 - Expand and correct their artistic and design experiences. (B20,B21)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- Improve evaluation skills of architectural forms and recognize the different forces which guide it. (C21,C22)
c2 - Development of architectural forms and styles. (C20)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Improving skills. (D8)
d2 - Work in groups. (D1)
d3 - Present work documentation in written and oral form. (D3)
d4- Use graphic tools and multi-media in presentation(IT). (D4)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A18,A 19
B	Intellectual skills	B4,B13,B 20,B21,B22
C	Professional and Practical Skills	C 20, C 21,C22
D	General and transferable skills	D1,D3,D 4, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1- Urban traditions in the Islamic world.	2	1	-
2- Caliph. Periods.	2	1	-
3- Tulane's period.	2	1	-
4- Building concepts in Islamic Arch.	2	1	-
5- Fatimid ca iphs' period.	2	1	-
6- Fatimid ca iphs' period. (Site Visit) / Ayyubids period.	2	1	-
7- Mid-Term Exam			-
8- Home in Islamic Arch.	2	1	-
9- Mamluks (Bahri and Circassian) period.	2	1	-
10- Mamluks (Bahri and Circassian) period.	2	1	-
11- Mamluks (Bahri and Circassian) period.(Site Visit)	2	1	-
12- Ottoman (Turks) period.	2	1	-
13- Napolic Invasion (Mohamed Ali) period.	2	1	-
14- Research	2	1	-
15- Individual presentation.	2	1	-
Total hours	**28**	**14**	**-**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
dge & Unders	a1	1		1				1		1		1		
	a2	1		1				1		1		1		
Intellectual Skills	b1	1		1				**1**		1		1		
	b2	1		1				**1**		1		1		
	b3	1		1				**1**		1		1		

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Prof.	c1	1		1				1		1		1		
	c2	1		1				1		1		1		
General Tran. Skill	d1			1				1		1		1		
	d2			1				1		1		1		
	d3			1				1		1		1		
	d4			1				1		1		1		

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments, reasearch	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- Flood, F. B., & Necipoglu, G., (2017), “A Companion to Islamic Art and Architecture”, 2 Volume Set, Wiley, USA.
- Arnold, T., (2005), “The Islamic Art & Architecture”, Oxford, Laurence, USA.

(توفيق أحمد عبد الجواد، ”تاريخ العمارة والفنون الاسلامية“، ١٩٧٠)، المطبعة الفنية الحديثة، القاهرة، مصر.

6-1 Course notes:

Course notes, The mosque, Mona Elbasyoni, 2008.

6-2 Required books

العمارة الاسلامية فكر وحضارة, توفيق عبد الجواد,مكتبة الأنجلو-القاهرة ١٩٨٧

Robert Hillenbrand, 1994, Islamic Architecture, Newen, U.K.

6-3 Recommended books:

اسس التصميم المعمارى والتخطيط الحضرى فى العصور الاسلامية المختلفة بالعاصمة القاهرة ,مركز الدراسات التخطيطية والمعمارية, منظمة العواصم والمدن الاسلامية ١٤١١هج- ١٩٩٠ م .

K.Frampton " Modern Architecture, a critical history "

N.Pevsner " An Outline of European Architecture "

N.Pevsner " The Sources of Modern Architecture and Design "

6-4 Periodicals, Web sites, etc.

http://www.islamic-council.org. (Last accessed February 20, 2019).

7- Facilities required for teaching and learning:

White boards and markers.
Well equipped space for lectures and digital presentation.
Site visits

Course coordinator: Dr. Mona Albasyoni
Head of the Department: Associate Professor: Ibrahim Goda
Date: December 2018

Modern Academy for Engineering and Technology in Maadi

ARCN311 **: Technical Installations in Buildings (2)**

A- Affiliation

Relevant program/s:	Architectural Engineering & Building Technology B.Sc.Program
Department offering the program:	Architectural Engineering & Building Technology B.Sc.Program
Department offering the course:	Architectural Engineering & Building Technology B.Sc.Program
Date of specifications approval:	December 2018

B - Basic Information

Title: Technical Installations in buildings 2 **Code:** ARCN311 **Level:** 3rd (8th Semester)

Credit Hours:2 **Pre-requisite:** ARCN310

Contact Hours: **Lecturs:** 1 **Tutorial:**3 **Laboratory:** - **Total:** 4

C - Professional Information

1 – Course Learning Objectives:

As an integral part of the previous course, this course aims to illustrate the design principles and implementation requirements for industrial control inside buildings, but in the fields of acoustics and plumbing work. This is achieved throughout studying some concepts such as acoustics' velocity, waves, frequency and intensity, analysis of sound, noise and principles for achieving comparable acoustic level. Students will gain a good knowledge about sanitary and sewage work and installations, liquid and solid wastes, in addition to studying fire protection of buildings and electrical installations. This is to achieve the integration between all the building systems and technical installations as an introduction to the study of their costs and maintenance.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Concepts and theories of mathematics and sciences, appropriate to the discipline. (A1)

a2 - Principles of design including elements design, process and/or a system related to specific disciplines. (A4)

a3 - Methodologies of solving engineering problems. (A5)

a4 - Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues. (A6)

a5- Contemporary engineering topics. (A12)

a6 - The concepts, methods and techniques of the building construction processes, its stages, elements, material, etc. (A24)

a7 - The concepts, methods and techniques of mechanical installations' processes including structural, water, sewage, air conditioning systems. (A14)

a8 - The impact of advanced building technology on design. (A11,A24)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Select appropriate solutions for engineering problems based on analytical thinking. (B2)

b2 - Assess and evaluate effectively the characteristics and performance of components, systems and processes. (B5)

b3 - Analyze systems, processes and components critically. (B11)

b4 - Select and use design situations and solve design problems concentrating on analyzing specific groups of needs and producing new solutions and designs at various levels of the system of design process of architectural projects under the challenge of resource management and information flow of the general design system. (B4-B7,B24)

b5 - Produce innovative design ideas and concepts(B3)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 - Integrate knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems. (C1)

c2 - Merge engineering knowledge and understanding to improve design, products and/or services. (C15-C23)

c3 - Prepare professionally sound technical scientific reports. (C12)

c4 - Analyze, understand and make use of environmental circumstances and contexts(C19,C22,C25)

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Work in stressful environment and within constraints. (D6)

d2 - Manage tasks and resources efficiently. (D6)

d3 - Search for information and adopt life-long self-learning. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A4, A5, A6 ,A11 ,A12 ,A14 ,A24
B	Intellectual skills	B2, B3, B4,B5,B7,B11, B24
C	Professional and practical skills	C1 , C12, C15,C19,C22,C23,,C25
D	General and transferable skills	D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Principles of sound. Principles of sanitary installations.	1	3	
2. Nature of sound. Sanitary installation in buildings.	1	3	
3. Sound levels. Sources of water. Water treatment.	1	3	
4. Attenuation of sound. Water supply in buildings.	1	3	
5. Nature of hearing. Water supply in buildings.	1	3	
6. Measurement of sound. Drainage systems.	1	3	
7. Mid-Term Exam.			
8. Noise control. Waste water treatment.	1	3	
9. Noise trnsfer. Under ground water tanks.	1	3	

10. Artifsound insulation. Fire fighting in buildings.	1	3	
11. Acoustic principles. Electricity installation in buildings.	1	3	
12. Reflection of sound. Fire alarm in buildings.	1	3	
13. Absorption of sound. Air control in buildings.	1	3	
14. Reverberation of sound. HVAC systems.	1	3	
15. Principles of sound. Principles of sanitary installations. Nature of sound. Sanitary installation in buildings.	1	3	
Total hours	**14**	**42**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1		1			1									1							
	a2	1					1	1				1				1		1					
	a3	1		1								1											
	a4	1	1													1							
	a5	1		1									1			1				1			
	a6	1										1	1			1				1			
	a7	1		1			1																
	a8	1	1					1												1			
Intellectual Skills	b1			1			1	1					1					1					
	b2						1	1										1					
	b3			1			1	1				1						1					
	b4	1		1								1				1							
	b5	1										1			1					1			
Applied Professional Skills	c1	1		1			1	1								1		1		1			
	c2					1	1													1			
	c3			1			1	1		1			1			1							
	c4				1					1			1										
General Tran. Skills	d1			1								1				1		1					
	d2			1								1				1		1					
	d3			1								1				1		1					

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	40
Mid-Term Exam	7-th Week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:

- Mcmullan, R., (2016), "Environmental science in Building", 7th edition, Ashford Colour Press Ltd., Palgrave, UK.
- Swaffield, A., (2014), "Water, Sanitary & Waste, Services for Buildings", 7th edition, Routledge, London.

6-1 Course notes: Non

6-2 Required books

- **6-3 Recommended books:**Mcmullan R., Environmental Science in Building, Fifth Edition, Ashford Colour Press Ltd., London, 2002.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Data Show
- Blackboard / white board and chalk.

Swaffield, A., (2014), "Water, Sanitary & Waste, Services for Buildings", 7th edition, Routledge, London

Course coordinator: Prof. Sayed Abd El Kalek

Head of the Department: Prof. ibrahim

Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN313: Working Drawing & Construction Methods 2

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	July 2018

B - Basic Information

Title: Working Drawing & Construction Methods 2 **Code:** ARCN313 **Level3**rd , 8th Semester

Credit Hours: 3 **Pre-requisite:** ARCN312

Contact Hours: **Lectures:** 2 **Tutorial:**3 **Laboratory: -** **Total:** 5

C - Professional Information

1 – Course Learning Objectives:

This course continues on from where the first course ends, By the end of this course, students should be able to produce construction drawings and details for structural and architectural elements such as: wall sections, claddings, openings, curtain walls, suspended ceilings, staircases, bathroom layouts.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 - Principles of working drawings and executive designs including elements, process and/or systems related to construction methods (A4,13).

a2 - Current engineering technologies as related to disciplines (A8,A25).

a3 - Principles of building technologies, structure & construction methods, technical installations, and the way they may influence design decisions (A14,A24).

a4- Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building (A15,A24).

a5 - The role of the architecture profession relative to the construction industry (A21).

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Deduce the appropriate type of construction for a certain building (B3,B22).

b2 - Assign finishing materials for exterior and interior elements (B4).

b3 - Integrate relationship of structure, building materials, and construction elements into design (B17,B24).

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Transfer and interpret specific architectural elements into working drawings that could be

implemented considering the common standards and requirements needed to communicate with other disciplines in the construction process (C14,C25,C24).

c2- Practice the neatness and accuracy in the representation of how an object looks and how it is constructed (C4).

c3- Apply established architectural graphic conventions to indicate sizes, material, and related information that is needed to bring the objects or spaces into reality (C10,C25,C24).

c4- Produce professional workshop and technical drawings using both manual and computer aided drawing techniques (C14).

c5- Use appropriate construction techniques and materials to specify and implement different designs (C15,C23).

c6- Display creativity in transforming design ideas into construction drawings by selecting and adopting the appropriate structural and architectural elements (C18).

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in stressful environment carrying out a working drawing project within given constrains and time (D2).

d2- Communicate and display work effectively either manually drafted or elecreconcally via computer aided design and drafting applications (CADD) (D3).

d3- Manage and coordinate tasks and deciplins to fulfill a complete set of working drawings (D7).

d4- Search for required informayion and construction details online and in references (D6).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A8,A13, A14, A15, A21,A24
B	Intellectual skills	B3, B4, B17 ,B22,B24,B25
C	Professional and Practical Skills	C4, C10, C14, C15,C18,C23
	General and transferable skills	D2, D3, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1-Steel Stairs	2	3	
2-Roof Gardens Details	2	3	
3-Suspended ceilings (Gypsum borads and tiles, acoustic tiles, aluminium panels and grid systems	2	3	
4-Raised Floors	2	3	
5-Cladding (Precast concrete panels, GRC, GRP, GRG, Marbel cladding fixation, Masonry veneer, Metal and Aluminium comoposit sheets cladding)	2	3	
6-Glazed curtain walls and systems (ordinary currtain wall, structural glazing, spider system)	2	3	
7- Mid-Term Exam			
8-Sky lights details	2	3	
9-Bathroom space,plans and section elevations	2	3	
10-Drainage and feeding works for Bathroom space & roofs drainage	2	3	
11-Electrical drawings (1) Electric power and lighting outlets	2	3	
12- Research Presentation		5	
13-Final Project submission and discussion.		5	

14- Revision and Late Submissions	2	3	
Total hours	**28**	**42**	

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving		Self-learning	Discovering	Written Exam	Project	Quizzes	Research	Assignments
Knowledge & Understanding	a1	1			1					1		1		1
	a2	1			1					1		1		1
	a3	1	1		1	1		1	1	1		1	1	1
	a4	1	1						1			1		
	a5	1	1		1	1		1	1	1		1	1	1
	a6	1	1		1					1		1	1	1
	a7	1			1					1		1	1	1
	a8	1												1
	a9	1	1		1	1			1	1		1	1	1
	a10										1		1	
Intellectual Skills	b1	1			1				1	1		1	1	1
	b2	1	1		1				1	1	1	1	1	1
	b3	1			1				1	1	1	1	1	1
	b4	1	1		1				1	1	1	1	1	1
	b5	1		1	1	1		1	1	1		1	1	1
Applied Prof. Skills	c1										1			
	c2	1			1	1			1	1		1	1	1
	c3	1	1		1							1	1	1
	c4										1		1	
General Skills	d1							1	1				1	1
	d2							1					1	1
	d3							1					1	1

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Research	2 Quizzes	10
	Assignments	Weekly	10
	Project	13-th week	20
Practical Exam		-	-
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- Ching, F., (2014), “Building Construction Illustrated”, 5th Edition, John Willy & Sons Publishing Inc.,

New York.

- فاروق عباس حيدر، (١٩٩٤)،" الموسوعة الحديثة في تشييد المباني"، الطبعة الرابعة، منشأة المعارف، الإسكندرية، مصر.

، مكتبة الأنجلو المصرية، القاهرة، مصر."محمد عبد الله، (١٩٨٩)،" الرسومات التنفيذية والتفاصيل المعمارية

6-1 Course notes:

PDF. Lecture files apploaded for students .

6-2 Required books

Madan Mehta, Walter Scarborough, Diane Armpriest., (2013) "Building Construction principles,Materialsand Systems- 2nd ed. ", USA

Ching, F., "Building Construction Illustrated ", 3rd Ed. John Willy & Sons Publishing Inc., New York, 2001

6-3 Recommended books:

- McKay, W.B., "Building Construction", 5th Ed. Longmans, 1971

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Laptop ,Data show and Computer programs; CAD.

Course coordinator:	Dr /Azza Gamal Haggag
Head of the Department:	Professor Dr. Ebrahim Gouda
Date:	July 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN331: Elective 4 Sustainable architecture

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology BSc Program
Department offering the course:	Architecture Engineering and Building Technology BSc Program
Date of specifications approval:	December 2018

B - Basic Information

Title: sustainable architecture **Code:** ARCN331 **Level:** level three 8th Semester
Credit Hours: 2 **Pre-requisite:** ARCN216
Contact Hours: **Lectures:** 2 **Tutorial:**- **Laboratory:** - **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The course aims at providing students with knowledge of the various concepts and theories of sustainability and their stratgies. It also enhances their practical engagement with the different scales and levels of sustainability, in addition to allowing them to suggest local contextual interpretations in the field.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Methodologies of solving engineering problems, data collection and interpretation in the field of sustainability. (A5)
a2- Current engineering technologies as related to disciplines. (A8)
a3- Principles of sustainable design, climatic considerations, and energy consumption and efficiency in buildings and their impacts on the environment. (A23)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 -Think in a creative and innovative way in problem solving and design. (B3).
b2 - Solve engineering problems, often on the basis of limited and possibly contradicting information. (B7)
(Integrate as one Suggested: Think in a creative and innovative way in problem solving and designing, often based on limited and possibly contradicting information.
b3 -Judge engineering decisions while considering balanced costs, benefits, safety, quality, reliability, and environmental impact. (B9)
b4 - Incorporate economic, societal, environmental dimensions and risk management in design. (B10)
b5 - Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions. (B13)
b6 - Integrate relationship of structure, building materials, and construction elements into design process. (B17)
(Integrate as one Suggested: Integrate different forms of knowledge and ideas from the student's field in addition to other disciplines, and manage information retrieval into the design process, in

relation to structure, building materials, construction elements, etc.

b7 - Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment (B19)

b8 - Identify different methods of building technologies and their impact on the built and social environment(B22)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services within the environment. (C2)

c2- Demonstrate professional competence in developing innovative and appropriate solutions of architectural and urban problems in relation to sustainability. (C17)

c3- Provide leadership and education to the client particularly with reference to sustainable design principles.(C20)

c4- Demonstrate environmental studies that are applicable to building technology techniques and processes.(C25)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in stressful environment and within constraints (D2)

d2- Manage tasks and resources efficiently (D6)

d3- Search for information and adopt life-long self-learning (D7)

d4- Refer to relevant literature effectively (D9)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A5,A8, A23
B	Intellectual skills	B3, B7, B9, B10, B13, B19 ,B22
C	Professional and Practical Skills	C2,C17,C20,C25
D	General and transferable skills	D2,D6, D7, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
• Course outline and introduction.	2	-	-
• Importance, steps, principles, and types of environmental architecture.	2	-	-
• Vernacular architecture: definition, principles, and examples.	2	-	-
• Climatic and bioclimatic architecture: definition, principles, and examples.	2	-	-
• Green architecture: definition, principles, and examples.	2	-	-
• Sustainable architecture: definition, principles, and examples.	2	-	-
• Mid Term Exam	-	-	-
• Echo-tech architecture: definition, principles, and examples. & Smart Technology & techniques available (Building design, systems, equipment, programs, materials, structure, etc.). (these are a must be included topics in regard to the bylaw 2018)	2	-	-

Passive & active solar energy systems (Heating & Cooling), (water conservation, waste systems, protecting natural environment, resources and materials, etc.) (these are a must be included topics in regard to the bylaw 2018)	2	-	-
Environmental hazard, designing healthy buildings, clean and low to zero energy, Building metabolism. (these are a must be included topics regarding the bylaw 2018) Research Introduction	2	-	-
Research follow up	2	-	-
Research follow up	2	-	-
Research submission	2	-	-
• Revision	2	-	-
Total hours	**14**		

In addition ,they will study & analysis the bioclimatic comfort and building metabolism such as design with climate, integration of passive heating and cooling systems,

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1		1		1	1			1		1		
	a2	1				1								
	a3	1		1		1				1				
	a4	1	1	1		1	1							
	a5	1	1	1		1	1							
	b1					1	1	1						
	b2						1	1				1		
	b3	1	1			1	1							
	b4					1		1				1		
	b5	1	1			1	1	1						
Intellectual Skills	b6	1				1	1			1				
	b7	1				1	1			1				
	b8	1	1			1	1							
	b9	1		1		1	1	1		1				
	b10	1				1	1			1				
Applied Prof. Skills	c1				1	1				1				
	c2					1	1	1		1		1		
	c3				1	1				1				

	c4				1	1				1				
General Skills	c5	1	1		1	1	1			1		1		
	d1			1			1	1		1				
	d2			1			1	1		1				

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		8-th Week	20
Semester Work	Weekly calss work	Assignments- research	40
Practical Exam		Fourteenth week	-
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- Michael Bauer ,(2010),"Green Building–Guidebook for Sustainable Architecture", Springer ,Germany.

- Nalanie Mithraratne ,(2007),"Sustainable living: the Role of Whole life Cost and Values", Elsevier.
- Daniel E. ,(2007),"Sustainable Design –Ecology, Architecture and Planning", John Wiley &Sons,Inc.

7- Facilities required for teaching and learning:

- The course comprises a combination of: Lectures, case study analysis, research, discussion sessions and project work.

Course coordinator: Dr hosam mohamed abd el aziz
Head of the Department: Professor ibrahem gouda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN333: Elective 4 Building Technology and Structure Systems

A- Affiliation

Relevant program/s: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department offering the course: Architecture Engineering and Building Technology Department

Date of specifications approval: December 2018

B - Basic Information

Title: Building Technology and Structure Systems **Code:** ARCN333 **Level:** Senior 3 ,8th Semister

Credit Hours: 2 **Pre-requisite:** ARCN210

Contact Hours: **Lectures:** 2 **Tutorial:** - **Laboratory:** - **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge of advanced construction technology and methods and their applications throughout studying the mechanical construction ways while evaluating their past experiences. It also discusses the techniques and methods of fabrication and manufacturing. Students will study some contemporary building technologies and structural systems that are used in modern trends in architecture They should be able to figure out the suitable solutions for specific task in construction sites .

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1-definitions &concepts related to tech. &building technology.(A1)

a3- contemporary building technologies and structural systems (their names ,materials & specifications). (A4, A14)

a4- classification of advanced construction materials& systems. (A4, A14).

a5- the effect of science development on building technology. (A4).

a6- prefabricated buildings (historic view ,concepts disciplines). (A1, A18).

a7- structural units & connection in prefabricated building. (A4, A14).

a8- the techniques and methods of fabrication and manufacturing. (A1)

a13- modern trends in architecture (A4)

a14- Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions. (A1)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b2- Recognize the differences between advanced construction systems (B4) , (B13)

b3- Discover &analyze the advantages and disadvantages of advanced construction systems and advanced materials. (B5)

b4- Recognize the differences &compare between structural units in prefabricated building. (B4)

b5 - compare between different construction systems (traditional, new &prefab). (B13)
b22- Identify different methods of building technologies and their impact on the built and social environment (B13).

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c2- find and implement different systems & alternatives in execution methods (C2).
c3- merge between construction systems to reach better solutions for constructions problems (C2).
c20- Provide leadership and education to the client particularly with reference to sustainable design principles(C2).
c23- Apply recent advances in the fields of building materials, manufacturing and building technology to the construction of buildings(C2).

