Architecture Engineering and Building Technology B.Sc.

Program Specification

(By-Law 2012)

Page Intentionally Left Blank

Introduction

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 products of engineering activities are intended to be sustainable. However, drawbacks are associated with such activities; for example, the water, air, environment and acoustic pollution resulting of the same engineering marvels of decades ago.

The engineer's problem-solving complexity grows as the world's social and technological problems become more closely related. For example, the problem of air pollution cannot be solved physically without considering the social, legal, political, and ethical conflicts. Moreover, the impact of the available engineering solutions on the interests of the individuals and groups should be considered.

The engineering study provides the students with the advanced, effective, technology-based education justifying the expectations of the future of science and technology. It should also provide the technical understanding and problem-solving skills which allow coping with the challenges of tomorrow.

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, and 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.

While architectural education must be concerned with the constraints of the physical world and historical and cultural dimensions, it must also constantly adapt to a changing social, economic and environmental context nationally, regionally and internationally.

Associate Prof. Dr. Nahed Omran.

Head Principal

Architectural Engineering and Building Technology Department

Page Intentionally Left Blank

Content

Page Intentionally Left Blank

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 2012-2013.
Dates of program specifications approval: July2015

1.2 Staff Members

The Architectural Engineering and Building Technology Program is taught by 75 highly qualified staff members, 32 of them are full time employed and 31 are part time 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 83 full time teaching assistants in addition to 3 engineers and 10 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 demands in the fields of Architectural Engineering and Building Technology.

2.2.3. The aimed graduate attributes

On successful completion of the program, the graduates of the Architectural Engineering and building technology engineering BSc program should be able 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 Humanitarian Subjects (Compulsory Courses)

Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
GEN 141	Contemporary Social Issues	None	2	2	-	-	2						
GEN 142	English language	None	2	2	-	-	2						
GEN 143	History of Engineering & Technology.	None	2	2	-	-	2						
ARC 241	History of Architecture (1)	None	2	2	-	-	2						
ARC 341	History of Architecture (2)	ARC 241	2	2	-	-	2						
ARC 440	History of Architecture and Arts (3)	ARC 341	2	2	-	-	2						
ARC 540	History and theories of Architecture (4)	ARC 440	2	2	-	-	2						
Total			**14**	**7.8 %**			**14**						

Table 1-b Humanitarian Subjects (Elective Courses)

Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARC 450	Project Management for construction projects	None	2	2	-	-	2						
ARC 451	Architecture, Civilization and Heritage	ARC 321	2	2	-	-	2						
ARC 452	Advanced Studies in Interior Design	ARC 223	2	1	3	-	2						
ARC 551	Aesthetics and formations	ARC 540	2	2	-	-	2						
ARC 552	Architecture criticism	ARC 540	2	2	-	-	2						
Total			**4***	**2.2%**			**4***						

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.

Table 2: Basic Science Subjects

Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
CHE 100	Chemistry.	None	3	2	1	2		3					
MNF 100	Introduction to Engineering Materials.	None	1	1	-	-		1					
MNF 101	Engineering Graphics.	None	3	1	6	-		3					
MEC 101	Mechanics -1.	None	2	1	3	-		2					
MEC 102	Mechanics-2.	MEC 101	2	1	3	-		2					
MTH 101	Mathematics-1(Algebra and Calculus).	None	3	2	2	-		3					
MTH 102	Mathematics-2(Integration and Analytic Geometry).	MTH 101	3	2	3	-		3					
PHY 101	Physics-1.	None	3	2	1	2		3					
PHY 102	Physics -2.	PHY 101	3	2	1	2		3					
MNF 102	Principles of Production Engineering.	MNF 101	3	1	-	4		3					
MTH 208	Mathematics 8(Statistical MathematicsFor Architectural Eng.)	MTH 102	2	1	3	-		2					
Total			**28**	**15.6%**				**28**					

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: Basic Engineering Subjects

Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
CMP 110	Program Design and Computer Languages.	None	4	2	3	2		1			3		
ARC 211	Architectural Construction 1	None	3	2	3	-			3				
ARC 212	Architectural Construction 2	ARC 211	3	2	3	-			3				
ARC 213	Building Technology	None	2	2	-	-			2				
ARC 214	Computer Applications 1	CMP 110	4	2	3	2		1			3		
ARC 215	Properties & Resistance of Materials	None	2	1	3	-		1	1				
ARC 216	Surveying	None	2	1	1	2		1				1	
ARC 217	Theory of Structures	None	2	1	3	-		1	1				
ARC 218	Sciagraphy and perspective	None	3	2	4	-			3				
ARC 310	Environmental Control	ARC 213	2	2	-	-			2				
ARC 311	Architectural Construction & Building materials 1	ARC 212	3	2	3	-			3				
ARC 312	Architectural Construction & Building materials 2	ARC 311	3	2	3	-			3				
ARC 313	Computer Applications 2	ARC 214	4	2	3	2		1			3		
ARC 314	Reinforced concrete & Steel structures.	ARC 217	3	2	3	-		1	2				
ARC 315	Foundations	ARC 314	2	2	-	-		1	1				
ARC 410	Technical Installations and Plumbing Engineering 1	ARC 312	2	1	3	-			2				
ARC 411	Technical Installations and Plumbing Engineering 2	ARC 410	2	1	3	-			2				
ARC 412	Working Drawing & Construction Methods 1	ARC 312	3	2	3	-			3				
ARC 413	Working Drawing & Construction Methods 2	ARC 412	3	2	3	-			2		1		
ARC 511	Working Drawing & Construction Documents	ARC 413	4	2	6	-			3		1		
ARC 512	Building Regulations & Professional Practice	ARC 413	2	2	-	-			1			1	
ARC 513	Quantities Computing & Contracting Methods	ARC 413	2	2	-	-					2		
Total			**60**	**33.3 %**				**8**	**37**		**13**	**2**	

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: Applied Engineering and Design Subjects
Compulsory Courses

Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARC 221	Architectural Design 1	None	3	1	6	-				2		1	
ARC 222	Architectural Design 2	ARC 221	3	1	6	-				2		1	
ARC 223	Visual Training (1)	None	2	1	3	-				2			
ARC 220	Theories of Architecture (1)	None	2	2	-	-				2			
ARC 321	Architecture and Human Studies	ARC 222	2	2	-	-				2			
ARC 322	Architectural Design 3	ARC 222	3	1	6	-				2		1	
ARC 323	Architectural Design 4	ARC 322	3	1	6	-				2		1	
ARC 324	Design Methodology	ARC 222	2	2	-	-				2			
ARC 326	History and Theories of planning	ARC 220	2	2	-	-				2			
ARC 327	Theories of Architecture (2)	ARC 220	2	2	-	-				2			
ARC 328	Visual Training (2)	ARC 223	2	1	3	-				2			
ARC 360	ARCHITECTURE TRAINING 1	ARC 323	3	-	-	6						3	
ARC 460	ARCHITECTURE TRAINING 2	ARC 422	3	-	-	6						3	
ARC 421	Architectural Design 5	ARC 323	3	1	6	-				2		1	
ARC 422	Architectural Design 6	ARC 421	3	1	6	-				2		1	
ARC 423	Housing & City Planning 1	ARC 326	2	1	3	-				1	1		
ARC 424	Housing & City Planning 2	ARC 422	2	1	3	-				1	1		
ARC 425	Theories of Architectural and Arts (3)	ARC 326	2	2	-	-				2			
ARC 521	Architectural Design 7	ARC 422	3	1	6	-				2		1	
ARC 522	City Planning	ARC 424	3	1	4	-				2	1		
ARC 560	Graduation Project	ARC 521	6	4	8	-				3	1	2	
ARC 523	Urban Design	ARC 423	4	2	4	-				2	1	1	
Total			**60**	**33.3 %**						**39**	**5**	**16**	

Table 4-b: Applied Engineering and Design Subjects
Elective Courses

Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
(a) Urban planning and Design													
ARC 430	Housing in developing countries	ARC 321	2	2	-	-							2
ARC 431	Urban Renewal	ARC 321	2	2	-	-							2
(b) Architecture and Urban environmental studies													
ARC 432	Design, Environmental planning and power	ARC 325	2	2	-	-							2
ARC 530	Urban & Environmental Conservation	ARC 424	2	2	-	-							2
Total			**4***	**2.2%**									**4***