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in a team and involve in group discussion and seminars (D1, D3,D5).
d2- Communicate effectively and present data and results orally and in written form (D3).
d3- Use ICT facilities in presentations (D4).
d4- Search for information's in references, internet& achieve tasks on limited time (D6,D7).
d5- Practice self-learning by observing,searching&concluding (D7).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A4, A18,
B	Intellectual skills	B4, B5, B13,
C	Professional and Practical Skills	C1, C2
D	General and transferable skills	D1, D3, D4,D5,D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to building Technology.	2		
2. Advanced structure systems 1	2		
3. Advanced structure systems 2	2		
4. contemporary building technologies 1	2		
5. contemporary building technologies 2	2		
6. contemporary building technologies 3	2		
7. contemporary building technologies 4	2		
8. advanced building technologies material 1	2		
9. advanced building technologies material 2	2		
10. Future building technology &expected development in construction systems	2		
11. Prefabricated buildings.	2		
12. Modules of Prefabricated buildings.	2		
13. Structural units of Prefabricated buildings	2		
14. the techniques and methods of fabrication and manufacturing	2		

15. Revision.	2		
Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	sketches	Brain storming	projects	Site visits	Researches and Reports	Discovering	Selfl-earning	cooperative	Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
Knowledge & Understanding	a1	1													1	1		1					
	a2	1						1							1	1		1					
	a3	1	1									1		1		1				1			
	4															1		1					
	a5	1	1					1				1		1	1	1				1			
	a6	1	1					1								1		1					
	a7	1	1					1				1				1				1			
	a8	1												1	1	1							
Intellectual Skills	b1	1	1	1		1						1	1	1		1			1	1			
	b2	1	1			1		1	1			1	1			1			1	1			
	b3	1	1	1		1						1	1			1				1			
	b4	1	1					1				1	1			1		1					
	b5	1	1	1		1			1				1	1		1		1					
Applied Professional Skills	c1	1	1	1					1			1	1	1	1	1		1					
	c2	1	1	1					1			1	1	1	1	1		1					
	c3	1	1	1					1			1	1	1	1	1		1					
General Tran. Skills	d1			1		1			1			1			1								
	d2		1	1								1	1	1		1		1					
	d3	1	1									1											
	d4			1		1						1		1		1		1					
	d5		1	1		1						1	1	1	1	1		1					

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	1 Quizz (every week)	10
	Reseach	1 research	20
	Assignments	3 through the whole	10

		semester	
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- Chudley, R., & Greeno, R., (2016), "Building Construction Handbook", Routledge, UK.
- Hayder, F. A., (1988), "Building Construction", Sixth Edition, Monshaet Elmaaref, Alexandria, Egypt.

Hawass, Z., (1985), "The Art of contemporary Building (Arabic)", Alam El Kottob, Cairo, Egypt.

6-1 Course notes:

6-2 Required books

Serag Eldin, Dr. Samy B., "Construction Building Technology "(Arabic), 2005.
Hawass, Dr. M. Zaki , " The Art of contemporary Building " (Arabic) , 1985 , Alam El Kottob , Cairo .
Eweeda, Dr. M. Mahmoud , " Modern Building Technology " (Arabic)
Micheal. C.Y.L.," Construction Technology For Tall Buildings" (English),2017 ,5th Edition.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc. Non

7- Facilities required for teaching and learning:

- White board
- overhead projector / Data Show
- Audio Video facilities: Video, T.V, P.C.

Course coordinator: Professor Khaled Hesham
Head of the Department: Professor Ebrahim Goda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN334: Elective 4 ADVANCED STUDIES IN INTERIOR DESIGN
(Humanitarian Elective Courses)

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: ADVANCED STUDIES IN INTERIOR DESIGN **Code:** ARCN334 **Level:** 3, 8th semester
Credit Hours: 2 **Pre-requisite:** ARCN123
Contact Hours: **Lectures:** 2 **Tutorial:**1 **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The aim of the course is to increase the talent of forming interior spaces of local private buildings and the detailed study of the components of the architectural spaces and the systems that affect its formation and, support the presentation techniques of the architectural details &concepts.

The history of interior design – visual perception of spaces – space components: lights – material& tools – study of colors , its physiological effects – the aesthetics of private architectural spaces – public architecture Spaces – case studies & models – environmental control & its needs – the integration with the architectural frame – Researches & applied studies – Presentation techniques &talents

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Fundamental engineering sciences relevant to architectural practices(A4)
a2- Recognizing professional standards of architectural practice (A13)
a3- Realizing materials properties and uses in different building contexts(A14)
a4- Potential computer uses in architectural applications(A20)
a5- Three-dimensional visualization and representation in terms of shades, shadows and perspective using different computer applications(A20)
a6 - Professional ethics and socio-economical impacts of engineering solutions.
Contemporary engineering topics. (A12)
a7 -Principles of architectural design, and the preparation and presentations of design projects in a variety of contexts, scales, types, and degree of complexity. (A13)
a8 -The role of the architecture profession relative to the construction industry and the overlapping interests of organizations representing the built environment(A21)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Select appropriate solutions for engineering problems based on analytical thinking(B2)
b2 - Think in a creative and innovative way in problem solving and design. (B3)

b3 - Combine, exchange, and assess different ideas, views, and knowledge from a range of sources. (B4)
b4 - Investigate the failure of components, systems, and processes. (B6)
b5 -Solve engineering design and production problems, often based on limited and possibly contradicting information(B7)
b6 - Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact. (B8,B22)
b7 - Combine economic, societal, and environmental and risk management dimensions in design. (B10)
b8 - Develop a systematic and methodic approach in dealing with new and advancing technology, (B12)
b9 - Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions. (B13)
b10 - Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design. (B14)-
b11 -Predict possible consequences, by- products and assess expected performance of design alternatives. (B15)
b12 -Integrate relationship of structure, building materials, and construction elements into design process. (B17)
b13 -Integrate community design parameters into design projects. (B18)
b14 -Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment(B19)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - knowledge of mathematics, science, information technology, design, business context and engineering practice on integrative base to solve engineering problems. (C1)-
c2 -Merge professionally the engineering knowledge, understanding, and feedback to improve design, products and/or services. (C2)
c3 -Create and/or re-design a process, component or system, and carry out specialized engineering designs. (C3)
c4 -Practice the neatness and aesthetics in design and approach(C4)
c5 -Apply safe systems at work and appropriate steps to manage risks. (C8)
c6 -Demonstrate basic organizational and project management skills. (C9)
c7 -Apply quality assurance procedures and follow codes and standards. (C10)
c8 -Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings' techniques. (C13)
c9 -Use appropriate construction techniques and materials to specify and implement different designs; (C14)
c10 -Display imagination and creativity(C17)
c11 -Respect all alternative solutions; changes in original plan of the project, differences in style, culture, experience and treat others with respect. (C18)
c12 -Provide leadership and education to the client particularly with reference to sustainable design principles. (C19)
c13 -Respond effectively to the broad constituency of interests with consideration of social and ethical concerns. (C20)
c14 -Contribute positively to the aesthetic, architecture and urban identity, and cultural life of the community(C21)

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 -Collaborate effectively within multidisciplinary team(D1)
d2 -Work in stressful environment and within constraints(D2)
d3 -Communicate effectively(D3)

d4-Lead and motivate individuals(D5)
d5 -Manage tasks and resources efficiently(D6)
d6 -Search for information and adopt life-long self learning(D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4,A12,A13, A14,A20,A21
B	Intellectual skills	B2, B3, B4, B6, B7, B8, B10, B12,B13, B14, B15,B17, B18, B19
C	Professional and Practical Skills	C1, C2, C3,C 4,C8,C9, C10, C13, C14,C17,C18,C19,C20,C21
D	General and transferable skills	D1,D2,D3,D5,D6,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1- Introduction	2		
2- Interior Design process	2		
3- Elements of Interior Design	2	1	
4- Principles of Interior Design	2	1	
5- Colors in Interiors (Research)	2	1	
6- Introduction to Finishings	2	1	
7- Mid term Exam			
8- Flooring Finishings	2	1	
9- Walls & Ceiling finishes	2	1	
10- Finishing materials & (Project Introduction)	2	1	
11- Styles of Furniture	2	1	
12- Furniture Accessories (1) & (Proj. Study)	2	1	
13- Furniture Accessories (2)	2	1	
14- Furniture Accessories (3) & (Proj. Semifinal)	2	1	
15- Project Final.		3	
Total hours	**28**	**14**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1	1	1	1			1		1			1	1
	a2	1	1		1	1		1	1					1
	a3	1	1	1	1	1		1		1				1
	a4		1			1				1				

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
	a5	1	1	1		1		1		1				
	a6	1	1	1	1	1		1		1			1	1
	a7	1	1	1		1		1		1			1	1
	a8	1	1			1		1		1				1
Intellectual Skills	b1	1		1		1		1		1				1
	b2			1	1	1		1		1				
	b3	1		1	1	1		1						
	b4	1	1	1						1			1	1
	b5			1	1	1		1		1			1	1
	b6	1	1		1	1							1	1
	b7	1	1	1		1		1		1			1	1
	b8	1		1		1		1	1	1			1	1
	b9	1	1			1		1						
	b10				1	1			1					
	b11	1	1	1		1		1						1
	b12	1	1	1		1		1		1			1	1
	b13	1	1	1		1		1		1			1	1
	b14	1	1	1	1			1		1				
Applied Prof. Skills	c1	1	1	1		1		1		1			1	1
	c2	1	1	1	1	1		1		1			1	1
	c3	1		1	1	1		1		1				1
	c4			1				1		1				
	c5	1		1		1				1				1
	c6	1	1	1		1		1		1				1
	c7	1	1	1		1		1		1				1
	c8	1	1		1	1		1	1					
	c9			1	1			1	1				1	1
	c10		1	1	1	1		1		1			1	1
	c11			1	1	1		1	1	1			1	1
	c12	1	1		1	1		1	1	1			1	1
	c13	1	1			1			1	1			1	1
	c14	1	1	1	1	1		1		1			1	1

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
General Tran. Skill	d1			1		1		1						
	d2	1	1			1				1			1	1
	d3			1		1		1						
	d4	1	1	1		1		1						
	d5	1	1	1		1		1	1	1			1	1
	d6	1	1	1				1						

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Reports	Bi-Weekly	10
	Assignments	Bi-Weekly	30
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

- O'Shea, L., & Grimley, C., (2013), "The Interior Design Reference & Specification Book: Everything Interior Designers Need to Know Every Day", Rockport Publishers, USA.
- Felder, N., (2005), "Felder's Comprehensive: The Annual Desk Reference and Product Thesaurus for", Princeton Architectural Press, USA.

6-1 Course notes: Lecture notes

6-2 Required books

ألف باء التصميم الداخلى، دار الكتب والوثائق، بغداد، العراق. نمير قاسم خلف، ٢٠٠٦،

Nielson, K.L.& Taylor, D.A., 2002, Interiors: an introduction, NY: McGraw-Hill co

Pile, J.F., 2007, Interior Design, NY:Harry N.Abrams.

6-3 Recommended books:

6-4 Periodicals, Web sites, etc.

https://en.wikipedia.org/wiki/Interior_design (Last accessed February 25, 2019).

http://launchpadacademy.in/elements-of-interior-design-2/ (Last accessed February 20, 2019).

http://launchpadacademy.in/principles-interior-design/ (Last accessed February 20, 2019).

7- Facilities required for teaching and learning:

- Free Hand Sketches – AutoCAD and 3Dmax program – Photoshop –Sketch up

Course coordinator: Dr. Marwa Elbasyoni

Head of the Department: Associate Professor: Ibrahim Goda

Date: December 2018

Architecture Trainning

Modern Academy for Engineering and Technology

Course Specification

ARCN360: Architecture Training (2)

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: Decemer 2018

B - Basic informationLevel : Senior 1,Level 3

Title: Architecture Training **Code:** ARCN 360 **level:**theird : summer Semester
Credit Hours:3 **Lectures: --** **Tutorial/Exercise: -** **Practical:-**
Pre-requisite :ARCN 260 – ARCN 312 **+ 101 credit hours**

C - Professional information

1 – Course Learning Objectives:

- The objective of the course is to develop students' practical capabilities by practicing. in one of the national construction companies. and learning computer skills such as Primavera Program Level (2).
- The training plan is scheduled and approved by the committee of the architecture dept.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire the flowing knowledge and understanding:
a1 - Technical language and report writing. (A10)

a2 - The specifications, programming and range of application of CAD and CAD/CAM facilities.. (A20)

B - Intellectual skills:

By the end of the course the student should be able to:
b1- Select appropriate solutions for engineering problems based on analytical thinking (B2)
b2 - Interpret numerical data and apply analytical methods for engineering design purpose. (B1)
b3 - Select appropriate manufacturing method considering design requirements. (B18)

C- Professional and practical skills:

By the end of the course the student should be able to:
c1 - Prepare and present technical reports (C12)
c2 - Analyze experimental results and determine their accuracy and validity. (C5)

D - General and transferable skills:

By the end of the course the student should be able to:
d1 - Improving design skills. (D8)
d2 - Work in groups. (D1)
d3 - Present work documentation in written and oral form. (D3)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A10,A 20
B	Intellectual skills	B1,B2,B 18
C	Professional and practical skills	C5, C 12
D	General and transferable skills	D1,D3, D8

3 – Contents

	Topic	**Lecture hours**	**Tutorial hours**	**Practical hours**
1	Computer Lab	-	-	24
2	Premavera	-	-	6
3	Site Visit	-	-	30
	Total hours	**-**	**-**	**60**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method					
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments	Researches and Reports
Knowledge & Understanding	a1	1		1				1				1		1		1		1			1
	a2	1		1										1				1			1
Intellectual Skills	b1	1		1				1				1	1			1				1	
	b2	1		1				1				1						1			1
	b3	1		1				1				1						1			1
Applied Professional Skills	c1	1		1						1		1		1		1		1			1
	c2	1		1						1		1		1				1			1
General Tran. Skills	d1		1	1								1		1		1					1
	d2		1	1								1		1							1
	d3		1	1								1		1		1					1

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)

Semester Work: assignments ,Research	Bi-Weekly	60%	60
Final Report	Fourth week	20%	20
Oral Exam	Fourth week	20%	20
	Total	100%	100

6- Facilities required for teaching and learning:

White boards and markers.
Well equipped space for lectures and digital presentation.
Site visits

7- References:

- Anderson and Sweeney, (2008), " An introduction to management science, Quantitative approach", Thomson South-Western.

Course coordinator: Dr. Nahed Omran

Head of the Department: Associate Professor: Ibrahim gouda

Date: December 2018

Senior 2

Fourth year Architecture
Level 4

Course Specifications

Credit Hours System

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Senior 2
Fourth year Architecture
Level 4

S	Course	
	Code	**Title**
1	ARCN421	Architectural Design 7
2	ARCN422	City Planning
3	ARCN423	Urban Design
4	ARCN430	Elective5 Aesthetics and formations
5	ARCN431	Elective5 Advanced Building economics
6	ARCN432	Elective5 Architecture criticism
7	ARCN435	Elective5 Urban & Environmental Conservation
8	ARCN436	Elective5 Simulation Programs & Architecture
9	ARCN411	Working Drawing & Construction Documents
10	ARCN412	Technical specifications , Quantities & Contracting Methods
11	ARCN460	Graduation Project
12	ARCN433	Elective6 Modern Building Systems and Materials
13	ARCN434	Elective6 Urban Renewal
13	GENN451	Elective2 Advanced Computer Systems Implementation.
14	GENN452	Elective2 Civilization and heritage
15	GENN453	Elective2 Industrial Psychology.
16	GENN454	Elective2 Marketing

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Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN421: Architectural Design 7

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology

Date of specifications approval: December , 2018

B - Basic information

Title: Architectural Design 7 **Code**: ARCN421 **Level:**Senior 2 ,Level 4, 9th semester

Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**6 **Practical:** 7
Pre-requisite: ARCN322

C - Professional information

1 – Course Learning Objectives:

The course aims to enhance the students' architectural perception throughout dealing with different design approaches in light of building regulations and constrains. It includes an analytical study for the alternatives of designing a complex public, service and residential projects, in aim of reaching the optimum architectural and urban design form, using the best assessment methodology that achieves the functional, constructional, visual and environmental aspects of architectural spaces. The practical application will be on a multi-buildings project with complex solutions that have an urban depth, while connected to geographical and environmental reality. Students will also practice different methods of presenting the architectural drawings and conducting 3D models.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire the flowing knowledge and understanding:
a1 - Knowledge and updated of design and building Technology.(A14)
a2 - Principles of architectural design. (A13)
a3 - Principles of building technologies. (A14)
a4 - Physical modeling, 3D, and computer-aided design. (A20)
a5 - Principles of sustainable design, climatic considerations.(A23)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 - Integrate different forms of knowledge . (B4)
b2 - Think 3d and engage images of places &Computer aided design (B14)
b3 - Decide optimum solutions based on various objectives and design problems. (B16)
b4 - The informed consideration of the wider context in the design process (B19)
b5 - formulate informed opinion related to design (B20)
b6 -Analyze the range of patterns and traditions in design process. (B21)

C- Professional and practical skills:

By the end of the course the student should practice:

c1 -Produce and present architectural design projects considering neatness, aesthetics and precession. (C4, C13)

c2- Display imagination and creativity in the design development, form generation and facade design (C18)

c3 -Respect all alternative solutions applied to a single design problem. (C19)

c4 -Contribute positively to the aesthetic, architecture and urban identity. (C22)

D - General and transferable skills:

By the end of the course the student should be able to:

d1 - Ability to present and explain concepts and ideas within a limited time and defined constrains (D2-D3)

d2 - Search for information from different sources. And effectively refer to it (D7- D9)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A13, A14,A20,A21
B	Intellectual skills	B4, B14, B16, B20,B21
C	Professional and practical skills	C4, C13, C18, C19,C22
D	General and transferable skills	D2, D3, D7, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1) Introduction : Multi purpose hall project	1	6	
2) Site analysis and researche	1	6	
3) Final resarche submission	1	6	
4) Layout proposal Design concept	1	6	
5) Master plan (zoning – organization)	1	6	
6) Floor plans Forwvlation	1	6	
7) Mid-Term Exam	1	6	
8) Level Study (sections) Floor plans design development	1	6	
9) Elevations design Floor plans (final)	1	6	
10) 3D Perspective or isometric / mass study	1	6	
11) interiors - details and presentation	1	6	
12) sections & Elevations	1	6	
13) Development and final Plans sections & Elevations	1	6	
14) Sections**-** Elevations Final sketch submission	1	6	
15) 3D Models Final project submission	1	6	
Total hours	**15**	**90**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge	a1	1	1						1	1										
	a2	1	1									1				1				
	a3	1	1				1					1								1
	a4		1									1		1						
	A5	1	1		1				1							1				
Intellectual	b1	1										1			1					
	b2								1	1								1		
	b3	1	1									1				1				
	b4	1	1						1	1					1					1
	B5	1	1	1					1						1	1		1	1	1
	B6	1	1	1					1			1								
Applied	c1	1		1					1											
	c2								1			1								
	c3		1		1				1	1			1							
	c4				1			1	1	1			1							
General	d1	1	1					1												
	d2								1			1					1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Assignments and sketches	Bi-Weekly	40
Mid-Term Exam	7-th Week	20
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes: Non

6-2 Required books

several books of design , time saver standards for Architectural, periodicals

- **6-3 Recommended books:** Great Opera house imaster pieces of Architecture
  - Joseph de Chiara, John Calendar, “Time Saver Standards for Building Types”, McGraw-Hill, 2003 .
- Haughey, P., (2017), “Across Space and Time: Architecture and the Politics Modernity”, Routledge, USA.
- Hill Companies, (2004), “Architectural Record”, Mcgraw-Hill, USA.
- الكود المصري لتصميم المباني العامة والسكنية (بكافة اجزائه)، مصر.

6-4 Periodicals, Web sites, etc.

- Architectural Record
- Architectural Review

7- Facilities required for teaching and learning:

- Data Show

Course coordinator: Dr. Mohamed Thabat
Head of the Department: Associate Professor: Ibrahim Gouda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN422: City Planning
A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: City Planning **Code:** ARCN422 **Level:** 4, 9th Semester

Credit Hours: 3 **Pre-requisite:** ARCN324

Contact Hours: **Lectures:** 1 **Tutorial:**5 **Total:** 6

C - Professional Information

1 – Course Learning Objectives:

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Professional ethics and impacts of city planning solutions on society and environment. (A11)

a2- Theories and legislations of urban and regional planning. (A16)

a3- The processes of spatial change in the built and natural environments; patterns and problems of cities; and positive & negative impacts of regions. (A17)

a4- Theories and histories of architecture, regional planning, and other related disciplines (A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Incorporate economic, societal, environmental dimensions and management in regional planning (B10)

b2- Analyze results of numerical models and assess their limitations by GIS (B11)

b3- Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design (B14)

b4- Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment (B19)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Use a wide range of analytical tools, techniques, equipment, and software packages pertaining to the discipline and develop required computer programs (GIS) (C6)

c2- Provide leadership and education to the client particularly with reference to sustainable planning principles (C20)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Collaborate effectively within multidisciplinary team (D1)

d2- Work in stressful environment and within constraints (D2)
d3- Collaborate effectively within multidisciplinary team (D3)
d4- Work in stressful environment and within constraints (D5)

Course Contribution in the Program ILO's

ILO's		Program ILO's	
A	Knowledge and understanding	A11,A16,A17,A19	(13-14-20-21)
B	Intellectual skills	B10, B11,B14, B19	(4-14-16-20-22)
C	Professional and Practical Skills	C6,C20	
D	General and transferable skills	D2,D3,D5	

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1- Introduction	1	5	-
2- Background of regional Planning	1	5	-
3- Regional Planning in Egypt	1	5	-
4- Getting maps of study area	1	5	-
5- Getting maps of study area	1	5	-
6- Sustainable development	1	5	-
7- Mid-Term Exam	-	-	-
8- Regional Data analysis	1	5	-
9- Regional Data analysis	1	5	-
10- Development alternatives	1	5	-
11- Development alternatives	1	5	-
12- Development alternatives	1	5	-
13- Development alternatives	1	5	-
14- Semi Final Project	1	5	-
15- Final Project	1	5	-
Total hours	**14**	**70**	**-**

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessment Method

		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1													
	a2													
	a3													
	a4													
Intellectual Skills	b1													
	b2													
	b3													
	b4													
Applied Prof. Skill	c1													
	c2													
General Tran. Skill	d1													
	d2													
	d3													
	d4													

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam		----	----
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes:

Lecture notes

6-2 Required books

6-3 Recommended books:

- Detter, D., (2017), "The Public Wealth of Cities: How to Unlock Hidden Assets to Boost Growth and Prosperity", Brookings Institution Press, Swedish.
- Glasson. J. & Marshall. T., (2007), "Regional Planning First published", Routledge, London, UK.

احمد خالد، (١٩٩٨)،" تخطيط المدن"، مكتبة الانجلو المصرية، القاهرة، مصر.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Data show
- GIS
- Updated laptops
- Educational Software License

Course coordinator: Dr. Shahenaz Taie
Head of the Department: Associate Professor: Ibrahim Goda
Date: Decemeber 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification

ARCN423: Urban design

A- Affiliation

Relevant program/s:	Architectural Engineering and Building technology BSc Program
Department offering the program:	Architectural Engineering and Building technology BSc Department
Department offering the course:	Architectural Engineering and Building technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Urban Design **Code:** ARCN423 **Level:** 4th, 9th Semester
Credit Hours: 4 **Pre-requisite:** ARCN324
Contact Hours: **Lectures:**2 **Tutorial:** 4 **Practical:** - **Total:** 6

C - Professional Information

1 – Course Learning Objectives:

The course aims to introduce students to urban design to the natural and built environments and enhancing the students' ability to apply different approaches of urban design in the Egyptian environmental context. The course discusses the urban design definition, its relationship to planning and architectural design theories in addition to the other approaches and concept of urban design regarding the culture and natural environment as the basis of the urban design principles.

It discusses the special morphology in cities throughout illustrating their character, elements, perception, and its natural and cultural composition determinacy while understanding the urban design and context, its framework for the city, which includes the composition elements and the basics of urban design as a tool for urban development. Students will also be able to conduct site analysis which includes studying natural, visual and cultural dimensions in addition to the variables, elements and effects of the site. It also includes a study for influence of nature in the design from functional and visual points of view, in addition to illustrating the landscape and its uses for achieving the ecological balance students will gain the knowledge of the vocabulary, design elements, and the natural and built sites formation and conducting a practical urban design project.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

By the end of the course the student should acquire the flowing knowledge and understanding:

a1- Analyzing an Urban space to the basic elements. (A9)
a 2- Site forces. (A16)
a 3 - Problems and constrains of site. (A16)
a4- High knowledge about soft and hardscapes. (A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Analyze of site forces. (B10)
b2-Gather problems and constrains in a matrix. (B20)

b3 -Develop his / her analysis. (B20)
b4 -Valuate his / her analysis. (B20)

c - Professional and practical skills:
On successful completion of the course, the student should be able to:
By the end of the course the student should practice:
c1-Analyze urban spaces in large scale sites. (C22,C19)
c2-Establish matrix of problems and constrains. (C13)
c3-Converting constrains into problems and dealing with them(C18,19)
c4-Dealing with any existed urban space and redesigning it. .(C13)

d - General and transferable skills:
On successful completion of the course, the student should be able to:
d1- Participate in urban design team. (D1)
d2- Develop presentation. (D5)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9, A16,A19
B	Intellectual skills	B10, B20
C	Professional and Practical Skills	C13,C18,C19,C22,
D	General and transferable skills	D1, D5

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1- Introduction to Urban design	2	4	0
2- Introduction to project, Site analysis	2	4	0
3- Site analysis, zoning, introduction to research	2	4	0
4- Research presentation, conceptual designs, Site analysis	2	4	0
5- Layout alternatives	2	4	0
6- Layout, elevation	2	4	0
7- Mid Term Exam	-	-	0
8- Layout, elevation	2	4	0
9- Layout, elevation, section	2	4	0
10- Layout, elevation, section, details	2	4	0
11- Layout, elevation, section, details, Maquette	2	4	0
12- Layout, elevation, section, details, Maquette	2	4	0
13- Semi-final	2	4	0
14- Revision, Exam Preparation & Makeup Class	2	4	0
Total hours	**28**	**56**	**0**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Laboratory	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understandin	a1	1	1									1				1			1	
	a2	1	1					1	1			1								
	a3	1	1					1	1			1				1			1	
	a4															1				
Intellectual Skills	b1	1							1							1				1
	b2	1						1		1		1	1	1	1					1
	b3	1						1		1		1	1	1	1	1				1
	b4	1						1		1		1	1	1	1					1
Applied Professional	c1	1		1					1			1		1		1				
	c2	1		1					1			1		1						
	c3															1				
	c4															1				
al Tran	d1			1					1											
	d2		1				1	1	1									1		

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work Assignments & Project	Weekly	50
Mid-Term Exam	6th – 7th Week	10
Practical Exam	-	-
Written Exam	15th week	40
Total		100

6- List of references:

6-1 Course notes: Urban Design

6-2 Required books

- Course Booklets

6-3 Recommended books:

- **-Cliff Moughtin, "Urban design: street and square", 2007.**
- **-"Urban Design Handbook", jan.2009. city of Baton Rouge**
- **Matthew Carmona, Steve Tiesdell, Tim Heath, and Taner OC, "Public places Urban spaces", 2010.**
- **Clare Cooper Marcus, and Carolyn Francis, "Design Guidelines for urban open space", 1997.**
- **- Donald Watson, Alan Plattus, and Robert Shibley, "time saver standards for Urban Design", 2003.**
- **- Kevin Lynch, "The image of the city", 1960**

- **Carl V. Patton, "Spontaneous shelter: International perspective and prospects", 1988.**
- **S.T.A. Pickett, and M.L.Candenasso, "The ecosystem as a multidimensional concept: Meaning, Model, and Metaphor, 2002.**
- **Dvid Holmgren, "Permaculture principles& pathways beyond sustainability", UK. 2011**
- **Daanish Mustafa, Thomas A Smucker, Franklin Ginn, Rebecca Johns, and Shanon Connely, "Xeriscape people and the cultural politics of turfgrass transformation", 2010.**

6-4 Periodicals, Web sites, etc.

- **Indjy M.Shawket, "New strategy of upgrading slum areas in developing countries using vernacular trends to achieve a sustainable housing development", 2011**

7- Facilities required for teaching and learning:

- Drawing halls

Course coordinator: Assistant Prof. Indjy M.Shawket
Head of the Department: Associate Prof. Ibrahim Gouda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN430: Elective 5 Aesthetics and formations

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Visual Training (2) **Code:** ARCN430 **Level:**4.Ninth Semester.
Credit Hours: 2 **Pre-requisite: ARCN340**
Contact Hours: **Lectures:** 2 **Tutorial:**---- **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The course aims to deepen the theoretical concepts and different directions of architectural aesthetics, forms and spaces. How to connect concepts and the historical architectural product. It also insists on the relations between aesthetics and urban, cultural and social environment. The course deals with types and patterns of space in architecture, selected models and case studies in historical regions.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1 -Fundamental Channels of architectural Aesthetic**s**(A13)
a2 - Different theories and philosophy of Aesthetics of the composition (A16)
a3 - The relationships between Art and Architectural, built form . (A14)
a4 - Elements of Evaluation of architectural projects. (A19)

b - Intellectual skills:

On successful completion of the course, the student should be able to.
b1 - Think systematically along the design process, propose alternative solutions. (B4)
b2 - Integrate theoretical studies o Aesthetic thought with practical architectural reality(B5,B4)
b3 - select the best Compliance creative thought in architectural projects(B18)
b4 - Develop Relations and structural design and visual art and architecture(B13)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Practice Manual drafting and freehand sketching with Fine architectural vocabulary(C13)
c2 - Practice techniques of manual design projects using different Aesthetics tools and media(C3)
c3 - Introduce professional 2D design drawings(C13)
c4 - Draw 3D perspective views with principles of the aesthetics of composition in architecture, art(C14)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 - Communicate ideas verbally and visually in a clear coherent manner(D1)
d2 - Collaborate effectively within multidisciplinary. (D1)
d3 - Work in stressful environment and within constraints. (D2)
d4 - Communicate effectively. (D2)
d5 - Manage tasks and resources efficiently. (D3)
d6 - Search for information and adopt life –long self-learning. (D7)
d7 - Acquiers entrepreneurial skills (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A13,A14,A16,A19
B	Intellectual skills	B4,B5,B13,B18
C	Professional and practical skills	C3 ,C13
D	General and transferable skills	D1,D2,D3,D7,D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1-Sources of Architectural Aesthetics	2		
2-Channels of Architectural Aesthetics	2		
3- Introduction(spatial-tension-interlocking-harmony-gradation-contrast)	2		
4-Formal approaching (dominance -repetition balance)	2		
5-Values and order for Architectural Aesthetics	2		
6-Unity and continuity	2		
7-Mid-term Exam	2		
8-Repose-scale- rhythm-proportions	2		
9-Theories geometric form	2		
10-Organic morphology	2		
11-The principles of Aesthetics of composition in Architectural & art	2		
12-Relations between art and Architectural	2		
13-Intellctual of historical Architectural and technological	2		
14-Research for Architectural Aesthetics project	2		
15-Research evaluation	2		
Total hours	**30**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1			1	1				1			1	1
	a2	1			1	1				1			1	1
	a3	1			1	1							1	1
	a4	1			1	1							1	1
Intellectual Skills	b1	1	1		1	1		1	1	1		1	1	1
	b2	1	1		1	1		1	1	1		1	1	1
	b3	1	1		1	1		1	1	1		1	1	1
	b4	1	1		1	1		1	1	1		1	1	1
Applied Prof. Skills	c1	1	1		1	1		1	1	1		1	1	1
	c2	1	1		1	1		1	1	1		1	1	1
	c3	1	1		1	1		1	1	1		1	1	1
General Tran. Skills	d1		1	1				1	1				1	
	d2		1	1				1	1				1	
	d3		1	1				1	1				1	
	d4	1	1									1	1	1
	D5										1			
	d7	1	1							1			1	1
	D8	١	١	١		١					١			١

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes

lecture notes

6-2 Required books

١- على رافت -ثلاثيه الابداع المعمارى-انتر كونسلت – القاهره- ٢٠٠٣

٢- محمد شهاب احمد – العماره قواعد واساليب – دار قابس- ١٩٩٠

6-3 Recommended books

١-john wilsey-The Architecture Of Ecology-italy-1997.

٢- Michal Hays- Architecture theory-U S A- 1998.

- Grabow. S.. & Spreckelmeyer. K.. (2014). “The Architecture of use: Aesthetics and Function in Architectural Design”. Routledge. London. UK.
- Wilsey. J.. (1997). “The Architecture of Ecology”. Architectural Design. Italy.

، انتر كونسلت، القاهرة، مصر."على رأفت، (٢٠٠٣)،" ثلاثية الابداع المعماري

6-4 Periodicals, Web sites, etc.

https://designecologyaustin.com/ (Last accessed March 4-3-2019).
https://www.revolvy.com/page/Philosophy-of-architecture (Last accessed March 4-3-2019).

7- Facilities required for teaching and learning:

White boards and markers.
Books, scientific, internet sites.
Hall for lectures
Data Show- Projector

Course coordinator:	Dr. Amira Mostafa
Head of the Department:	Associate Professor: Ibrahim Goda
Date:	December 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification

ARCN 431**: Elective 5 Advanced Building Economics**

A- Affiliation

Relevant program/s:	Architectural Engineering and Building technology BSc Program
Department offering the program:	Architectural Engineering and Building technology BSc Department
Department offering the course:	Architectural Engineering and Building technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Building Economics **Code:** ARCN 431 **Level:** Senior2,Level 4,Ninth Semester.

Credit Hours: 2 **Pre-requisite:** ARCN 313

Contact Hours: **Lectures:**2 **Tutorial:-** **Practical:** - **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

A study of this course will enable the student to know about: Factors involved in direct costs, general overheads, markups, and profits, Fundamentals of cost recording in construction accounts. The student should acquire skills of Rational debate and decision-making in: sources and reliability of cost-information in the construction industry.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 -The nature of economic problem and need. (A2,A5)

a2 - Resources, utilities, demand and supply related to building & construction. (A14)

a3 - Definition of construction systems; markets types, and factors of production (A6)

a4 - how to deal with costs and revenues of construction projects. (A15)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 -Use economic terms, tools in construction field, (B2,B10)

b2 -Analyze construction. Economic problem, (B7-B22)

b3 -Utilize the relationship between competitiveness and economic terms (B22)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 -Solve economic functions, relationships and laws, (C2)

c2 -Use the resources available in project evaluation, (C15)

c3 - calculate costs, and demand and supply. (C2)

D - General and transferable skills:

On successful completion of the course, the student should be able to:

By the end of the course the student should be able to:

d1 -Use different aspects of analysis in projects. (D3)

d2 -Apply Resources in studies. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A2,A5. A6, A14,A15
B	Intellectual skills	B2, B9, B16, B22
C	Professional and Practical Skills	C2, C15, C25,C9
D	General and transferable skills	D3, D8,

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction to Construction Economy	2		
2. Economic principles	2		
3. Economic Idologies about building technology	2		
4. Properties of the construction sector	2		
5. Demand in building sector	2		
6. Supply in building sector	2		
7. Mid-Term Exam			
8. Related industries to construction technology	2		
9. Resources	2		
10. Construction Costs	2		
11. Housing funds	2		
12. Housing Planning	2		
13. Feasibility studies	2		
14. Depreciation	2		
15. SWOT analysis in construction sector	2		
16. Applications	2		
Total hours	**30**		

Course ILO's		Teaching Methods										Learning Methods				Assessment Method				
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Laboratory	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
e & Understan	a1	1	1	1			1					1				1			1	
	a2	1														1			1	1
	a3	1														1			1	1
Intellectua l Skills	b1	1														1			1	1
	b2	1				1										1			1	1
	b3	1	1	1			1					1				1	1	1		1
Applied Professio	c1	1	1			1	1									1	1	1	1	
	c2	1					1									1			1	
	c3	1		1		1	1					1	1						1	
al Tr	d1			1		1						1							1	

4 - Teaching and Learning and Assessment methods:

	d2		1	1								1							1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work Assignments & Project	Weekly	20
Mid-Term Exam	7th Week	20
Practical Exam	-	-
Written Exam	Sixteen week	60
Total		100

6- List of references:

6-1 Course notes: Building Economics

6-2 Required books

- Course Booklets

6-3 Recommended books:

- **Recommended books: الموسوعه الهندسية لأنشاء المباني و المرافق العامة, عبد اللطيف أبو العطا, مطابع الوفاء, ١٩٩٤**
- **Wysocki, Beck, and Crane, " Effective Project Management: Traditional, Agile, Extreme", (2014).**
- **V. LOGANATHAN, "Economic Theory", College Chennai, Government of Tamilnadu, (2007).**
- **Stanford University Team, "Guideline for Life Cycle Cost Analysis", (2005).**
- **Robert P. Charette, Harold E. Marshall, " UNIFORMAT 2 Elemental Classification for Building Specification, Cost Estimating and Cost Analysis" (1999).**
- **Lyons . A ,"Materials for Architects & Builders " , Fourth Edition , (2010).**
- **Gijs Graafland, "Energy Economics", Planck Foundation, Amsterdam Holland, (2010).**
- **Debraj Ray, "Development Economics", New York University, (2007)**
- **Cannon Design, "Material Life : Embodied Energy of Building Materials" (2013)**
- **Berge .B ,"The Ecology of Buildings Materials" , Second Edition , (2009)**
- **Amr Soliman AlGoohary," Analytical Study to Assess the Economic Impact Resulting from Energy Consumption of the Entire Life Cycle of Buildings", Thesis for the degree of Doctor of Philosophy, Cairo university, (2015).**
- **Ayah Mohamed Ezzat," Adaptation of Double Skin Facades in Office Buildings in Hot Climates (A Methodology to Improve Buildings Energy Performance and Enhancing Thermal Comfort) ", Thesis for the degree of Doctor of Philosophy, Cairo university, (2018).**

6-4 Periodicals, Web sites, etc.

www.capms.net, www.enr.construction.com

7- Facilities required for teaching and learning:

- Blackboard / whiteboard / OHP.
- Reference, & periodical / library visit & research paper reporting.
- Catalogue of material.
- National statistics & economic parameters and data.

Course coordinator: Ayah Mohamed Ezzat
Head of the Department: Associate Prof. Ibrahim Gouda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN432: Elective 5 Architecture Criticism#
(Humanitarian Elective Course)

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: December 2018

B - Basic information

Title: Architecture Criticism **Code:** ARC 432 **Level:** Senior 2 ,Level 4,Ninth Semester

Credit Hours: 2 **Pre-requisite :** ARCN340
Contact Hours: **Lecturs:** 2 **Total:** 2

C - Professional information

1 – Course Learning Objectives:

The study aims to present Architectural criticism concepts and tools and trends and present Modes of schools and trends of Architectural criticism and its product , to Know important thinkers and support positive evaluated skills and description by writing and visual analysis – concepts and definitions – criticism and evaluation – Nat one and function and importance of Architectural criticism – Architectural criticism History- schools and trends of criticism Architectural criticism operation Description and Documentations and positive record – Description and analysis - assumptions and positive Documentation – Assumptions and criteria and principles of evaluations – Results, values and Personality and community criteria –Architectural competitions – Results of Architects and grand projects – Models and applications – and case study .

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

a1- Theories, issues, concepts demonstrating the interrelation between Architecture, Civilization and Culture (A18, A9)
a2- The role of the architect and planner in realizing the cultural and heritage dimensions when designing a new project. (A17,A16)
a3- The role of the architect and planner in the conservation of Architectural heritage (A11)

B - Intellectual skills:

b1- Dealing appropriately with Heritage buildings and Architecture (B19, B21).
b2- Adapt innovative approaches in urban and architectural design considering the cultural backgrounds and realities of the local community (B18, B20)

C- Professional and practical skills:

c1- Identify, analyze, understand the interrelation between Culture and Architecture (C18).
c2- Generate and develop selective interventions that cope with the significance of Architectural Heritage (C21).
c3- Evaluate and criticize the outcomes of urban and Architectural projects in relation to cultural and heritage considerations (C20, C21,C22).

D - General and transferable skills:

d1- Collaborate effectively with the multidisciplinary dimensions of Architectural projects (D3).
d2- Search for information required to develop successful approaches in design (D6).

d3- Refer to relevant literature effectively in research projects (D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9, A11,A16, A17
B	Intellectual skills	B18,B19, B20, B21
C	Professional and practical skills	C18, C20,C21,C22
D	General and transferable skills	D3, D6, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1-Architectural criticism concepts and tools and trends	2		
2-Modes of schools and trends of Architectural criticism and its product	2		
3-Iimportant thinkers and support positive evaluated skills and description by writing and visual analysis	2		
4-Concepts and definitions	2		
5-Criticism and evaluation	2		
6-Architectural criticism History- schools and trends of criticism Architectural criticism operation Description and Documentations and positive record	2		
7-Mid term Exam			
8-Description and analysis	2		
9-Assumptions and positive Documentation	2		
10-Assumptions and criteria and principles of evaluations	2		
11-Results, values and Personality and community criteria	2		
12-Architectural competitions	2		
13-Results of Architects and grand projects	2		
14-Models and applications – and case study.	2		
15-Revision	2		
Total hours	**28**		

4 - Teaching and Learning and Assessement methods:

Course ILO	Teaching Methods	Learning Methods	Assessment Method

		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1			1				1		1		1			1	1			
	a2	1	1	1	1							1		1		1			1	1			
	a3	1	1	1	1			1				1		1	1	1			1				
Intellectual Skills	b1	1	1	1	1									1		1				1			
	b2	1	1	1	1							1	1	1		1			1				
Applied Professional Skills	c1	1	1	1	1									1		1				1			
	c2	1	1	1	1									1		1							
	c3	1	1	1				1	1			1		1		1				1			
General Tran. Skills	d1			1								1	1	1									
	d2	1		1	1							1	1	1						1			
	d3			1									1	1						1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Mid-term exam	7th week	20
Researches	15th week	40
Final exam	16th week	40
Total		100

6- List of references:

6-1 Course notes:

6-2 Required books

6-3 Recommended books:

Robert Maxwell, "Sweet Disorder and the Carefully Careless": Theory and Criticism in Architecture, Princeton Architectural Press, 1993 .

- Fraser, D. (1968) "Village Planning in the Primitive World", Studio Vista, London
- Oliver, P. (1969) "Shelter and Society", Barrie & Rockliff, The Cresset Press, London
- Oliver, P. (1997) "Encyclopaedia of vernacular architecture of the world", Cambridge University Press, New York
- Rapoport, A. (1969) "House, Form and Culture", Englewood Cliffs, N.J

6-4 Thesies, Periodicals, Web sites, etc.

- أشرف كامل بطرس (١٩٩٨) "الثقافة والنتاج البنائي - منهج لرصد وتحليل واستقراء الأبعاد الثقافية وتوظيفها في عملية البناء"رسالة دكتوراه غير منشورة، كلية الهندسة، جامعة القاهرة.
- حسن المويلحى (٢٠٠٥) "العمارة بين الثقافة والتنمية نحو فهم ثقافة مجتمع المستخدمين لخدمةعملية التنمية من خلال البرمجة المعمارية"رسالة ماجستير غير منشورة، كلية الهندسة، جامعة القاهرة.
- محمد فكرى (٢٠٠٠) "في العلاقة بين الانسان والمكان – منهج لرصد العلاقة التبادلية في نماذج من الفراغات العمرانية بالقاهرة" رسالة ماجستير غير منشورة، كلية الهندسة، جامعة القاهرة.

- نهى محمد نشأت (٢٠٠٢) "أثر التغيرات الثقافية على الأنساق التصميمية للنتاج البنائي"رسالة ماجستير غير منشورة، كلية الهندسة، جامعة القاهرة

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

Data Show
Projection screen

Course coordinator:	Dr. Mohamed Thabat
Head of the Department:	Associate Professor: Ibrahim Goda
Date:	December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN 435: Elective 5 Urban and Enviromental Conservation

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Urban &Enviromental Conservation **Code:** ARCN435 **Level:** Senior 2,Level 4, Ninth Semister

Credit Hours: 2 **Pre-requisite:** ARCN324

Contact Hours: **Lectures:** 2 **Tutorial:** - **Laboratory:** - **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

This course is intended to provide the students with fundamental skills and professional understanding necessary for dealing with urban and architectural Heritage, In the frame of this Course, several definitions, theories, issues, concepts are put forward to encourage a constructive knowledge in the field of conservation.

2 - Intended Learning Outcomes (ILOS

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Theories, issues, concepts of urban and environmental conservation. (A1)

a2- Patterns and problems characterize sites of historic and cultural significance. (A18)

a3- International restoration and conservation charters (A17,A6)

a4- Cultural Heritage and Local Economic Development (A6-A12)

a5-The role of participation and community involvement in Conservation (A6-A12)

a6- urban revitalization of historic areas(A6-A12)

a7- Rehabilitation of historic buildings(A6-A12)

a8 - Conservation economics and the debate between cultural and economic values (A6)

a9 - The significance of public intervention in heritage (A9)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1-Identify, analyze, understand historic urban sites and buildings. (B12)

b2- Deal appropriately with historic areas and quarters of cities. (B2)

b3- Integrate community concerns to conservation projects (B18)

b4- Discuses conservation problems and formulate informed opinions appropriate to architectural and urban

heritage (B20)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Generate and develop selective interventions that cope with the significance of urban and architectural historic sites. (C16)

c2- Respond effectively to the significant value of heritage sites and buildings with consideration of social and economic concerns(C20)

c3- Contribute positively to the aesthetic, architecture and urban identity, and cultural life of the community (C21)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Work in a team and involve in group discussion and seminars (D1, D3,D5).

d2- Communicate effectively and present data and results orally and in written form (D3).

d3- Use ICT facilities in presentations (D4).

d4- Search for information's in references and in internet (D6,D7).

d5- Practice self-learning (D7,D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A6, A9, A12, A17,A18
B	Intellectual skills	B2, B12, B18, B20
C	Professional and Practical Skills	C16, C20,C21
D	General and transferable skills	D1, D3, D4, D5, D6,D7,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
• 1- Introduction to the field of urban and environmental conservation. (General definitions, terms, fundamentals and theories)	2		
• 2- Urban Conservation of Heritage sites.	2		
• 3- Issues and problems facing heritage sites	2		
• 4-Concept of value in heritage conservation	2		
• 5- The role of international institutions.	2		

• 6- A critical review of the international restoration and conservation charters	2		
• *7- Midterm exam*			
• 8- Cultural Heritage and Local Economic Development , The role of participation and community involvement in Conservation	2		
• 9- urban revitalization of historic areas	2		
• 10- Rehabilitation of historic buildings	2		
• 11- Conservation economics and the debate between cultural and economic values	2		
• 12- The significance of public intervention in heritage	2		
• 13- Local and international case studies of urban conservation	2		
• 14- Local and international case studies of urban conservation	2		
• 15- Research project presentation &revision	2		
Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	sketches	Brain storming	projects	Site visits	Researches and Reports	Discovering	Selfl-earning	cooperative	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1								1				1		1					
	a2	1	1	1					1			1	1		1	1		1		1			
	a3	1		1								1			1	1							
	4														1	1		1					
	a5	1		1		1			1			1	1		1	1		1					
	a6	1	1	1									1	1	1	1		1					
	a7	1	1	1		1			1			1	1	1	1	1		1		1			
	a8	1		1		1			1			1				1		1					
Intellectual Skills	b1	1	1	1		1			1			1	1	1	1	1		1		1			
	b2	1				1			1			1	1	1	1	1		1					
	b3	1		1		1			1			1	1	1	1	1		1					
	b4	1	1	1		1			1			1	1	1	1	1		1					
Profession al Skills	c1	1	1	1		1			1			1	1	1	1	1		1		1			
	c2	1		1		1						1	1		1	1		1					

	c3	1		1		1						1	1		1	1		1					
General Tran. Skills	d1			1		1			1			1			1								
	d2		1	1								1	1	1		1		1					
	d3	1	1									1											
	d4			1		1						1		1		1		1					
	d5		1	1		1						1	1	1	1	1		1					

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	10
Semester Work	Quizzes	1 Quizz (every week)	20
	Reseach	1 research	20
	Assignments	2 through the whole semester	10
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Zakaria Ahmed, Dr. Asamer, "Building Technology "(Arabic), 2008

6-2 Required books:Non

Earl. , J., "Building Conservation Philosophy", 2015, 3rd Edition. Routledge, UK.

Kalman, H., "Heritage Planning : Principles and Process",2014, Routledge, UK.

Feilden, Bernard M., "Conservation of historic buildings", Butterworth Scientific, London, 1982.

Teisdell, S., Oc, T., and Heath, T. (1996) "Revitalizing Historic Urban Quarters" Architectural Press, Oxford.

Appleyard, D. (1979) "The conservation of European cities" The MIT Press, Cambridge.

Fielden, B. and Jokilehto, J. (1993) "Management Guidelines for World Cultural Heritage Sites" The international Center for the Study of the Preservation and Restoration of Cultural Property (ICCROM), Rome.

Larkham, P. J. (1996) "Conservation and the City" Routledge, London.

Worksett, R. (1969) "The character of towns: an approach to conservation" The Architectural Press, London.

6-3 Recommended books: None

6-4 Periodicals, Web sites, etc.

http://whc.unesco.org/ (World Heritage)

http://www.icomos.org/ (International Council on Monuments and Sites)

http://www.iccrom.org/ (International Center for the Study of the Preservation and Restoration of Cultural Property)

7- Facilities required for teaching and learning:

- White board
- overhead projector / Data Show
- Audio Video facilities: Video, T.V, P.C.

Course coordinator: Professor Asamer Zakaria
Head of the Department: Professor Ebrahim Goda
Date: Desember 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification

ARCN436**: Elective 5 Simulation Programs & Architecture**

A- Affiliation

Relevant program/s:	Architectural Engineering and Building technology BSc Program
Department offering the program:	Architectural Engineering and Building technology BSc Department
Department offering the course:	Architectural Engineering and Building technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Simulation Programs & Architecture **Code:** ARCN436 **Level:** Ninth Semester (Level Four)

Credit Hours: 2 **Pre-requisite:** ARCN 216,ARCN 217

Contact Hours: **Lectures:**1 **Tutorial:** - **Practical:** 2 **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course aims to Enhance the student's skills in the design phase throughout using various simulation programs, to assess the indoor and outdoor buildings spaces quality. It can deal with the buildings systems such as ventilation , heat transfer, daylighting artificial lighting ,acoustics , etc.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Fundamental environmental engineering relevant to architectural practices(A1,A4)

a2- Recognizing professional standards of environmental architectural practice (A13)

a3- Realizing materials properties and uses in different building contexts (A14)

a4- Potential computer uses in environmental architectural applications(A20)

a5- Environmental modeling and representation in terms of shades, shadows ,openings ,HVAC and construction using different simulation tools applications(A20)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Analyze, interpret-, and manipulate data. (B1)

b2 - Integrate different scales of design, ranging from interior details to urban development and town planning schemes(B21)

b3 - Relate different branches of studied courses together in a holistic manner , Improve logical reasoning faculties & Integrate theoretical studies with practical reality (B14, B13)

b4 - Analyze problems into sub-problems towards a controllable handling of elements(B15)

b5 - Stimulate imaginative abilities (B14)

b6 - Improve environmental sense & Develop visual sensitivity towards materials, construction and textures Using this course in design drawings. (B17,B9)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Model-making with different materials and techniques(C14,C15)

c2- Draw 3D perspective views with opening and construction's(C17)

c3-Master computer architectural applications in: drafting, presentation, modeling, geographic information systems, project management and building economics(C14)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Communicate ideas verbally and visually in a clear coherent manner (D1)
d2- Present seminars and public talks (D3)
d3- Work in team environments(D5)
d4 - management to meet deadlines(D2)
d5- Work coordination amongst various sites and parties(D6)
d6- Work under pressure(D2)
d7- Master computer and applications(D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A4, A13, A14, A20
B	Intellectual skills	B1, B9, B13, B14, B15 ,B21
C	Professional and Practical Skills	C14,C15,C17
D	General and transferable skills	D1,D2, D3, D5,D6 , D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
16. Introduction to **Simulation Programs & Architecture**	1		2
17. Introduction to climate consultant simulation tool	1		2
18. climate consultant simulation tool result	1		2
19. Introduction to Design Builder simulation tool-part 1	1		2
20. Introduction to Design Builder simulation tool-part 2	1		2
21. Introduction to Design Builder simulation tool-part 3	1		2
22. Mid Term Exam			
23. Design Builder Simulation tool Results	1		2
24. Introduction to ENVI-MET simulation tool	1		2
25. ENVI-MET Analysis	1		2
26. ENVI-MET Results	1		2
27. Final project	1		2
28. Practical questions	1		2
29. Conclusions	1		2
Total hours	**14**		**28**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1		1		1	1			1		1								1			
	a2	1				1										1				1			
	a3	1		1		1				1										1			
	a4	1	1	1		1	1									1	1			1			
	a5	1	1	1		1	1										1			1			
Intellectual Skills	b1					1	1	1												1			
	b2						1	1				1											
	b3	1	1			1	1									1	1			1			
	b4					1		1				1								1			
	b5	1	1			1	1									1	1			1			
	b6	1		1		1	1	1		1						1				1			
Professional	c1				1	1				1										1			
	c2					1	1	1		1		1				1	1			1			
	c3				1	1				1						1				1			
General Tran. Skills	d1			1			1	1		1					1								
	d2			1			1	1		1					1								
	d3			1			1	1		1										1			
	d4			1			1	1		1										1			
	d5			1			1	1		1					1								
	d6			1			1	1		1										1			
	d7	1		1								1				1				1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Semester Work: assignments	Bi-Weekly	20%	40
Mid-Term Exam	7-th Week	10%	20
Final Exam	Sixteenth week	70%	40
Total		100%	100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

Design Builder- manual book (AutoCAD LT User's Guide) -
Envi-met manual - climate-consultant.

6-3 Recommended books:

- Ayah Mohamed Ezzat," Adaptation of Double Skin Facades in Office Buildings in Hot Climates (A Methodology to Improve Buildings Energy Performance and Enhancing Thermal Comfort) ", Thesis for the degree of Doctor of Philosophy, Cairo university, (2018).

- Casakin, H.,&Goldschmidt G.(1999) "Expertise and the use of visual analogy: Implications for design education." Design Studies ..
- Nicol. D. &Pilling S.(2000)" Changing architectural education: Towards a new professionalism". London, UK.
- Richmond B.(2001)," An Introduction to Systems Thinking", High Performance Systems, Inc.

6-4 Periodicals, Web sites, etc.

- https://www.envi-met.com/
- file:///H:/PHD/tablet/DesignBuilder-Simulation-Training-Slides.pdf
- http://energy-design-tools.aud.ucla.edu/climate-consultant/request-climate-consultant.php

7- Facilities required for teaching and learning:

- Lap with networking

Course coordinator:	Dr. Ayah Mohamed Ezzat
Head of the Department:	Associate Prof. Ibrahim Gouda
Date:	Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN411 : Working Drawing & Construction Documents

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architectural Engineering and Building Technology
Department offering the course:	Architectural Engineering and Building Technology
Date of specifications approval:	December 2018

B - Basic Information

Title: Working Drawing & Construction Documents **Code :** ARCN411 **Level :** Fourth, Tenth Semesters

Credit Hours : 4 **Pre-requisite :** ARCN313

Contact Hours: **Lectures :**2 **Tutorial / Exercise** :6 **Total :** 8

C - Professional Information

1 – Course Learning Objectives:

The main objective of this course is to enable the student to :

- Be update with new high-tech building construction materials and systems.
- The student must understand and be up knowledge with working drawings and details and executable drawings for complex buildings.
- The student should be able to self-check and quality controls working drawings.

The student should be able of designing and drawing working drawings and handle site workshop drawings and details.

2 - Intended Learning Outcomes (ILOS

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 -Characteristics of architectural materials(A3) (A24)
a2 - The concepts and Methodologies of solving Construction Problems. (A5)(A25)
a3 - Professional ethics and socio-economical impacts of architectural solutions . (A5)
a4 - Quality assurance systems, codes of practice . (A6)(A25)
a5 - Architectural symbols and Technical language and report writing. (A10)
a6 - Professional ethics and impacts of Architectural solutions on society and environment. (A11)(A24)
a7 - Contemporary Architectural topics. (A12)
a8 - Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions. (A14)(A24)
a9 - Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building. (A15)(A25)
a10 - Physical modeling, multi-dimensional visualization, multimedia applications, and

computer-aided design. (A20)

a11 - The role of the architecture profession relative to the construction industry and the overlapping interests of organizations representing the built environment. (A21)(A24)

a12 -Various dimensions of complex building problem and the range of approaches, policies, and practices that could be carried out to solve this problem. (A21)(A25)

a13 -Principles of sustainable design, climatic considerations, and energy consumption and efficiency in buildings and their impacts on the environment. (A23)(A24)

B - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Judge engineering decisions considering balanced costs, benefits, safety, quality, reliability, and environmental impact. (B9)(B23)

b2 - Develop a systematic and methodic approach in dealing with new and advancing technology. (B12)(B23,B25)

b3 - Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions. (B13)(B23)

b4 - Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design. (B14)(B24)

b5 - Predict possible consequences, by- products and assess expected performance of design alternatives. (B15)(B22)

b6 - Reconcile conflicting objectives and manage the broad constituency of interests to reach optimum solutions. (B16)(B24)(B27)

b7 - Integrate relationship of structure, building materials, and construction elements into design process. (B17)(B22)

b8 - Discuss research and formulate informed opinions appropriate to specific context and circumstances affecting architecture profession & practice. (B20)(B22)

C - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 -Apply knowledge of architectural practice on integrative base to solve engineering problems. (C1)(C24)

c2 - Merge professionally the architectural knowledge, understanding, and feedback to improve design, construction and/or services. (C2)(C24)(C23)

c3 - Apply quality assurance procedures and follow codes and standards. (C10)(C24)(C23)

c4 - Prepare and present technical reports. (C11)

c5 - Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings' techniques. (C13)(C25)

c6 - Use appropriate construction techniques and materials to specify and implement different designs. (C14)(C25)

c7 - Participate professionally in managing construction processes. (C15)(C25)

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1 -Collaborate effectively within multidisciplinary team(D1)

d2 -Work in stressful environment and within constraints(D2)

d3 -Communicate effectively(D3)

d4 -Manage tasks and resources efficiently(D6)

d5 -Search for information and adopt life-long self-learning(D7)

d6 -Acquire entrepreneurial skills(D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A5, A6, A11, A12, A15, A20, A21, 23,A24
B	Intellectual skills	B9, B12, B13, B14, B15, B16, B20,B22,B23,B24.B25
C	Professional and Practical Skills	C1, C2, C10, C12, C14, C15,C23,C24,C25
D	General and transferable skills	D1, D2, D3, D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Revision and Working drawings importance (Working Drawings 4th Year , Building technology)	2	6	
2. Project Determination and Preparing software (layers-text style-dimension - blocks - xref. ...etc.)	2	6	
3. Layout Working Drawing studies **Landscape :-** - **Hardscape** (roods – pedestrians paths – bridges – gates– fences- Pools -lakes - pergolas - shaded areas -Lighting – signs-.accessories .....etc.) - **Softscape** (green areas – trees – shrubs ….etc.)	2	6	
4. Plans (advanced working Drawings studies). (walls- doors - windows -stairs - finishing,.... etc.).	2	6	
5. Advanced structure systems (meshes – trusses – shell -cables-space structures)	2	6	
6. Advanced Escalators , Stairs and Elevators designing and construction studies			
7. Mid-term Exam			
8. Methods of choosing and applying advanced finishing materials (GRC-GRP-GRG-Partitions-....etc.) using (green materials)	2	6	
9. Special doors "revolving – sliding – electrical ……"& Windows (Curtain walls - aluminum glassing systems)	2	6	
10. Sections (advanced working drawing studies) . (Structure - Levels- dimensions - Layers.....etc.).	2	6	
11. Advanced roofing and skylight systems	2	6	
12. Theater and cinema design in plan and section (vision – sound – light – A.C.) and construction methods	2	6	
13-Sport and lecture halls (vision – sound – light – A. C.)	2	6	
14-Elevations for complex and high-tech buildings	2	6	
15-revision	**2**	**6**	
	28	**84**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method					
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments	
Knowledge & Understanding	a1	1	1											1							
	a2	1														1		1			
	a3	1					1									1					
	a4															1					
	a5	1	1													1					
	a6	1		1								1									
	a7		1						1			1				1					
	a8	1										1							1	1	
	a9	1							1			1							1		
	a10		1									1		1							
	a11	1	1	1																	
	a12	1										1		1							
	a13	1	1									1				1					
Intellectual Skills	b1	1										1				1					
	b2	1						1													
	b3														1						
	b4								1	1								1			
	b5	1	1						1			1		1							
	b6	1										1				1					
	b7	1		1								1		1							
	b8					1				1		1	1								
Applied Professional Skills	c1								1				1	1							
	c2	1							1			1				1					
	c3	1						1	1							1					
	c4		1	1								1					1				
	c5	1				1			1											1	
	c6					1			1	1							1				
	c7	1							1			1									
General Tran. Skills	d1			1					1												
	d2								1			1					1				
	d3								1					1	1						
	d4								1			1						1			
	d5			1				1				1									

	d6								1	1						1	1				

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Assignments	Bi-weekly class and home exercises.	20
	Project	Final Working Drawings Project	20
Written Exam		Sixteenth week	40
Total			**100**

6- List of references:

6-1 Course note Book: Working Drawing & Construction Documents Lectures
Prepared by Prof. Dr. Magdy Tammam

6-2 Required books

1 - Ching, F., "Building Construction Illustrated ", 3rd Ed. John Willy & Sons Publishing Inc., New York, 2001.

6-3 Recommended books:

1 – Mohamed Abd Allah , Building Construction &Building Technology, Anglo Library, Cairo 2002.
2 – Sami Hassid, Architectural Construction Details.
3 – Farouk Abas Heidar " Building Construction " 4th edition
4- W.B -McKay, W.B., "Building Construction", 5th Ed. Longmans, 1971
5- All Building Construction and Details Books
6- Osama, A. Wakita, , "The Professional Practice of Architectural Working Drawing ", Jhon Willey 3rd edition, 2002.
7- Ralph W. Lieding, "Architectural Drawings", 4th edition, Jhon Willey & sons, 1999

6-4 Periodicals, Web sites, etc.

https://sweets.construction.com/
http://www.understandconstruction.com
https://www.arcat.com/
All architectural and Building Construction Sites

7- Facilities required for teaching and learning:

- Design studio equipped with drawing boards, overhead projector and Data show.
- Resources available in the library.
- Computer lab with CAD software and Internet connection.
- Field and Construction sites visits and up-to-date materials researches .

Course coordinator: Dr. Magdy Tammam
Head of the Department: Assistant Professor : Ibrahim Gouda
Date: December 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN412: Technical specifications and Quantities and Contracting Methods

A- Affiliation

Relevant program/s:	Archtecture Engineering and Building Technology BSc Program
Department offering the program:	Archtecture Engineering and Building Technology Department
Department offering the course:	Archtecture Engineering and Building Technology Department
Date of specifications approval:	December 2018

B - Basic Information

Title: Technical specifications and Quantities and Contracting Methods **Code:** ARCN412 **Level:** 4th Tenth Semester

Credit Hours: 2 **Pre-requisite:** ARCN313

Contact Hours: **Lectures:** 2 **Tutorial:**1 **Laboratory:** - **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The main objective of this course is to make tender documents for projects andto be able to determine the quality and quantity for engineering projects.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- The main concept of making specification for different item. (A3,A26).
a2- Principles of design including elements design, process and/or a system related to specific disciplines. (A8,A24).
a3- Methodologies of solving engineering problems. (A5,A25).
a4- Quality assurance systems, codes of practice and standards, health and safety requirements and environmental issues. (A5, A6,A24).
a5- Contemporary engineering topics. (A14,A24).
a6- The concepts, methods and techniques of the building construction processes, its stages, elements, material, etc. (A15,A24).
a7- The concepts, methods and techniques of mechanical installations' processes including structural, water, sewage, air conditioning systems. (A15,A24).
a8- Appreciate the impact of advanced building technology on design. (A8,A24).

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1- Determine the overall cost of the construction project. (B9-B23,B22).
b2- Assess and evaluate effectively the characteristics and performance of components, systems and processes. (B17-B22,).
b3- Analyze systems, processes and components critically. (B19-B23).
b4- Practicing to make a project contract. (B23-B24).
b5- Produce innovative design ideas and concepts (B3- B24).

c - Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- Evaluate the total time requires to finish the projects. (C8- C25).
c2- Merge engineering knowledge and understanding to improve design, products and/or services. (C3-C6 -C23).
c3- Use the time scheduling sheet (C8- C11-C15).

d - General and transferable skills:
On successful completion of the course, the student should be able to:
d1- Work in stressful environment and within constraints. (D2).
d2- Able to Manage resources efficiently. (D1)
d3- Search for information and adopt life-long self-learning.. (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A5, A6, A8, A14,,A24,A25
B	Intellectual skills	,B3 B9,B17,B19,B22,B23,B24
C	Professional and Practical Skills	C3, C6, C8, C11, C15,C23,
D	General and transferable skills	D1, D2, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1-Tender documents components.	2	1	
2-General & special conditions for engineering projects.	2	1	
3-Structural drawings.	2	1	
4-Excavation works.	2	1	
5-Plain concrete works.	2	1	
6-Reinforced concrete footings.	2	1	
7-Midterm Exam			
8-Reinforced concrete slabs , Columns.	2	1	
9-Reinforced concrete frames.	2	1	
10- Concrete insulation.	2	1	
11- Steel works.	2	1	
12- Masonry works.	2	1	
13- Wall & ceiling painting.	2	1	
14- External & internal wall cladding.	2	1	
15-Doors and windows.	2	1	
Total hours	**28**	**14**	

4 - Teaching and Learning and Assessment methods:

Course ILO's	Teaching Methods	Learning Methods	Assessment Method

		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1	1	1		1		1		1		1	1	
	a2	1			1	1				1		1	1	1
	a3	1		1		1		1		1		1	1	1
	a4	1			1	1								
	a5	1		1		1		1						
	a6	1			1	1								
	a7	1		1				1						
	a8	1			1	1								
Intellectual Skills	b1	1			1			1		1		1		1
	b2	1			1					1		1	1	1
	b3	1			1	1								
	b4	1			1									
	b5	1			1									
Applied Prof. Skills	c1	1	1		1					1	1	1	1	1
	c2	1			1	1				1		1	1	1
	c3	1			1									
	c4			1	1			1						1
General Skills	d1			1		1		1		1				1
	d2			1		1				1				
	d3	1	1	1		1		1		1		1	1	

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work	Quizzes	5 Quizzes (every 3 weeks)	15
	Reports	Two reports per semester	10
	Assignments	Weekly	15
Practical Exam		---	--
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 note Book Technical specifications and Quantities and Contracting Methods.

6-2 Required books

Chappell, D. (2008). “Building Contract Dictionary”, John Wiely & Sons, Inc.

Colin H. Simmons (2012). “Manual of Engineering Drawing: Technical Product Specification and Documentation to British and International Standards”, Butterworth-Heinemann; 4 edition.

Willis C. J. (1997). “Specification Writing: For Architects and Surveyors”, Wiley-Blackwell; 11 edition.

Keith P. and Nii A. (2008). “Construction Cost Management: Learning from Case Studies”,

Routledge; 1 edition.

- Wahid. A. M.. (2016). “Boq for Building Design: For Project Guidance”. CreateSpace Independent Publishing Platform. USA.
- سيد عبد الفتاح القصبي، (٢٠٠٤)،” عقود ومواصفات الاعمال الانشائية“، دار الكتب العلمية للتوزيع والنشر، القاهرة، مصر.

، دار الكتب العلمية للتوزيع والنشر، القاهرة، “سيد عبد الفتاح القصبي، (٢٠٠٤)،” حساب كميات الاعمال الانشائية مصر.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.

http://www.eos.org.eg.
https://www.ASCE.com.
https:// www.hbrc.edu.eg.

7- Facilities required for teaching and learning:

- Data show and Computer programs.

Course coordinator: Dr Aiman Ezzat Mohamed
Head of the Department: Professor Ibrahim Gouda
Date: Desember 2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification
ARCN433: Elective 6 Modern Building Systems and Materials

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology Department
Department offering the course:	Architecture Engineering and Building Technology Department
Date of specifications approval:	September 2018

B - Basic Information

Title: Modern Building Systems and Materials **Code:** ARCN433 **Level:** 4, Tenth Semester
Credit Hours: 2 **Pre-requisite:** ARCN313
Contact Hours: 2 **Lectures:** 2 **Tutorial:**0 **Total:** 2

C - Professional Information

1 – Course Learning Objectives:

The objective of this course is to develop students' abilities in Classifying and selecting suitable structural systems for the different architecture spaces of the building, especially wide spans ones. The students learn different types of advanced structure systems such as Waffle slab, Pre-cast concrete, Folding slabs, Shell structures, Framing systems, Trusses - Space Truss structures and Tensile systems.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1 -.Characteristics of engineering materials related to the discipline (A3)

a2 - Principles of design including elements, process and/or a system related to specific disciplines. (A4)

a3-. Current engineering technologies as related to disciplines (A8)

a4-..Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions (A14).

A5-.The concepts, processes, techniques and materials that apply to building construction phases and technology.(A24).

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Select appropriate solutions for engineering problems based on analytical thinking (B2)..

b2 - Integrating theoretical studies with practical reality. (B4)

b3 - Developing architectural and structural sense of scale and proportions(B13)

b4 -. Integrate relationship of structure, building materials, and construction elements into design process. (B17)

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1 -. Use appropriate construction techniques and materials to specify and implement different designs; (C15)

c2 Apply recent advances in the fields of building materials, manufacturing and building technology to the

construction of buildings (C23)..

d - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 - Communicate ideas verbally and visually in a clear coherent manner. (D3)
d2 - work in team environments. (D1)
d3 - Acquire entrepreneurial skills(D8).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3 ,A4,A8,A14,A24
B	Intellectual skills	B2,B4,B13,B17
C	Professional and Practical Skills	C15,C23
D	General and transferable skills	D1,D3,D8

3 – Contents

Topic	Lecture hours	Tutor hours	Practic e hours
1- Introduction to the course and Guidelines of performance	2	-	-
2- Waffle slab structure system	2	-	-
3- Concrete framing structure systems.	2	-	-
4- Pre-cast concrete structure systems.	2	-	-
5- Pre-cast concrete structure systems.	2	-	-
6- Folding slab structure systems.	2	-	-
7- Mid Term Exam		-	-
8- Folding slab structure systems.	2	-	-
9- Shell structure systems.	2	-	-
10- Shell structure systems	2	-	-
11- Steel framing structure systems.	2	-	-
12- Trusses & Space Truss structure systems.	2	-	-
13- Trusses & Space Truss structure systems	2	-	-
14- Tensile structure systems	2	-	-
15- Pneumatic structure systems	2	-	-
Total hours	**28**	**0**	**0**

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1			1	1				1			1	1
	a2	1			1	1				1			1	1
	a3	1			1	1							1	1
	a4	1			1	1							1	1
	a5	1			1	1							1	1
Intellectual Skills	b1	1	1		1	1		1	1	1		1	1	1
	b2	1	1		1	1		1	1	1		1	1	1
	b3	1	1		1	1		1	1	1		1	1	1
	b4	1	1		1	1		1	1	1		1	1	1
ied Prof.	c1	1	1		1	1		1	1	1		1	1	1
	c2	1	1		1	1		1	1	1		1	1	1
General Tran.	d1		1	1				1	1				1	
	d2		1	1				1	1				1	
	d3		1	1				1	1				1	

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		7-th Week	20
Semester Work:	Assignments	Bi-Weekly	40
Practical Exam			
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

Understanding Building Systems

6-3 Recommended books:

Structural System in Architecture

Long Span Building Structures

- **Spence. W. P.. & Kultermann. E.. (2016). "Construction Materials. Methods and Techniques". 4th Edition. Cengage Learning. USA.**
- **Rapson. R.. (1977). "Structure Systems". Deutshe Verlage. Germany.**

، مركز أبحاث انتركونسلت، مطابع الاهرام، القاهرة، مصر."على رأفت، (١٩٩٧)،" الابداع الإنشائي في العمارة

Modern Academy
for Engineering and Technology in Maadi

Course Specification
GENN451b: Elective 2 Advanced computer systems implementation

A- Affiliation

Relevant program/s:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architecture Engineering and Building Technology BSc Program
Department offering the course:	Architecture Engineering and Building Technology BSc Program
Date of specifications approval:	December 2018

B - Basic Information

Title: Advanced Computer Systems Implementation. **Code:** GENN451b **Level:** level four ,Tenth Semester

Credit Hours: 2 **Pre-requisite:** CMPN010

Contact Hours: **Lectures:** 2 **Tutorial:**1 **Laboratory:** - **Total:** 3

C - Professional Information

1 – Course Learning Objectives:

The course aims to give a definition to the computers capability In architectural and urban fields and Introduce the techniques and Applications which give an efficient using In program Analysis steps and show Designs and its evaluation and preparing the two & three Dimension Drawing and Its calculation .

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- Fundamental engineering sciences relevant to architectural practices(A1,A4)
a2- Recognizing professional standards of architectural practice (A13)
a3- Realizing materials properties and uses in different building contexts (A14)
a4- Potential computer uses in architectural applications(A20)
a5- Three-dimensional visualization and representation in terms of shades, shadows and perspective using different computer applications(A20)

b - Intellectual skills:

On successful completion of the course, the student should be able to:

b1 - Analyze, interpret-, and manipulate data. (B1)
b2 - Integrate different scales of design, ranging from interior details to urban development and town planning schemes(B21)
b3 - Relate different branches of studied courses together in a holistic manner(B14)
b4 - Integrate theoretical studies with practical reality(B13)
b5 - Improve logical reasoning faculties(B4)
b6 - Analyze problems into sub-problems towards a controllable handling of elements(B15)
b7 - Synthesize solution mechanisms and components properly (B15)
b8 - Stimulate imaginative abilities(B14)
b9 - Improve environmental sense(B9)
b10 - Develop visual sensitivity towards materials, colors and texturesUsing this course in design

c - Professional and practical skills:

On successful completion of the course, the student should be able to:

c1- Model-making with different materials and techniques(C14,C15)

c2- Draw 3D perspective views with shades and shadows(C17)

c3-Master computer architectural applications in: drafting, presentation, modeling, geographic information systems, project management and building economics(C14)

c4- Design projects of various scales and levels of complexity (C14)

c5-Master architectural morphology and spatial organization within sound geometric relations (C21)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Communicate ideas verbally and visually in a clear coherent manner (D1)

d2- Present seminars and public talks (D3)

d3- Work in team environments(D5)

d4- allocation amongst team members(D5)

d5 - management to meet deadlines(D2)

d6- Work coordination amongst various sites and parties(D6)

d7- Work under pressure(D2)

d8- Interact with libraries, books, periodicals, internet … (D7)

d9- Master computer and applications(D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A4, A13, A14, A20
B	Intellectual skills	B1, B4, B9, B13, B14, B15 ,B21
C	Professional and Practical Skills	C14,C15,C17,C21
D	General and transferable skills	D1,D2, D3, D5,D6 D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
• Introduction, basic definitions and terminology for revit	2	1	-
• Preparing files – format – wall frmat	2	1	-
• Selection methods – wall types	2	1	-
• Roof settings.	2	1	-
• Curtain walls	2	1	-
• Creating floors – settings	2	1	-
• Creating compound objects	2	1	-
• Mid term exam			-
• Stairs creation and types	2	1	-
• Quiz	2	1	-
• Ceiling creation	2	1	-
• Using lights , materials , cameras	2	1	-
• Print options	2	1	-
• Practical exam	2	1	-
• Revision	2	1	-
Total hours	**28**	**14**	

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge & Understanding	a1	1		1		1	1			1		1		
	a2	1				1								
	a3	1		1		1				1				
	a4	1	1	1		1	1							
	a5	1	1	1		1	1							
	b1					1	1	1						
	b2						1	1				1		
	b3	1	1			1	1							
	b4					1		1				1		
	b5	1	1			1	1	1						
Intellectual Skills	b6	1				1	1			1				
	b7	1				1	1			1				
	b8	1	1			1	1							
	b9	1		1		1	1	1		1				
	b10	1				1	1			1				
Applied Prof. Skills	c1				1	1				1				
	c2					1	1	1		1		1		
	c3				1	1				1				
	c4				1	1				1				
General Skills	c5	1	1		1	1	1			1		1		
	d1			1			1	1		1				
	d2			1			1	1		1				

5- Assessment Timing and Grading:

Assessment Method		Timing	Grade (Degrees)
Mid-Term Exam		8-th Week	20
Semester Work	Weekly calss work	4 Quizzes (every 3 weeks)	20
Practical Exam		Fourteenth week	20
Written Exam		Sixteenth week	40
Total			100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

1 Autodesk manual book (AutoCAD LT User's Guide) -
2 3Dmax manual

Recommended books:

3 Larice. M.. & MacDonald. E.. (2013). “The Urban Reader”. Routledge. UK.
4 Krier. R.. (1979). “Urban Space”. Academy Press. USA.
Lynch. K.. (1960). “Image of the City”. MIT Press. USA.

6-4 Periodicals, Web sites, etc.

5 Autodesk home page
6 MAX Script references

7- Facilities required for teaching and learning:

- Lap with networking – AutoCAD and 3Dmax programs – net meeting program
- Data show

Course coordinator: Dr hosam mohamed abd el aziz
Head of the Department: Professor ibrahem gouda
Date: December 2018

Modern Academy for Engineering and Technology

Course Specification

Elective ARCN 434: Urban Renewal

Applied Engineering and Design Elective Course

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: Septmber , 2015

B - Basic information

Title: ARCN 434 **Code:**ARC 431 Senior 1,Level 4
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**-2 **Practical:** -
Pre-requisite: ARCN 321

C - Professional information

1 – Course Learning Objectives:

The course primarily presents Fundamentals and stages of urban renewal and rehabilitation, Optimum use of built environment and its human and urban resources. Evaluation of local and international renewal and rehabilitation experiences, Urban problems and reasons, Rehabilitation means and techniques.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1- Dwelling policies "centralization and Decentralization, applying it on study cases. (A7,16)
...Understanding number of study cases

B - Intellectual skills:

On successful completion of the course, the student should be able to.
b1- Evaluate Projects. (B11,20)
b2- Link meanings and strategies in dwelling projects (B10)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- Use available resources. (C1,8)
c2 - Motivate user's participation in dwelling. (C1)
c3-Practice the whole course through a practical research.(C1)

D - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- Able to apply case studies. (D6,7)
d2- Cooperate with other to design Architect projects

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A7,A16
B	Professional and practical skills	B10,B11,B20
C	Intellectual skills	C1,C8
D	General and transferable skills	D6,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. General introduction on renovation	2		
2. Ismailia projects	2		
3. Ismailia projects	2		
4. Projects analysis	2		
5. Helwan project	2		
6. Projects analysis	2		
7. Mid-Term Exam	2		
8. Asyout projects	2		
9. 10. syout projects	2		
11. Projects analysis	2		
12. Researches	2		
13. Researches	2		
14. Difference between projects	2		
15. General introduction on renovation	2		
16. Ismailia projects	2		
Total hours	**30**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowle.& Underst.	a1	1	1						1			1		1									
Intellectual Skills	b1	1						1	1				1			1							
	b2	1	1						1			1				1							

Applied Professional Skills	c1	1		1	1		1		1			1				1							
	c2			1	1		1		1			1											
General Tran. Skills	d1							1	1			1		1	1								
	d2			1				1	1			1											

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	20
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes: Non
6-2 Required booksاحمد خالد علام /تجديد الأحياء
6-3 Recommended books: Non
6-4 Periodicals, Web sites, etc.-

7- Facilities required for teaching and learning:

Data Show
Black board / white board.

Course coordinator: Dr. Nahed Omran
Head of the Department: Associate Professor: Ibrahim Gouda
Date: September , 2018

Modern Academy

for Engineering and Technology in Maadi

Course Specification

Genn452: Elective 2 Civilization and Heritage

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

ıent offering the program: Architecture Engineering and Building Technology Department
Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: December, 2018

B - Basic information

Title: : Civilization and Heritage **Code:**Genn452 **Level** :4th, , teth semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise**:- **Practical:** -
Pre-requisite: None.

C - Professional information

1 – Course Learning Objectives:

The course aims to enhance the student's background in the field of social, cultural and humanitarian studies throughout identifying the cultural environment; this includes the meaning, features, characteristics, and social interaction, in addition to its impact on the human's needs in the field of specialization. In addition, it studies the cultural and environmental forms of expressions and the social pattern in cultural heritage throughout analyzing its elements and the alternative of dealing with it. Additionally study some case from old and modern traditional societies in the field of study.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:
a1- Theories, issues, concepts demonstrating the interrelation between Civilization and Culture (A9)
a2- The role of the architect and planner in realizing the cultural and heritage dimensions when designing a new project. (A17)
a3- The role of the architect and planner in the conservation of Architectural heritage (A11)

B - Intellectual skills:

On successful completion of the course, the student should be able to:
b1- Dealing appropriately with Heritage buildings and Architecture (B18, B21).
b2- Adapt innovative approaches in urban and architectural design considering the cultural backgrounds and realities of the local community (B19, B21)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1- Identify, analyse, understand the interrelation between Culture and Architecture (C19).
c2- Generate and develop selective interventions that cope with the significance of Architectural Heritage (C21, C22).
c3- Evaluate and criticize the outcomes of urban and Architectural projects in relation to cultural and heritage considerations (C21, C22).

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1- Collaborate effectively with the multidisciplinary dimensions of Architectural projects (D3).
d2- Search for information required to develop successful approaches in design (D6).
d3- Refer to relevant literature effectively in research projects (D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9, A11, A17
B	Intellectual skills	B18,B19, B21
C	Professional and practical skills	C19, C21,C22
D	General and transferable skills	D3, D6, D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. General definitions, terms, and characteristics of culture and Architecture)	2		
2. Definitions, Classification of Heritage, World Heritage sites.	2		
3. The Interrelation between culture and traditional and heritage	2		
4. The Interrelation between culture and Civilization (General theories, concepts and examples)	2		
5. Architecture as cultural and Civilization expression - Features and characteristics (A detailed discussion of the multi-components of culture and its impacts in urban sites.	2		
6. Social interaction and urban environment – perception, environment image and behavior patterns.	2		
7. Midterm Exam			
8. The role of participation and community involvement in Architectural and Urban Design (Local Case studies)	2		
9. A brief discussion of the Anthropology as a tool of understanding local and indigenous cultures and its application to Architecture	2		
10. Regionalism of architecture and architectural expression	2		
11. Urban Heritage (A review of Values)	2		
12. Urban and Architectural Conservation (A review of interventions)	2		
13. Local and international case studies of urban and Architectural projects corresponding to the cultural dimension of the societies.	2		
14. Site Visit	2		
15. Research project presentation and discussion	2		
Total hours	**28**		

4 - Teaching and Learning and Assessment methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments	projects	sketches			Self-learning	Discovering	Researches and Reports	Modeling and Simulation	Written Exam	Practical Exam	Quizes	Mid-Term Exam	Assignments	Project	Researche	
Knowledge & Understanding	a1	1	1	1										1		1			1			1	
	a2	1	1	1										1		1			1			1	
	a3	1	1	1										1		1			1			1	
Intellectual Skills	b1	1	1	1										1		1						1	
	b2	1	1	1										1		1						1	
Applied Professional Skills	c1	1	1	1										1		1						1	
	c2	1	1	1										1		1						1	
	c3	1	1	1										1		1						1	
General Tran. Skills	d1			1									1	1								1	
	d2			1									1	1		1						1	
	d3			1									1	1								1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Mid-Term Exam	7-th Week	20%	20
Semester Work:	Quizzes	10%	10
	Reports	5%	5
	Assignments	5%	5
Practical research	Fifteenth week	20%	20

Final Exam	Sixteenth week	40%	40
Total		100%	100

6- List of references:

6-1 Course notes: None.
6-2 Required books:
6-3 Recommended books:

- Fraser, D. (1968) "Village Planning in the Primitive World", Studio Vista, London
- Oliver, P. (1969) "Shelter and Society", Barrie & Rockliff, The Cresset Press, London
- Oliver, P. (1997) "Encyclopaedia of vernacular architecture of the world", Cambridge University Press, New York
- Rapoport, A. (1969) "House, Form and Culture", Englewood Cliffs, N.J

6-4 Thesis, Periodicals, Web sites, etc.

- أشرف كامل بطرس (١٩٩٨) "الثقافة والنتاج البنائي - منهج لرصد وتحليل واستقراء الأبعاد الثقافية وتوظيفها في عملية البناء"رسالة دكتوراه غير منشورة، كلية الهندسة، جامعة القاهرة.
- حسن المويلحى (٢٠٠٥) "العمارة بين الثقافة والتنمية نحو فهم ثقافة مجتمع المستخدمين لخدمةعملية التنمية من خلال البرمجة المعمارية"رسالة ماجستير غير منشورة، كلية الهندسة، جامعة القاهرة.

2. Silverman, H., & Waterton, E., & Watson, S., (2017), “Heritage in Action: Making the Past in the Present”, Springer International Publishing, Switzerland.
3. Born, G., (2006), “Architecture, Preserving Paradise: The Architectural Heritage and History of the Florida Keys”, The History Press, USA.

- Oliver, P., (1997), “Encyclopedia of vernacular architecture of the world”, Cambridge University Press, New York, USA.

7- Facilities required for teaching and learning:

- Appropriate teaching class including presentation board and data show,
- Resources available in the library

Course coordinator: Dr. Nahed Omran
Head of the Department: Associate Professor: Ibrahem Gouda.
Date: December,2018

Modern Academy
for Engineering and Technology in Maadi

Course Specification

ARCN460: Graduation Project

Course Specification

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architecture Engineering and Building Technology Department

Department offering the course: Architecture Engineering and Building Technology Department

Date of specifications approval: Septmber , 2018

B - Basic information

Title: Graduation Project **Code:ARCN460** **Level:** Semister-10

Credit Hours: 6 **Lectures:4** **Tutorial/Exercise: 8** **Total:**12

Pre-requisite: ARCN421

C - Professional information

1 – Course Learning Objectives:

The final design project aims to be an accumulation of all previously acquired skills and taught courses; architectural, technological, and urban, throughout the four-years of study and in line with the country's development goals whether it was economic, cultural, touristic, and urban. Students will reach an integrated design solution with architectural and urban-dimensions, to reflect the contemporary trends and methods of design. They will conduct an analytical study for the design determinants and analyze various public buildings' projects and functions, reaching a comprehensive program for the project. In addition, an analytical study of the various alternatives for the design will be conducted to design the most suitable architectural and urban spaces, linking the design determinants with functional, environmental, constructional, humanitarian, and cultural aspects.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- The design process and the importance of other relevant areas of study (e.g. cultural context, environmental technologies, human needs …ext) (A4, A8, A17)

a2- Creating new concepts including the design process which may be inspired from the contemporary real projects (A5, A12)

a3- Architectural technology, sustainability issues and interrelationships with site location, aesthetic and technical issues (A11, A13)

a4- Regulations and building codes in the urban context (A16)

a5- Preparing an appropriate complete report of gradution project including the topic, main aims, reason of the chosen site, site analysis, elements of program, zoning diagram, concept study, and the initial ideas of drawings (A10)

B - Intellectual skills:

On successful completion of the course, the student should be able to.

b1 - Develop a design strategy based on the results of his/her research. (B20)

b2 - Select the best sites for constructing projects, extract its potentials, and functionate them in design. (B7, B13)

b3 - Analyze and criticize similar projects and remarkable relevant buildings to build upon previous experiences (B4, B15)
b4 - Develop - through integrated analyses of the design principles and architectural data - a brief to inform design proposal (B14, B15)
b5- Analyze architectural problems, propose alternative solutions, and select the best solutions (B2, B3, B4)
b6- Solve design problems concentrating on achieving specific needs (B7, B17)
b7- Produce innovative design ideas and concepts (B3)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Transform the project program into design alternatives and ideas relevant to the selected site, and select the appropriate design ideas according to a reasonable evaluation process (C2)
c2 - Carry a design strategy through to a final design solution (C3)
c3 - Integrate structural systems, building services systems and building envelope design as an appropriate architectural expression (C3)
c4 - Present architectural projects (C3, C4, C13)
c5 - Produce new architectural forms and design solutions of real societal problems (C2, C3)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1- Search for information in references, magazines and internet (D6, D7)
d2 - Write reports and prepare written & digital presentations (D2, D3, D4)
d3 - Communicate ideas verbally and visually in a clear coherent manner through a variety of tools and media including digital media (D3, D4)
d4 - Apply computer skills (D4, D8)
d5 - Work in stressful environment and within constraints (D2)
d6 - Arrange time for life-long submissions (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4, A5, A8, A9, A10, A11, A12,A13, A17
B	Intellectual skills	B2, B3, B4, B7, B13,B14,, B15, B17,B20
C	Professional and practical skills	C1, C2, C3, C4, C12, C13
D	General and transferable skills	D2, D3, D4, D6, D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Week No. 1 (Stage of Research) ➢ **In Lecture:** General introduction to the Topic of Graduation Project ➢ **In Design-Studio:** Recognition of the Required Research: Selecting project's title, Clarifying the main aims, Maintioning the resons of the chosen site, Preparing the site's analyses, reviewing & analyzing similar projects to reflect useful	4	8	

information on making the program, zoning diagram.			
Week No. 2 (Stage of Research) ➢ **In Lecture:** Generalinstructions to improve & complete researches ➢ **In Design-Studio:** Following Up the Research: Following up each student in his/her research process	4	8	
Week No. 3 (Stage of Concept) ➢ **In Lecture:** Presenting Design Ideas & Concepts to thrill students' minds ➢ **In Design-Studio:** Receiving researchesfrom students, Correcting them wisely and feeback students with degrees and instructions for each one of them, Each student becomes settled in setting a certain detailed program and zoning diagram, and mind storming to snap an intellectual concept to be the design guideline.	4	8	
Week No. 4 (Stage of Layout-Sketches) ➢ **In Lecture:** Presenting a lecture in how concept can be transfered into sketch using process of abstraction. ➢ **In Design-Studio:** Following up the Programs, Zoning Diagrams, and Concepts with students, transferring the concepts into layout sketches.	4	8	
Week No. 5 (Stage of Layout) ➢ **In Lecture:** Discussing the concepts and layout sketches with students and making a show selecting samples of failed sketches and successful sketches to be presented on front of all students. ➢ **In Design-Studio:** Improving layout-sketches and drawing them into scale 1/400 or 1/500	4	8	
Week No. 6 (Stage of Plans) ➢ **In Lecture:** Presenting plans of real projects as models to figure out the way of combination, matching, and how to make a complex of design. **In Design-Studio:** Transferring from the To-Scale-Layout sketches into Plans, directing the students to experience the similar plans to be examples may be useful in achieving functions and aesthetics	4	8	
Week No. 7 (Stage of Plans) ➢ **In Lecture:** Following the architectural plans with students, directing them into improvement and re-reading their plans from many perspectives. **In Design-Studio:** Supervising the students in leading them towards successful plans, functionally and aesthetically.	4	8	
Week No. 8 (Stage of Plans) ➢ **In Lecture:** Because designing plans takes time, once again the lecturers follow them up with students individually, directing them to improve the final product of plans. **In Design-Studio:** Teaching assistants make efforts with students to improve their plans and to avoid their errors, and to direct them into the stage may be applicable to be extruded into a 3d model. Some students start their sketches with 3d which is very good in the issue of imagination. Teaching assistants try to direct those students to let them set a plan functionally became in order.	4	8	
Week No. 9 (Stage of Evaluating Plans) ➢ **In Lecture:** Making Jury to evaluate students' plans ➢ **In Design-Studio:** Teaching assistants make discussions with students of how they can improve their plans and what exactly they have to do to reach higher degrees.	4	8	
Week No. 10(Stage of 3d & Sections) ➢ **In Lecture:** Presenting a visiual material for architectural sections to be samples of the different types of construction systems **In Design-Studio:** Students sketch 3d and sections trying to set certain construction systems over the wide-span forms.	4	8	
Week No. 11 (Stage of 3d & Elevations) ➢ **In Lecture:** Presenting a visiual material for architectural elevations to be samples of the different types of styles **In Design-Studio:** Students sketch 3d and elevations trying to set the outline aesthetics of his/her design through using certain materials, surfaces, colors, elements, and so on.	4	8	
Week No. 12(Stage of Full Day Esquisse) ➢ **In Design Studio:** Making a Full Day Esquisse which aims to examine the individual capability of each student in drawing a complete project by his/her own. At the end of this day, teaching assistans collect all projects to be judged by all members of the staff.	4	8	
Week No. 13(Stage of Final Improvments) ➢ **In Design Studio:** Announcing the esquisses' degrees and submitting the projects to the students highlighting the errors and indicating suggestions for improvement.	4	8	
Week No. 14(Stage of Presentstion Techniqes) **In Design Studio:Discussion between staff and students about the techniques of final presentation of the Graduation Project,ad announcing the degress of Year**	4	8	

work and determing a day of hanging the projects in seprated halls distributed over the building			
➢ **Week No. 15 (The Final Stage: The Jury)** **In Seprated Committees: (The Jury is often being after second term exams)** It is divided into two days; 1st is held by the internal full-time staff, and the 2nd is held by the external part-time staff invited to judge the students' graduation projects. And in these two days, students must come in formal costumes. Each student is asked few questions about his/her idea, concept, structure, functions,… ext.	4	8	
Total hours	**60**	**120**	

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lectures	Presentations and Movies	Discussions	Tutorials/Sketches	Practical and Laboratory experiments	Problem solving	Brain storming	Projects	3-D Modeling	Playing	Researches and Reports	Modeling and Simulation	Site Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1	1	1										1		1	1				
	a2	1	1	1	1	1							1			1		1	1				
	a3	1	1	1	1								1			1		1	1				
	a4	1		1		1										1			1				
	a5	1	1	1	1							1	1					1	1				
Intellectual Skills	b1	1		1	1	1						1	1			1			1				
	b2	1	1	1		1						1				1		1	1				
	b3	1	1	1	1	1						1							1				
	b4	1		1	1	1						1				1		1	1				
	b5	1		1	1	1						1							1				
	b6	1		1	1	1										1		1	1				
	b7	1	1	1	1								1			1		1	1				
Applied Professional Skills	c1	1			1	1						1						1	1				
	c2	1	1	1	1	1						1				1		1	1				
	c3	1	1	1	1	1										1		1					
	c4	1	1	1	1							1	1			1		1	1				
	c5	1	1	1	1	1										1		1					
General Tran. Skills	d1											1							1				
	d2	1		1	1	1						1	1						1				
	d3	1	1	1	1	1						1	1			1			1				
	d4				1							1	1			1			1				
	d5	1			1	1						1				1		1	1				
	d6		1									1							1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)

Semester Work: Researches, Architecural Drawings	Weekly	**40**
Full Day Esquisse	12-th Week	**20**
Final Jury	Usually held after exams of the final semester	**40**
Total		**100**

6- List of references:

6-1 Course notes: Non

6-2 Required books: The course of Graduation Project doesn't depend on a certain required book but it depends on gathering information from various references, magazines, internet, and so on.

6-3 Recommended books:

- Jencks, C., "Architecture 2000 and Beyond", John Wiley & Sons Ltd, UK, 2000.
- Paul, Laseau, "Graphic Thinking of Architects and Designers", Reinhold Co., NY, USA, 1980.
- White, Edward T., "A vocabulary of Architectural Forms", Architectural Media, 1975.
- Joseph de Chiara, John Calendar, "Time Saver Standards for Building Types", McGraw Hill, 2003
- McGowan Kruse, "Interior Graphic Standards", McGraw- Hill, 2003.
- Ernst Neufert, "Neufert Architects' Data", Second edition, Blackwell Science ltd.UK, 2000.
- • Adjaye, D., (2015), "Form Heft Material",Yale University Press. USA.
- • Clark, R.H., (2005), "Precedents in Architecture", New Jersey.
- • Edward, W., (1975), "A vocabulary of Architectural Forms", Architectural Media, USA.

6-4 Periodicals, Web sites, etc.

- Architectural record, Published monthly by the McGraw – Hill companies
- Al – Benaa Magazine, Published monthly by Medina Publishing Inc., Kingdom of Saudi Arabia.
- Architecture Competition Annual, Published every 6 months by Archiworld Co., Ltd., Korea.
- Medina Magazine, Tasmeem Magazin &البناء العربى
- http://www.greatbuildings.com
- http://www.archpedia.com
- http://www.archnet.org
- http://www.vitruvio.ch

7- Facilities required for teaching and learning:

- Michrophone
- In Lecture Halls: Computer, Data show and Computer programs: Powerpoint & Windows Media Player.
- Design Studios
- Gallery to present the projects

Course coordinator: DR.Mohamed Thabat
Head of the Department: Associate Professor: Ibrahim Gouda
Date: December , 2018

Modern Academy for Engineering

and Technology in Maadi

Course Specifications

GENN453: Industrial Psychology

A- Affiliation

Relevant program: Manufacturing Engineering and Production Technology BSc. Program.
Depart offering the program: Manufacturing Engineering and Production Technology Department
Depart offering the course Manufacturing Engineering and Production Technology Department
Date specification approval December 2018

B-*Basic Information*

Title: Industrial Psychology **Code:** GENN453 **Year /level :4/** Semester 10
Credit Hours: 2 **Lectures:** 2 **Tutorial:** - **Practical: -**
Pre-requisite: Non

C – Professional Information

1- Course Learning objectives:

A study of this course will enable the student to improve the performance of the whole work system as well to reduce the stress imposed on the working human being in industry .

2 – Intended Learning Outcomes (ILOs)

A-Knowledge and Understanding:

By the end of the course the student should be able to:
a1- the role of industrial engineer (A4 , A9,A18).
a2- the structural system of human work (A11) .
a3-the physical environmental impacts on human beings which can be assessed quantitatively (A11 , A19) .

B-Intellectual Skills

By the end of the course the student should be able to:
b1- Apply basics of ergonomics to instrument display, machine, control and lay out of work place (B3, B5).
b2- Consider effect of all environmental changes on equipment (B9).
b3- Diminishing the effects of physical environmental impacts on human beings (B9).

C- Professional and Practical Skills

By end of the course the student should be able to :
c1- Create new product design adapted to the customer (C2, C4).
c2- Make the best use of human abilities (C8) .
c3- Use the ergonomic factors in domestic and industrial products (C8) .

D-General and Transferable Skills

By end of the course the student should be able to :
d1-Collaborate effectively with multidisciplinary team (D1, D2).
d2- Effectively manage tasks , time , and ,resources (D6 , D9).

Course Contribution in the program ILO'S

ILO's		Program ILO's
A	Knowledge and understanding	A4 ،A9،A11،A18, A19
B	Intellectual skills	B3،B5،B9
C	Professional and practical skills	C2،C4،C8
D	General and transferable skills	D1،D2,D6,D9

3-Contents

Topic	Lecture hours	Tutorial hours
Industrial Design – Design concepts	2	
Ergonomics	2	
Application of ergonomics – Instruments – Controls – Work place.	2	
Aesthetic and ergonomics coordination	2	
Working condition and Environment	2	
Heating and Ventilation	2	
Local Ventilation - Industrial Ventilation	2	
Air condition systems – CFC'S - Ozone	2	
Depletion and Global Warning	2	
Noise – Exposure to noise – Noise control	2	
Technique – Vibration	2	
Lighting – Level of luminance – Factors	2	
Affecting the quality of lighting	2	
Human effectiveness	2	
Revision	2	
Total hours	30	

4 - Teaching and Learning and Assessments methods:

Course ILO's		Teaching Methods										Learning Methods				Assessment Method							
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory					Modeling	Self-learning	Experimental				Class Works	Quizzes	Reports	Mid-Term Exam	Practical Exam	Written Exam
Knowledge & Understanding	a1	1		1															1		1		1
	a2	1		1															1		1		1
	a3	1		1															1		1		1
Intellectual Skills	b1	1		1															1		1		1
	b2	1		1															1		1		1
	b3	1		1															1		1		1
Applied Prof. Skills	c1	1		1															1		1		1
	c2	1		1															1		1		1
	c3	1		1															1		1		1

General Tran. Skill	d1 d2	1 1		1 1									1 1							1 1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: Quizzes & Reports	Bi-Weekly	5
Mid-Term Exam	8th. Week	10
Written Exam	16th. week	35
Total		50

6- List of references:

6-1 Course notes: Lecture notes and handouts prepared by the course coordinator .

6-2 Required books : Non

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.: Non

7- Facilities required for teaching and learning:

- Non

Course coordinator: Prof. Mamdouh Saber

Head of the Department: Prof. Dr. Nabil Gadalla

Date: December 2018

Modern Academy for Engineering and Technology in Maadi

Course Specification
GENN 454: Elective 2 Marketing

A- Affiliation

Relevant program:	Manufacturing Engineering and Production Technology BSc Program Electronic Engineering and Communication Technology BSc Program Computer Engineering and Information Technology BSc Program Architecture Engineering and Building Technology BSc Program
Department offering the program:	Manufacturing Engineering and Production Technology Department Electronic Engineering and Communication Technology Department Computer Engineering and Information Technology Department Architecture Engineering and Building Technology Department
Department offering the course:	Basic science department
Date of specifications approval:	15 / 9 / 2018

B - Basic information

Title : Marketing	**Code:** GENN 454	**Level:** Four	**Semester:** 10th
Credit Hours: 2 hrs	**Lectures:** 2	**Tutorial/Exercise:** -	**Practical:** -
	Pre-requisite: non		

C - Professional information

1 – Course Learning Objectives:

مع نهاية تدريس هذا المقرر يكون الطالب قد اكتسب المهارات التى تمكنه من فهم مجال المبيعات, إدارة قوة المبيعات الاستراتيجية .عملية البيع الشخصية وتنظيم قوى المبيعات, تنميط وتوظيف البائعين, اختيار وتوظيف المتقدمين, تطوير برنامج المبيعات, تحفيز قوى المبيعات, تعويض قوة المبيعات والمصروفات والنقل, قيادة قوة المبيعات، التنبؤ بالمبيعات وتطوير الميزانيات و مناطق المبيعات الأقاليم, تحليل حجم المبيعات, تحليل تكلفة التسويق والربح، تقييم الأداء, كتابة عطاءات المسؤوليات الأخلاقية والقانونية.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of:

a1- ادارة المبيعات وتطوير برنامج المبيعات (A9, A1)

a2- تحليل حجم المبيعات, تحليل تكلفة التسويق والربح، تقييم الأداء (A8)

a3- تنميط وتوظيف البائعين, اختيار وتوظيف المتقدمين (A9)

b - Intellectual skills:

On successful completion of the course, the student should be able to.

b1– ان يكتسب الطالب مهارات فى مجال اساسيات ادارة المبيعلت (B1, B2)

b2- ان يدرك الطالب كيفية اختيار وتوظيف المتقدمين وافضل الطرق لتحفيز فريق المبيعات (B1, B2)

b3- ان يستطيع الطالب تحليل تكلفة التسويق حسب مناطق التوزيع و الربح (B1, B2)

d - General and transferable skills:

On successful completion of the course, the student should be able to:

d1- تدريب الطالب على كيفية البحث عن المعلوملت فى المراجع وفى الانترنت (D7)

d2- اكساب الطالب كيفية العمل فى فريق واشراكهم فى مناقشات جماعية (D1)

d3- تعليم الطالب على كيفية ايجاد الطرق الازمة لابتكار كل ما هو جديد (D7, D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A8, A9
B	Professional and practical skills	B1, B2
D	General and transferable skills	D1 , D7, D8

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
مجال المبيعات, إدارة قوة المبيعات الاستراتيجية عملية البيع الشخصية وتنظيم قوة المبيعات	6		
تنميط وتوظيف البائعين, اختيار وتوظيف المتقدمين	4		
تطوير برنامج المبيعات, تحفيز قوى المبيعات تعويض قوة المبيعات والمصروفات والنقل	4		
قيادة قوة المبيعات و التنبؤ بالمبيعات	2		
تطوير الميزانيات و مناطق المبيعات الأقاليم	4		
تحليل حجم المبيعات, تحليل تكلفة التسويق والربح	4		
تقييم الأداء, كتابة عطاءات المسؤوليات الأخلاقية والقانونية	4		
مراجعة عامة	2		
Total hours	**30**		

4 - Teaching and Learning and Assessement methods:

Course ILO's		Teaching Methods										Learning Methods				Assessement Method							
		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments					Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	1	1	1								1				1		1					
	a2	1														1		1		1			
	a3	1		1												1		1		1			
Intellectual Skills	b1	**1**														1		1		**1**			
	b2	**1**														1		1		**1**			
	b3	**1**	**1**	**1**								**1**				1							
General Tran.	d1	1		1								1											
	d2	1	1	1																			

	d3	1	1																	1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Mid-Term Exam	7- th Week	20
Research	8- th Week	15
Quizes	Bi –Weekly	20
Assignments	11- th Week	5
Written Exam	Sixteen -th week	40
Total		100

6- List of references:

6-1 Course notes: Non

6-2 Required books

Michael J. Baker, Susan Hart (2016), "The Marketing Book", 7th Edition.

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc.: Non

7- Facilities required for teaching and learning:

- Computer, Data show and Computer programs

Course coordinator: Dr. Shaymaa Sherif
Head of the Department: Prof. Dr. Ashraf Taha
Date: September, 2019

Appendix 3

شروط النجاح والتخرج وقواعد حساب التقدير

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الآتي بعد مستخرج من الشق القانوني للائحة الأكاديمية الحديثة للهندسة والتكنولوجيا بالمعادي للدراسة بالساعات المعتمدة (لائحة ٢٠١٨)

الباب الثاني

نظام الدراسة

مادة [٢]

يمنح وزير التعليم العالي بناءً على طلب مجلس إدارة الأكاديمية درجة بكالوريوس الهندسة والتكنولوجيا في أحد التخصصات التالية:-

[١] الهندسة الكهربية:

أ ـ هندسة الالكترونيات وتكنولوجيا الاتصالات .

ب ـ هندسة الحاسبات وتكنولوجيا المعلومات.

[٢] الهندسة الميكانيكية:

ـ هندسة التصنيع وتكنولوجيا الإنتاج .

[٣] الهندسة المعمارية:

ـ هندسة العمارة وتكنولوجيا البناء

وتتم الدراسة في هذه التخصصات حالياً بنظام الدراسة الفصلية. ، ويتم التحول للدراسة في هذه البرامج بنظام الساعات المعتمدة اعتباراً من العام الدراسي ٢٠١٨-٢٠١٩. ويسمح لمن يرغب من الطلاب بالتحويل من نظام الدراسة الفصلية إلى نظام الدراسة بالساعات المعتمدة بمقاصة لمن يرغب من الطلاب بحيث لا تقل عدد الساعات المعتمدة التي على الطالب أن يسجل فيها عن ٥٠٪ من مجموع الساعات المعتمدة للبرنامج ككل (لا تقل عن ٩٠ ساعة معتمدة)، على أن تستمر الدراسة بنظام الدراسة الفصلية للطلاب المقيدين بالأكاديمية قبل عام ٢٠١٨-٢٠١٩ ممن لم يحولوا للدراسة بنظام الساعات المعتمدة وذلك حتى تخرجهم.

مادة [٣]

تُمنح درجة البكالوريوس في الهندسة والتكنولوجيا للطلبة الذين يجتازون بنجاح دراسة مقررات بإجمالي ١٨٠ ساعة معتمدة، مع الحصول على المعدل التراكمي المطلوب للتخرج.

مادة [٤] : مدة الدراسة بنظام الساعات المعتمدة

- مدة الدراسة لنيل درجة البكالوريوس خمس سنوات موزعة على ١٠ فصول دراسية رئيسية ويمكن للطالب إنهاء متطلبات الدراسة قبل ذلك بفصل واحد على الأكثر.
- الحد الأقصى للدراسة ١٦ فصلا دراسيا ويفصل الطالب بعدها ويجوز إعادة قيده بموافقة مجلس الأكاديمية.

مادة [٥] : متطلبات الدراسة في برنامج الساعات المعتمدة

طبقاً لما ورد في الإطار المرجعي للوائح المعاهد الصناعية والهندسية التي تعمل بنظام الساعات المعتمدة فإن الجدول رقم (١) يبين نسب المقررات الإنسانية، و المقررات الأساسية، و المقررات الهندسية الأساسية، و المقررات الهندسية التخصصية، لكل من برامج بكالوريوس الحاسبات والاتصالات والعمارة والتصنيع و المدنى وقد روعي في اختيار نسب المقررات للبرامج توافقها مع متطلبات المجلس الأعلى للجامعات الموضحة بالجدول.

جدول رقم (١)

البيان (ساعات معتمدة)		برنامج اتصالات	برنامج حاسبات	برنامج عمارة	برنامج تصنيع
المواد الإنسانية (8-10%)	مواد إجبارية	١٢	١٢	١٤	١١
	مواد اختيارية	٤	٤	٤	٦
	النسبة المئوية الكلية	٨,٩٪	٨,٩%	١٠٪	٩,٤٪
المواد الأساسية (15-20%)	مواد إجبارية	٣٦	٣٦	٢٨	٣٢
	مواد اختيارية	-	-	-	-
	النسبة المئوية الكلية	٢٠٪	٢٠٪	١٥,٦٪	١٧,٨٪

المواد الهندسية الأساسية (30-35%)	مواد إجبارية	٦٣	٦٣	٦٠	٥٤
	مواد اختيارية	-	-	-	٣
	النسبة المئوية الكلية	٪٣٥	٪٣٥	٪٣٣,٣	%٣١,٧
المواد الهندسية التخصصية (35-40%)	مواد إجبارية	٥٠	٥٠	٦٠	٦٥
	مواد اختيارية	١٥	١٥	١٤	٩
	النسبة المئوية الكلية	٪٣٦,١	٪٣٦,١	٪٤١,١	٪٤١,١

مادة [٦]

يقوم طلبة المستوى الخامس بإعداد مشروع البكالوريوس الذى يحدد موضوعه مجالس الأقسام المختصة، وتخصص له فترة إضافية بعد الامتحان التحريري يحددها مجلس الأكاديمية بناء على اقتراح مجالس الأقسام المختصة، ويجوز أن يكون المشروع مقسماً على فصلين دراسيين متتاليين، ويراعى في اختيار الأقسام للمشاريع أن تكون ذات طبيعة تطبيقية أو نظرية أو خليطاً بينهما نابعة من الاحتياجات العملية وطبيعة الدراسة بكل قسم، ولا يتخرج الطالب إلا بعد أن يستوفي شروط النجاح في المشروع.

مادة [٧] : التدريب العملي

أولاً: تشمل الدراسة نظاماً للتدريب العملي لطلاب الأكاديمية في الأجازة الصيفية عقب أداء امتحانات آخر العام الدراسي بفترة قصيرة، على ألا يتعارض مع انتظام دراسة الطالب خلال الفصول الصيفية، وينقسم التدريب العملي إلى مرحلتين:

(أ) مرحلة التدريب الصيفي لطلبة المستوى الأول والثاني: هذا التدريب غير مقيم بساعات معتمدة، ولكن أداؤه إلزامي للتسجيل بالمستوى التالي، وفى حالة الظروف القهرية، يُفوض مجلس الأكاديمية فى السماح بأدائه في وقت لاحق.

(ب) مرحلة التدريب التخصصي لطلبة المستوى الثالث والرابع، ويقيم كل تدريب بثلاثة ساعات معتمدة، وتضاف نتيجة كل تدريب إلى تقييم الفصلين الأول والثاني من المستوى الخامس على التوالي.

ويتم التدريب بالتفاصيل الآتية:-

أ- التدريب الصيفي

(١) طلاب المستوى الأول

يتم هذا التدريب داخل صالات الرسم ومعامل الأكاديمية أو خارجها، ويشمل هذا التدريب الموضوعات العامة اللازمة للبناء المعرفى للمهندس، ويشتمل التدريب على الحاسبات والرسم الهندسي والاجهزة الكهربية والالكترونية والرسم المعمارى ومقدمة لاستخدام برامج الحاسب الآلى وأى موضوعات اخرى يقرها مجلس الاكاديمية. ويقسم الطلاب إلى مجموعات بحد أقصى ٢٥ طالب في المجموعة، ويتولى الإشراف على كل مجموعة عضو هيئة تدريس، وإثنين من أعضاء الهيئة المعاونة، واثنين من الفنيين، بالإضافة إلى مشرف إداري، ويتم التدريب لفترة أربعة أسابيع خلال فصل الصيف.

(٢) طلاب المستوى الثاني

يتم التدريب داخل الأكاديمية أو خارجها ، لتدريب الطلاب فى مجالات الدراسة التى يقترحها القسم ويقرها مجلس الاكاديمية ، ويقسم الطلبة إلى مجموعات بحد أقصى ٢٠ طالب في كل مجموعة، ويشرف على كل مجموعة عضو هيئة تدريس، ومعيد أو مهندس، وفني مرافق للمجموعة، بالإضافة إلى مشرف إداري على المجموعة، ويتم التدريب لفترة أربعة أسابيع خلال فصل الصيف.

ب – التدريب الصناعي التخصصي التطبيقى

(١) طلاب المستوى الثالث

يتم تدريب الطلبة بمواقع الإنتاج والتنفيذ بالمؤسسات والمصانع والشركات، التي تعمل في التخصص الذي يدرس به الطالب تحت إشراف أعضاء هيئة التدريس ومعاونيهم والفنيين ورجال الصناعة.

يعين لكل مجموعة من الطلاب أحد أعضاء هيئة التدريس، يفضل أن يكون هو المشرف الأكاديمي لمتابعة الطالب في التدريب وتلقي التقارير التي تفيد مدى تقدم الطالب في التدريب من الطالب نفسه ومن الجهة القائمة بالتدريب، وعقب انتهاء

التدريب يقوم كل قسم بتشكيل لجنة من أعضاء هيئة التدريس لمناقشة الطالب في التدريب الذي قام به وإعطاؤه تقديره المناسب طبقا لما هو وارد بالجدول رقم (٢).

ومدة التدريب من أربعة إلى ستة أسابيع حسب الخطة التى توضع لهذا التدريب. ويمكن إجراء التدريب بمعامل الأكاديمية التخصصية، بناءً على توصية المرشد الأكاديمي ومجلس القسم وتصديق عميد الأكاديمية.و تضاف النقاط التي حصل عليها الطالب في هذا التدريب إلى النقاط التي حصل عليها في الفصل الدراسي الأول من المستوى الخامس.

(٢) طلاب المستوى الرابع

يتم التدريب بنفس الكيفية التي يتم بها تدريب المستوى الثالث على أن يضاف تقدير هذا التدريب إلى نتيجة الفصل الدراسي الثاني للمستوى الخامس. ويتم التدريب في مؤسسة غير التي أتم فيها تدريب المستوى الثالث إلا إذا استدعى الأمر استكمال التدريب في نفس المؤسسة، ويكون ذلك بناء على توصية المرشد الأكاديمي، وموافقة مجلس القسم. ويمكن تأدية هذا التدريب كذلك بمعامل الأكاديمية التخصصية بناءً على توصية المرشد الأكاديمي ومجلس القسم وتصديق عميد الأكاديمية.

ثانياً: (أ) الإشراف العام على التدريب:

يحدد مجلس الأكاديمية منسقا من كل قسم لتنسيق العمل مع قسم التدريب فى أول كل عام دراسى.

(ب) التمويل

١- يسدد كل طالب مبلغ ٥٠٠ جنيه عن كل سنة في مرحلة التدريب الصيفي (المستوى الأول والثاني) ويجوز زيادة هذا المبلغ طبقا لدراسة التكلفة الفعلية للتدريب بعد تصديق رئيس الإدارة المركزية المختص بوزارة التعليم العالى.

٢- يسدد كل طالب ما قيمته ثلاثة ساعات معتمدة عن كل مستوى في مرحلة التدريب الصيفى التخصصي لتغطية تكاليف التدريب(المستوى الثالث والرابع).

٣- توضع حصيلة التدريب في صندوق ذو طابع خاص (وحدة الورش والمعامل للتدريب) للصرف منه على أغراض التدريب، حسب اللوائح المنظمة للصندوق. ولمجلس إدارة وحدة الورش والمعامل للتدريب العملي أن يغير قيمة التدريب المالية طبقاً للظروف المحيطة.

٤- تقوم وحدة الورش والمعامل للتدريب العملى بسداد مستحقات المؤسسات القائمة بالتدريب، مضافاً إليها المصروفات الإدارية والمتابعة والإشراف والمناقشة من حصيلة الصندوق.

الباب الثالث

قبول الطلاب

مادة [٨]

يحدد وزير التعليم بعد اخذ رأى المجلس الأعلى لشئون المعاهد فى نهاية كل عام جامعى عدد الطلاب من ابناء جمهورية مصر العربية أو غيرهم الذين يقبلون فى الأكاديمية فى ضوء احتياجاته فى العام الجامعى التالى من الحاصلين على شهادة الثانوية العامة أو على الشهادات المعادلة ونظام قبولهم.

مادة [٩]

يكون ترشيح الطلاب للقبول بالأكاديمية عن طريق مكتب التنسيق ما لم يصدر قرار من وزارة التعليم بغير ذلك

مادة [١٠]

- يشترط في قيد الطالب في غير معاهد الدراسات العليا :

(١) أن يكون حاصلاً على شهادة الدراسة الثانوية العامة (علمى رياضة) أو ما يعادلها ويكون القبول بترتيب درجات النجاح ويقبل كذلك الحاصلون على دبلوم المدارس الثانوية الفنية فى بعض المعاهد ووفقاً للقواعد والشروط التي يحددها وزير التعليم.

(٢) أن يثبت الكشف الطبي خلوه من الأمراض المعدية وصلاحيته لمتابعة الدراسة وفقاً للقواعد التي يحددها المجلس الأعلى لشئون المعاهد.

(٣) أن يكون متفرغاً للدارسة بالأكاديمية وذلك وفقاً لأحكام اللوائح الداخلية للمعاهد.

(٤) أن يكون محمود السيرة حسن السمعة.

مادة [١١]

- يعطى كل طالب بطاقة شخصية خاصة تلصق عليها صورته ويوقعها عميد الأكاديمية وتختم بخاتم الأكاديمية ويجب تقديم هذه البطاقة في كل شأن دراسي ولا يسمح لأي طالب بحضور الدروس والمحاضرات والتمرينات العلمية وبتأدية الامتحانات إلا إذا كان يحمل بطاقته. على كل طالب مقيد بأحد المعاهد أن يثبت حضوره بالطريق الذي يحدده المعهد.

مادة [١٢]

- لا يجوز للطالب أن يقيد اسمه في أكثر من معهد في وقت واحد ولا يجوز له أن يجمع بين القيد في معهد غير تابع للوزارة أو أي كلية جامعية ولا يجوز إعادة قيد الطالب بأي معهد للحصول على شهادة سبق له الحصول عليها كما لا يجوز إعادة قيده للحصول على شهادة أخرى من معهد مماثل.

مادة [١٣] تحويل الطلاب ونقل قيدهم

تحويل ونقل قيد الطلاب إلى الأكاديمية لبدء الدراسة بالفصل الدراسى الثانى بقرار من الإدارة المركزية المختصة بوزارة التعليم العالى. وطبقاً لما ورد في نص المادة (٤١) من قانون ٥٢ لسنة ١٩٧٠ ولائحة المعاهد رقم (١٠٨٨) لسنة ١٩٨٧: تحويل ونقل قيد الطلاب فيما بين المعاهد وفق القواعد الآتية:

١) لا يجوز النظر في تحويل الطلاب المقيدين بالمستوى الأول بين المعاهد المتناظرة إلا إذا كان الطالب حاصلاً على الحد الأدنى للمجموع الذي وصل إليه القبول في المعهد المطلوب التحويل إليه، ويتم التحويل بموافقة مديري المعهدين.

٢) يجوز النظر في تحويل الطلاب المقيدين بمستوى أعلى من المستوى الأول بين المعاهد المتناظرة إذا وجدت ظروف اجتماعية أو صحية تقتضى التحويل وذلك بموافقة مديري المعهدين.

٣) يجوز نقل قيد الطالب المنقول إلى مستوى أعلى من المستوى الأول بأي من الكليات الجامعية أو من معهد إلى معهد غير مناظر بشرط أن يكون حاصلاً على الحد الأدنى لمجموع الدرجات الذي وصل إليه القبول في المعهد المطلوب النقل إليه سنة حصوله على الشهادة الثانوية أو المستوى الجاري أيهما أفضل للطالب وذلك بموافقة مديري المعهدين. وفي هذه الحالة يكون قيد الطالب فى اول مستوى للدراسة بالأكاديمية.

٤) يشترط في جميع الحالات السابقة ألا يكون الطالب المطلوب تحويله أو نقل قيده قد استنفذ فرص الرسوب، وألا يكون الطالب قد فصل لسبب تأديبي، وفى جميع الحالات يشترط تقديم طلب التحويل في المعهد المطلوب التحويل إليه قبل بدء الدراسة، ويجوز لمجلس إدارة الأكاديمية عند الضرورة القصوى قبول التحويل خلال الشهر التالي لبدء الدراسة، كما يشترط مراجعة وموافقة رئيس الإدارة المركزية المختصة.

٥) يجوز نقل قيد الطلاب المفصولين بغير الطريق التأديبي من الكليات العسكرية أو كلية الشرطة لعدم الصلاحية للحياة العسكرية وكذا المفصولين لإستنفاذ مرات الرسوب بالمعاهد التي مدة الدراسة بها أربع سنوات مستجدين بالمستوى الأول بشرط أن يكون الطالب حاصلاً على المجموع الكلى والمواد المؤهلة، إن وجد، سنة حصوله على الثانوية العامة. وان يكون تقديم طلب الالتحاق فى السنة الدراسية التى فصل الطالب خلالها او فى السنة الدراسية اللاحقة بها على الأكثر إذا كان فصله قد تم بعد بدء الدراسة بالمعهد فى السنة السابقة على تقديمه بطلب الالتحاق.

وطبقاً لما ورد في نص المواد (٤٢،٤٤) من قانون ٥٢ لسنة ١٩٧٠ ولائحة المعاهد رقم (١٠٨٨) لسنة ١٩٨٧:

- يجوز أن يقبل بالأكاديمية الطلاب الذين استنفذوا مرات الرسوب في الكليات والمعاهد العالية وفقاً للقواعد الآتية:-

(أ) أن يكون الطالب مقيدا فى الكلية أو المعهد فى السنة الدراسية السابقة على السنة التى يلتحق فيها بالأكاديمية.

(ب) أن يكون حاصلاً في الشهادة الثانوية العامة (علمى رياضة) أو ما يعادلها على مجموع يؤهله للالتحاق بالأكاديمية في عام حصوله على تلك الشهادة أو في عام التحاقه بالأكاديمية أيهما أفضل للطالب.

ويكون التحاق هؤلاء الطلاب بالمستوى الأول مستجدين، وتقدم أوراق هؤلاء الطلاب إلى الاكاديمية لإرسالها للإدارة المختصة بالوزارة ويكون قبولهم بموافقة مجلس إدارة الاكاديمية .

- يجوز قيد وإعادة قيد الطالب في الحالات الآتية:-

١) الطالب المستجد الذي لم يستكمل إجراءات قيده لعذر مقبول.

٢) الطالب الذي سحب أوراقه وهو مقيد بالأكاديمية وقدم عذراً.

٣) الطالب الذي لم يتقدم لمكتب التنسيق في سنة حصوله على الثانوية العامة لعذر مقبول.

وفى جميع هذه الحالات يعتبر عام رسوب السنة التى تنقضى دون ان يقيد فيها الطالب نفسه ويكون القيد أو إعادة القيد وبقرار من رئيس الإدارة المركزية المختص أو بموافقة مجلس إدارة الأكاديمية على حسب الاحوال.

- **يجوز لمجلس أدارة الأكاديمية أن يوقف قيد الطالب لمدة سنة دراسية ولا تزيد المدة عن سنتين أذا تقدم بعذر مقبول يمنعه من الانتظام فى الدراسة و يجوز لرئيس الإدارة المركزية مد هذه المدة بحد أقصى ضعف مدة الدراسة بالأكاديمية عند الضرورة القصوى.**

الباب الرابع

الامتحانات

مادة (١٤)

- إذا فصل الطالب من الأكاديمية بسبب استنفاذ مرات الرسوب فى مقرر إجبارى أو أكثر يمكن بموافقة مجلس أدارة الأكاديمية أعادة قيده بالأكاديمية كطالب مكن الخارج مع حضور التمارين العملية ويكون أعادة القيد بحد أقصى ثلاثة فصول دراسية فيما رسب فيه الطالب.
- يسدد الطالب التكلفة الكاملة لدراسته فى المقررات المسجل فيها طبقاً لأخر حساب ختامى للأكاديمية بالإضافة إلى رسم إعادة قيد يحدده مجلس أدارة الأكاديمية على أن يتحول إلى طالب نظامى مرة أخرى بعد انتفاء سبب فصله من الأكاديمية.

مادة (١٥)

- يمكن للطالب الانقطاع عن الدراسة لمدة تزيد عن ثلاثة فصول دراسية بعذر مسبق يقبله مجلس إدارة الأكاديمية يواصل بعده الدراسة.
- أما إذا انقطع الطالب عن الدراسة لمدة أقصاها ثلاثة فصول دراسية بعذر مسبق يقبله مجلس إدارة الاكاديمية فيمكن له ان يواصل دراسته على ان تحسب له المقررات السابق له النجاح فيها بدرجة (جيد) على الاقل ويخضع تخرجه لأية متطلبات جديدة فى الفصل الذى اعيد قيده فيه بالإضافة لإعادته للمواد التى حصل فيها على تقدير مقبول على الأكثر.
- يفصل الطالب من الأكاديمية إذا انقطع الطالب عن الدراسة بدون عذر مسبق لفترة فصلين دراسيين أو إذا انقطع عن الدراسة لنفس هذه المدة رغم رفض مجلس إدارة الأكاديمية للعذر الذى تقدم به.
- أما إذا انقطع الطالب عن الدراسة لمدة تزيد عن سته فصول دراسية عادية بعذر مسبق يقبله مجلس إدارة الأكاديمية فيمكنه العودة للدراسة بالأكاديمية على ان يعامل معاملة الطالب المستجد ولا تحسب له اية نقاط عن المقررات التى سبق له النجاح فيها قبل انقطاعه.

مادة (١٦)

طبقا للمادة (٥٠) من القانون رقم (٥٢) لسنة ١٩٧٠ ولائحته التنفيذية الصادرة بقرار وزير التعليم العالى رقم ١٠٨٨ لسنة ١٩٨٧ بالنسبة للمعاهد العالية لخاصة فيكون عميد الأكاديمية هو الرئيس العام للامتحانات بالأكاديمية والوكيل المختص نائبا له وأن تشكل لجان العمل للامتحانات وفقا للقواعد المنظمة لذلك بالأكاديمية وعلى ان يعتمد هذا التشكيل من رئيس القطاع المختص.

مادة (١٧)

ترسل الاكاديمية الى الإدارة المختصة بوزارة التعليم العالى قبل بدء موعد الامتحان بشهر على الأقل كشوفا من ثلاث صور بأسماء الطلاب الذين سوف يتقدمون للامتحان سواء فى امتحان النقل أو الامتحان النهائى، وتقوم الإدارة المختصة بمراجعة هذه الكشوف للتأكد من صحة قيد الطلاب بالأكاديمية واحقيتهم فى تأدية الامتحان ويستبعد الطلاب الذين لا حق لهم فى تأدية الامتحان ثم تعتمد هذه الكشوف وتحفظ صورة منها بالإدارة العامة لشئون الطلاب والامتحانات وترسل صورة للأكاديمية وتسلم الصورة الثالثة لرئيس عام الامتحان للعمل بمقتضاها فى امتحان نهاية العام الدراسى.

مادة (١٨)

تعلن نتيجة امتحان النقل بعد مراجعتها من الإدارة المختصة بوزارة التعليم العالى واعتمادها من مجلس إدارة الاكاديمية كما تعلن نتيجة امتحان البكالوريوس بعد مراجعتها من الإدارة المختصة واعتمادها من وزير التعليم ولا تعلن نتيجة الطلاب ولا يخلى طرفهم إلا بعد سداد جميع الرسوم والمصروفات المستحقة عليهم.

مادة (١٩)

- تقوم الأكاديمية بتحرير شهادات مؤقته لخريجى السنوات النهائية يوقعها عميد الأكاديمية موضحا بها (الاسم- تاريخ الميلاد – جهة الميلاد – دور التخرج- مشروع التخرج – التقدير العام). كما تقوم أيضا بتحرير (شهادات تقديرات النجاح فى كل مادة).
- كما تقوم الأكاديمية بتحرير الشهادات النهائية للخريجين محررا بها تاريخ منح المؤهل من تاريخ اعتماد وزير التعليم لنتيجة الامتحان وترسل الى وزارة التعليم العالى لمراجعتها واعتمادها من الأستاذ الدكتور الوزير.

الـبــاب الخامس

قواعد التدريس والقيد والتسجيل وتقديرات النجاح

مادة [٢٠] : الأقسام العلمية المشاركة في تنفيذ برامج الساعات المعتمدة

يختص كل قسم من أقسام الأكاديمية بالتدريس وإجراء البحوث التى تخص مقرراته طبقا لبرامج الساعات المعتمدة وجداول النظام الكودي للمقررات الدراسية وتفاصيلها.

مادة [٢١] :المقررات العامة

يعهد مجلس الأكاديمية إلى قسم أو أكثر بتدريس المقررات العامة ذات الكود (عام) تحت الإشراف المباشر لوكيل الأكاديمية.

مادة [٢٢] : شروط القيد

يتم القيد للدراسة بنظام الساعات المعتمدة اعتباراً من العام الدراسي ٢٠١٢-٢٠١٣ للطلبة الحاصلين على شهادة الثانوية العامة قسم رياضيات أو ما يعادلها، ممن تم توزيعهم عن طريق مكتب التنسيق أو المحولين من كليات أخرى طبقاً للشروط التي يضعها المجلس الأعلى للجامعات أو المحولين من نظام الدراسة الفصلية إلى نظام الدراسة بنظام الساعات المعتمدة من طلاب الأكاديمية، بحيث لا يتم نقل أكثر من ٥٠٪ من الساعات المعتمدة من إجمالي ما تم دراسته بالنظام الفصلي طبقاً لما ورد في المادة ٢٨ من قانون ٥٢ لسنة ١٩٧٠.

مادة [٢٣] : ساعات التدريس بنظام الساعات المعتمدة

(أ) ساعات المحاضرات: ١ ساعة محاضرة تساوي ١ ساعة معتمدة

(ب) ساعات التمـــارين : تمرين مدته ١ ساعة يساوي صفر

تمرين مدته من ٢ إلى ٣ ساعات يساوي ١ ساعة معتمدة

(ج) ساعات المعمل والتطبيقات العملية: ساعتين معمل أو تطبيقات تساوي ١ ساعة معتمدة

تتم الدراسة باللغة الانجليزية، وتضع الأكاديمية نظاماً للتأكد من مستوى الطالب في اللغة الانجليزية، ويستثنى من ذلك بعض المقررات الإنسانية والهندسة المعمارية والمدنية، ويكون الامتحان بنفس اللغة التي يدرس بها المقرر.

مادة [٢٤] : مواعيد الدراسة والقيد

يقسم العام الدراسى بالأكاديمية إلى ثلاثة فصول دراسية على النحو التالي :

الفصل الدراسي الأول : يبدأ في بداية العام الدراسى فى شهر سبتمبر ولمدة ١٥ أسبوع دراسى.

الفصل الدراسي الثاني : يبدأ عقب إجازة منتصف العام ولمدة ١٥ أسبوع دراسى.

الفصـل الصيفـــــــي : يبدأ خلال أسبوعين من نهاية امتحانات الفصل الدراسى الثانى ولمدة ٨ أسابيع دراسية.

ويتم القيد لأي مرحلة خلال الأسابيع الثلاثة السابقة لبدء الفصل الدراسي بشرط استيفاء شروط القيد ودفع الرسوم المقررة، ويشترط للتسجيل في أي مقرر ألا يقل عدد الطلبة الراغبين في التسجيل عن عشرة طلاب، ويمكن أن يقل هذا العدد في الحالات الاستثنائية بموافقة مجلس أدارة الأكاديمية.

مادة [٢٥] : شروط التسجيل للدراسة بنظام الساعات المعتمدة

- يتقدم الطالب لتسجيل المقررات كل فصل دراسي، وبحد أقصى ١٨ ساعة معتمدة، بشرط استيفاء شروط التسجيل في كل مقرر، وبعد استشارة المرشد الأكاديمي، وفي المواعيد المحددة بتوقيتات التسجيل، مادة ١٧ من قانون ٥٢ لسنة ١٩٧٠، وقواعده التي تصدرها الأكاديمية سنوياً وتنشر في دليل الطالب، ولا يعتبر التسجيل نهائياً إلا بعد دفع رسوم الخدمة التعليمية المقررة لكل فصل دراسي.
- يتم تقسيم المقررات على المستويات التصاعدية الخمس التالية الموضحة تفصيلا بخريطة المقررات. ويتم التسجيل للمقررات طبقا لخريطة المقررات مع الالتزام بتسجيل مقررات المستويات الأدنى واستكمال ساعات التسجيل من المستوى الأعلى.

١-	المستوى الأول	Freshman
٢-	المستوى الثانى	Sophomore
٣-	المستوى الثالث	Junior
٤-	المستوى الرابع	Senior 1
٥-	المستوى الخامس	Senior 2

- يمكن للطالب الذى يبلغ معدله التراكمى ٣,٣ أو أكثر، التسجيل فى أكثر من ١٨ ساعة معتمدة وبحد أقصى ٢١ ساعة معتمدة فى الفصل الدراسى التالى لحصوله على هذا المعدل ابتداء من المستوى الثانى.
- يمكن للطالب التسجيل فى الفصل الدراسى الصيفى فى مقررات لا تزيد ساعاتها المعتمدة عن ٦ ويكون تسجيل الطالب اختياريا فى هذا الفصل الدراسى للنجاح فى مقرر رسب فيه أو رفع درجاته فى مقررات سبق نجاحه فيها أو لدراسة مقرر واحد من المستوى التالى يشرط حصوله على معدل تراكمى ٣,٣ او أكثر فى الفصل الرئيسى السابق . ويجوز أن يتم التسجيل بحد أقصى ٩ ساعات معتمدة لدواعى التخرج أو اجتياز متطلبات التسجيل.
- عند التسجيل فى مقررات جديدة، يراعى نجاح الطالب فى المقررات المؤهلة طبقا للائحة الدراسية.
- لا يجوز للطالب أن يدرس مقرر ومتطلبه السابق فى نفس الفصل الدراسى إلا إذا كان تخرجه يتوقف على ذلك.
- الطالب المتأخر عن مواعيد التسجيل، لا يتم تسجيله في المقررات الدراسية إلا إذا كان هناك مكان له، وللأكاديمية أن تقرر رسوم تأخير يحددها مجلس إدارة الأكاديمية تتناسب مع مدة التأخير بحد أقصى ٢٥٪ من رسوم التسجيل.
- على الطالب تحقيق معدل تراكمى لا يقل عن (٢) فى اى وقت فإذا قل يتم إنذاره ولا يصرح له بالتسجيل فى الفصل التالى لأكثر من ١٢ ساعة معتمدة وعند التكرار لفصلين متتاليين بعد ذلك يتم فصله نهائيا.
- يسمح للطالب بإعادة التسجيل في أي مقرر رسب فيه، ويعيده دراسة وامتحاناً بعد دفع رسوم الخدمة التعليمية المقررة. وفي هذه الحالة يحسب تقديره فيه بحد أقصى٢ (C) ولا يدخل تقدير الرسوب السابق في حساب المتوسط التراكمي.
- للطالب الحق في تحسين متوسطه التراكمي بإعادة التسجيل في مقرر أو أكثر يكون قد سبق حصوله فيه على تقدير أقل من (٢). ويحسب له التقدير الجديد لهذا المقرر، ويتم حساب المتوسط التراكمى طبقا للتقدير الأخير.
- يمكن تسجيل طلاب كمستمعين في بعض المقررات نظير رسوم تقررها الأكاديمية، فى حدود ٧٥٪ من رسوم التسجيل للطلاب النظاميين، لو كان هناك مكان لهم، وذلك بعد تسجيل الطلاب النظاميين، ولا يحق لهم دخول الامتحان أو الحصول على شهادة بالمقررات.

المراقبة الأكاديمية

- إذا حصل الطالب عند نهاية أى فصل دراسى رئيسى على معدل تراكمى أقل من (٢) يوضع تحت المراقبة الأكاديمية.

- أثناء وضع الطالب تحت المراقبة الأكاديمية لا يسمح له بالتسجيل فى مقررات تزيد عن ١٢ ساعة معتمدة فى الفصل الدراسى الرئيسى الواحد.
- يلتزم الطالب أثناء وضعه تحت المراقبة الأكاديمية بالاجتماع مع مرشده الأكاديمى كل أسبوعين على الأقل، ويقوم المرشد الأكاديمى بمتابعة التحصيل الدراسى للطالب مع أساتذته.

حالات عرض الطلاب على مجلس الأكاديمية للنظر فى فصلهم

- الطالب المستجد الذى لم يجتاز ٣٠ ساعة معتمدة على الأقل خلال العامين الدراسيين الأولين (أو أول أربعة فصول دراسية أساسية).
- الطالب المستجد الذى لا يتمكن من رفع متوسط نقاطه التراكمى إلى ١,٥ فى نهاية الفصل الدراسى الرئيسى الرابع من بدء التحاقه بالأكاديمية.
- الطالب الذى يقل متوسطه التراكمى عن (٢) فى سته فصول دراسية متصلة أو فى ثمانية فصول دراسية غير متتالية.
- الطالب الذى لا يتمكن من استكمال متطلبات التخرج خلال ١٦ فصل دراسى رئيسى، عدا الفصول التى يتم فيها إيقاف قيده بعذر يقبله مجلس الأكاديمية. ويجوز إعادة قيده بشرط أن يزيد عدد الساعات المعتمدة التي إجتازها بنجاح عند إعادة القيد على ١٣٥ ساعة معتمدة. وفى هذه الحالة يمكن لمجلس الأكاديمية أن يمنح هذا الطالب فرصا إضافية بحد أقصى أربعة فصول دراسية رئيسية.
- الطالب الذى ينقطع عن الدراسة فصلين دراسيين أساسيين متتاليين أو ثلاث فصول دراسية أساسية غير متتالية دون عذر تقبله الأكاديمية.

مادة [٢٦] : رسوم الدراسة

- وتظل قيمة الساعة المعتمدة كما هي لأي طالب من وقت التحاقه بالأكاديمية وحتى تخرجه. وتزاد قيمة الساعة المعتمدة سنوياً بنسبة ٥٪ من قيمتها في العام السابق وذلك لكل دفعة من الطلبة الجدد. ويجوز زيادة هذا المبلغ طبقا لدراسة التكلفة الفعلية للتعليم بعد تصديق رئيس الإدارة المركزية المختص بوزارة التعليم العالى.
- يسدد الطالب رسوم تسجيل لمقررات الفصل الدراسى الصيفى بزيادة ٢٥٪ عن رسوم التسجيل للفصول الرئيسية.
- أما بالنسبة للطلبة الوافدين من غير أبناء جمهورية مصر العربية، فيقومون بتسديد الرسوم الإضافية وقيمة رسوم الخدمة التعليمية بالعملة الأجنبية، حسب القيمة التي يحددها وزير التعليم العالي، بشرط أن تكون هذه العملة قابلة للتحويل، ويمكن للطلبة الوافدين تسديد رسوم الخدمة التعليمية بالعملة المحلية، وذلك بتصديق من رئيس مجلس إدارة الأكاديمية.
- يتم تحصيل رسوم الخدمة التعليمية كل فصل دراسي ويعد السداد شرطا لإتمام التسجيل.
- يتم حساب رسوم الخدمة التعليمية طبقاً لعدد الساعات المعتمدة التي يسجل فيها الطالب لكل من الفصل الدراسي الأول والفصل الدراسي الثاني، بحد أدنى ما يقابل رسوم خدمة تعليمية لعدد ١٢ ساعة معتمدة لكل فصل دراسى، إلا إذا كان عدد الساعات المعتمدة المتبقية للطالب للحصول على درجة البكالوريوس أقل من ذلك فتتم محاسبته على الساعات المعتمدة المتبقية فقط للدراسة. وتكون رسوم الخدمة التعليمية للفصل الصيفي طبقاً لعدد الساعات المعتمدة التي يسجل فيها الطالب.
- يتم تحصيل رسوم التسجيل المقررة للوزارة سنويا فى بداية كل عام دراسى.

مادة [٢٧] : متطلبات الحصول على درجة البكالوريوس بالساعات المعتمدة

يشترط لتخرج الطالب ما يلى:

- أن يجتاز الطالب عدداً من الساعات المعتمدة المقررة، ومقدارها ١٨٠ساعة معتمدة، وبمعدل تراكمى لا يقل عن (٢) متضمنة مشروع البكالوريوس طبقا للمادة [٦].
- أن يؤدى التدريب العملى طبقا لما ورد في المادة [٧].
- أن يجتاز بنجاح الرخصة الدولية لقيادة الحاسب الآلي **(ICDL)**.

مادة [٢٨] : المرشد الأكاديمي للدارسين بنظام الساعات المعتمدة

- يعين وكيل الأكاديمية لكل طالب، عند التحاقه بالدراسة، مرشداً أكاديمياً من بين أعضاء هيئة التدريس، يمكن أن يستمر معه حتى نهاية الدراسة.
- يلتزم المرشد الأكاديمي بمتابعة أداء الطالب، ومعاونته في اختيار المقررات كل فصل دراسي، ويمكن للمرشد الأكاديمي أن يطلب وضع الطالب تحت المراقبة الاكاديمية لفصل دراسي واحد، مع خفض عدد الساعات المسجل فيها طبقا لما ورد بالمادة[٢٤].

مادة [٢٩] : شروط التعديل والإلغاء والانسحاب وإيقاف القيد

- يحق للطالب تغيير مقررات سجل فيها، بأخرى خلال أسبوعين من بدء الدراسة، ولا يسري ذلك على الفصل الصيفي.
- يحق للطالب الانسحاب من المقرر خلال ثمانية أسابيع على الأكثر من بداية الدراسة بالفصلين الأول والثاني وثلاثة أسابيع على الأكثر في الفصل الصيفي وفى هذه الحالة لا ترد له الرسوم.
- الطالب الذي يرغب في الانسحاب من فصل دراسي، لظروف المرض أو بعذر تقبله الأكاديمية، عليه التقدم بطلب لشئون الطلاب، ويحصل على موافقة مجلس الأكاديمية على الانسحاب، دون استرداد ما سبق سداده من رسوم، ويكون هذا الانسحاب قبل الامتحان النهائى لهذا الفصل بأسبوع واحد على الأقل. ويقوم بإعادة المقررات التي سجل فيها، في فصل دراسي لاحق دراسة وامتحاناً بعد سداد رسوم الخدمة التعليمية المقررة، ولا تحسب عليه كمرة رسوب.

مادة [٣٠] : تقديرات المقررات الدراسية

- تقدر نقاط كل مقرر على النحو الموضح بالجدول رقم (٢):

جدول رقم (٢)

النسبة المئوية المناظرة	التقدير المكافئ	عدد النقاط	التقدير
٩٥٪ وأعلى	ممتاز (+)	4.0	A+
٩٠٪ حتى أقل من ٩٥٪	ممتاز	3.7	A
٨٥٪ حتى أقل من ٩٠٪	ممتاز (-)	3.3	A-
٨٠٪ حتى أقل من ٨٥٪	جيد جداً (+)	3.0	B+
٧٥٪ حتى أقل من ٨٠٪	جيد جداً	2.7	B
٧٠٪ حتى أقل من ٧٥٪	جيد (+)	2.3	C+
٦٥٪ حتى أقل من ٧٠٪	جيد	2.0	C
٦٠٪ حتى أقل من ٦٥٪	مقبول (+)	1.7	D+
٥٥٪ حتى أقل من ٦٠٪	مقبول	1.3	D
٥٠٪ حتى أقل من ٥٥٪	مقبول (-)	1.0	D-
أقل من ٥٠٪	راسب	صفر	F

- يتم إنذار الطالب الذى يحصل على تقدير أقل من (٢) فى أى مقرر لإعادة دراسته لتحسين النتيجة إلى (٢) على الأقل.
- المقررات التي يسجل فيها الطالب كمستمع، أو التي يطلب فيها النجاح فقط، أو لم يكملها لسبب قبلته الأكاديمية، ولا تدخل في حساب متوسط النقاط، يرصد له أحد التقديرات التالية:

المدلول	التقدير	
مرضي	Satisfactory	S
غير مرضي	Unsatisfactory	U
انسحاب	Withdrew	W
مستمع	Audit	AU

F	Fail	راسب
P	Pass	ناجح

مادة [٣١] : حساب متوسط النقاط (GPA)

- لا يعتبر الطالب ناجحاً في أي مقرر إلا إذا حصل على تقدير -D على الأقل.
- لا يحصل الطالب على البكالوريوس، إلا إذا حقق متوسط نقاط قدره (٢) على الأقل.
- تحسب نقاط كل مقرر على أنها عدد ساعاته المعتمدة مضروبة فى عدد النقاط التى حصل عليها الطالب، جدول رقم (٢).
- يحسب مجموع النقاط التي حصل عليها الطالب في أي فصل دراسي، على أنها مجموع نقاط كل المقررات التي درسها في هذا الفصل الدراسي.
- يحسب متوسط نقاط الطالب لأي فصل دراسي (المتوسط الفصلي GPA)، على أنه ناتج قسمة مجموع النقاط التي حصل عليها الطالب في هذا الفصل، على مجموع الساعات المعتمدة لهذه المقررات. ويكون تقدير الطالب فى هذا الفصل وفقا للجدول رقم (٢).
- يحسب متوسط نقاط التخرج (بعد نجاحه في مجمل متطلبات التخرج)، على أنها ناتج قسمة مجموع نقاط كل المقررات التي درسها الطالب على مجموع الساعات المعتمدة لهذه المقررات متضمنة المقررات التى أعادها الطالب (سواء لسابق رسوبه فيها أو للتحسين وتحتسب نقاط هذه المقررات فى المرة الأخيرة فقط) ويكون تحديد التقدير التراكمى وفقا للجدول رقم (٢).

مثال : بفرض حصول الطالب في فصل دراسي على التقديرات الموضحة بالجدول رقم (٣):
بالرجوع إلى الجدول رقم (٢) يتم تحديد عدد النقاط للتقدير الذي حصل عليه الطالب لكل مادة، وبضرب عدد النقاط في عدد الساعات المعتمدة لكل مادة وجمع هذه النقاط، يتم احتساب إجمالي النقاط. وحاصل قسمة إجمالي النقاط على إجمالي عدد الساعات المعتمدة لكل المواد هو متوسط نقاط الفصل.

- تمنح مرتبة الشرف للطالب الذى لا يقل المعدل التراكمى الفصلى له عن **3.3** خلال جميع الفصول الدراسية الرئيسية، على ألا يكون الطالب قد رسب فى أى مقرر خلال دراسته لمرحلة البكالوريوس.

جدول رقم (٣)

المادة	عدد الساعات المعتمدة	التقدير	النقاط	عدد النقاط المحتسبة
لغة انجليزية	٣	A+	٤	١٢
برمجة حاسب	٣	C	٢	٦
فيزياء	٣	B+	٣	٩
كيمياء	٣	A+	٤	١٢
إنتاج	٣	C	٢	٦
إجمالي عدد الساعات المعتمدة = ١٥ متوسط نقاط الفصل الدراسى **(GPA)** = ٤٥ ÷ ١٥ = ٣				إجمالي عدد النقاط = ٤٥

مادة [٣٢] : تعريف حالة الطالب الدارس بنظام الساعات المعتمدة

كلما أكمل الطالب ٢٠٪ من متطلبات التخرج اعتبر منتقلاً من مستوى إلى مستوى أعلى منه (المستويات من ١ إلى ٥)، ولا يتطلب ذلك تحديد نوعية أو مستوى المقررات التي أكملها الطالب، ويعتبر ذلك نوعاً من التعريف بموقع الطالب بالأكاديمية.

مادة [٣٣] : أسلوب تقييم الدارس بنظام الساعات المعتمدة

(أ) توضح التفاصيل الآتية بهذه اللائحة توزيع درجات كل مقرر بين: أعمال الفصل، امتحان عملي/شفوي، امتحان نصف الفصل، الامتحان التحريري النهائي.

(ب) يعقد لكل مقرر امتحان تحريري في نهاية الفصل الدراسي لا تقل درجته عن ٦٠٪ من مجموع درجات المقرر، وذلك بواقع ٦٠٪ للامتحان التحريرى للمواد ذات الشق العملي و ٢٠٪ أعمال السنة و٢٠٪ للامتحان العملي وبواقع ٧٠٪ للامتحان التحريري للمواد التى لا تتضمن شق عملى و٣٠٪ لأعمال السنة. مدة الامتحان ٣ ساعات لجميع المواد عدا المواد الإنسانية فتكون ساعتين فقط. يستثنى من ذلك مقررات تحددها اللائحة مثل مشروع التخرج والتدريب الصيفي والندوات والأبحاث، وبعض المواد التي تخص تخصص العمارة، وهي على وجه التحديد مواد التصميم المعماري، التصميمات التنفيذية، الإنشاء المعماري ومواد البناء، الظل والمنظور، تطبيقات حاسب آلى، تخطيط المدن والإسكان، التصميم العمراني والتدريب البصرى. حيث تشكل درجات التحريري ٤٠٪ من مجموع الدرجات و ٦٠٪ لأعمال السنة، ومدة امتحان مادتي التصميم المعماري والتصميمات التنفيذية هي ٧ ساعات، ومواد الانشاء المعمارى والظل والمنظور والتصميم العمرانى ٥ ساعات، مواد التخطيط والاسكان ٤ ساعات وباقي المواد ٣ ساعات.

(ج) يعقد لكل مقرر امتحان تحريري في منتصف الفصل الدراسي لا تقل درجته عن ١٠٪ من مجموع درجات المقرر باستثناء المقررات التي تحددها اللائحة مثل مشروع التخرج والتدريب الصيفي والندوات والأبحاث.

(د) يعد الطالب راسباً فى المقرر إذا حصل فيه على مجموع درجات أقل من ٥٠٪ (تقدير **F**)، أو لم يحضر الامتحان التحريري لحرمانه من الدخول، أو لم يحضر الامتحان بدون عذر تقبله الأكاديمية. وفى هذه الحالة له أن يعيده دراسة وامتحانا مرة أو مرات أخرى حتى ينجح فيه.

(ه) يجوز السماح للطالب بإعادة بعض المقررات التي نجح فيها من قبل أو إضافة مقررات جديدة له، بغرض رفع متوسط النقاط ليحقق متطلبات التخرج.

مادة [٣٤] : نسبة الحضور والحرمان من الامتحان والأعذار

(أ) الحد الأدنى لنسبة الحضور للمقرر (لا تقل عن ٧٥٪) ليسمح للطالب بدخول الامتحان النهائي للمقرر. وفي حالة حرمانه من الامتحان يعتبر راسباً (يعطى درجة صفر في درجة الامتحان النهائي للمقرر). وفى حالة ثبوت أن التغيب كان بعذر مقبول يمكن عقد امتحان للطالب في هذا المقرر خلال ثلاثة أسابيع من بدء الفصل الدراسي التالي مباشرة، بعد سداد الرسوم المحددة.

(ب) إذا تقدم الطالب بعذر يقبله مجلس الأكاديمية عن عدم حضور الامتحان النهائي لأي مقرر قبل أو بعد يومين من إجراء الامتحان، يحتسب له تقدير "غير مكتمل" في هذا المقرر، بشرط أن يكون ناجحاً في أعمال السنة، وألا يكون قد تم حرمانه من دخول الامتحانات النهائية. وفي هذه الحالة يتاح للطالب الحاصل على تقدير "غير مكتمل" فرصة أداء الامتحان النهائي لهذا المقرر في الموعد الذي يحدده مجلس الأكاديمية.

(ج) يجب على الطلاب متابعة الدروس والاشتراك فى التمرينات العملية وأعمال الورش والتدريب أو قاعات البحث وفقا لأحكام اللائحة الداخلية ولمجلس الأكاديمية الحق فى حرمان الطالب من التقدم للامتحان كله أو فى بعض المواد إذا رأى أن مواظبته غير مرضية طبقا لأحكام اللائحة الداخلية. وفى هذه الحالة يعتبر الطالب راسبا فى المقررات التى حرم من التقدم للامتحان فيها.

مادة [٣٥] : التحويل إلى برامج الساعات المعتمدة

يضع مجلس الأكاديمية ضوابط وشروط التحويل إلى البرامج بنظام الساعات المعتمدة بحيث لا يتم نقل أكثر من ٥٠٪ من الساعات المعتمدة من إجمالي ما تم دراسته بالنظام الفصلي.

مادة [٣٦] : النظام الكودى للمقررات

يتم تحديد كود المقررات الدراسية طبقا للجدول رقم (٤)

مفتاح الكود $N_1 N_2$ $N_3 L_1 L_2 L_3$ (مثال: MEC101 Mechanics)

جدول رقم (٤)

مفتاح الكود $N_1 N_2$ $N_3 L_1 L_2 L_3$	
١- $L_1 L_2 L_3$ ثلاثة حروف ترمز إلى القسم والتخصص المسئول عن تدريس المقرر	
ARC	قسم العمارة
CMP	قسم الحاسبات
ELC	قسم الاتصالات

MTH	تخصص الرياضيات قسم العلوم الأساسية
PHY	تخصص الفيزياء قسم العلوم الأساسية
MEC	تخصص الميكانيكا قسم العلوم الأساسية
CHE	تخصص الكيمياء قسم العلوم الأساسية
MNF	قسم هندسة التصنيع
GEN	تخصص المواد الإنسانية وتتبع وكيل الأكاديمية إشرافيا
٢- N_1 رقم يرمز إلى المستوى التي تدرس به المادة	
المستوى الأول	$N_1 = 1$
المستوى الثاني	$N_1 = 2$
المستوى الثالث	$N_1 = 3$
المستوى الرابع	$N_1 = 4$
المستوى الخامس	$N_1 = 5$
٣- N_2 رقم يرمز إلى نوعية المادة التي ينتمي إليها المقرر	
مادة أساسية أو مادة تحضيرية	$N_2 = 0$
مادة هندسية أساسية	$N_2 = 1$
مادة هندسية تخصصية إجبارية	$N_2 = 2$
مادة هندسية تخصصية اختيارية	$N_2 = 3$
مادة إنسانية إجبارية	$N_2 = 4$
مادة إنسانية اختيارية	$N_2 = 5$
المشروع والندوات والتدريب الصناعي	$N_2 = 6$
٤- N_3 رقم يرمز إلى مسلسل المقرر داخل التخصصش	