(c) Building Technology													
Course Code	Course Title	Prerequisites	TotalCredits	L	Contact Hours		Subject Area						
					T	P	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
ARC 330	Construction & Building Equipment	ARC 213	2	2	-	-							2
ARC 430	Building Economics	ARC 312	2	2	-	-							2
ARC 433	Building technology and structure systems	ARC 213	2	2	-	-							2
ARC 434	Modular Coordination	ARC 312	2	2	-	-							2
ARC 531	Advanced Building economics	ARC 410	2	2	-	-							2
ARC 532	Computers in Architecture	ARC314	2	1	3	-							2
ARC 533	Modern Building Systems and Materials	ARC 434	2	2	-	-							2
Total			**10***	**5.6%**									**10***

Table 6: 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			
Humanitarian Courses								**18**	**10%**	**8-10%**
Mathematics and Basic Science Courses								**28**	**15.6%**	**15-20%**
Basic Engineering Courses								**60**	**33.3%**	**30-35%**
Applied Engineering Courses Including Projects & Training								**74**	**41.1%**	**35-40%**
Table 1a	14									
Table 1b	4									
Table 2		28								
Table 3		**8**	**37**		**13**	**2**				
Table4-a				39	5	16				
Table4-b							14			
Total Credit Hours	**18**	**36**	**37**	**39**	**18**	**18**	**14**	**180**		
Percentage	**10%**	**20%**	**20.5%**	**21.7%**	**10%**	**10%**	**7.8%**		**100%**	
NARS Engineering Requirements	**9-12%**	**20-26%**	**20-23%**	**20-22%**	**9-11%**	**8-10%**	**6-8%**			

Table 6 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 Freshman, First Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
CHE 100	Chemistry	3	2	1	2
GEN 141	Contemporary Social Issues	2	2	-	-
MNF 101	Engineering graphics	3	1	6	-
GEN 143	History of Engineering & Technology.	2	2	-	-
MEC 101	Mechanics – (1)	2	1	3	-
MTH 101	Mathematics – (1)	3	2	3	-
PHY 101	Physics (1)	3	2	1	2
Total		**18**	**12**	**14**	**4**

Table 8 Freshman, Second Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
MNF 100	Introduction to engineering materials	1	1	-	-
GEN 142	English language	2	2	-	-
MEC 102	Mechanics – (2)	2	1	3	-
MTH 102	Mathematics – (2)	3	2	3	-
PHY 102	Physics (2)	3	2	1	2
MNF 102	Principles of production Engineering	3	1	-	4
CMP 110	Program Design and Computer Languages.	4	2	3	2
Total		**18**	**11**	**10**	**8**

Table 9 Sophomore, Third Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 211	Architectural Construction 1	3	2	3	-
ARC 221	Architectural Design 1	3	1	6	-
ARC 213	Building Technology	2	2	-	-
ARC 214	Computer Applications 1	4	2	3	2
ARC 220	Theories of Architecture (1)	2	2	-	-
ARC 215	Properties & Resistance of Materials	2	1	3	-
ARC 223	Visual Training (1)	2	1	3	-
Total		**18**	**11**	**18**	2

Table10 Sophomore, Fourth Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 212	Architectural Construction 2	3	2	3	-
ARC 222	Architectural Design 2	3	1	6	-
ARC 241	History of Architecture (1)	2	2	-	-
MTH 208	Statistical Mathematics for Arch. Engineering (8)	2	1	3	-
ARC 216	Surveying	2	1	1	2
ARC 217	Theory of Structures	2	1	3	-
ARC 218	Sciagraphy and perspective	3	2	4	-
Total		**17**	**10**	**20**	**2**

Table 11 Junior, Fifth Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 311	Architectural Construction & Building materials 1	3	2	3	-
ARC 321	Architecture & Human Studies	2	2	-	-
ARC 322	Architectural Design 3	3	1	6	-
ARC 324	Design Methodology	2	2	-	-
ARC 314	Reinforced concrete & steel structures	3	2	3	-
ARC 327	Theories of Architecture (2)	2	2	-	-
ARC 326	History and Theories of planning	2	2	-	-
Total		**17**	**13**	**12**	-

Table 12 Junior, Sixth Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 312	Architectural Construction & Building materials 2	3	2	3	-
ARC 313	Computer Applications 2	4	2	3	2
ARC 323	Architectural Design 4	3	1	6	-
ARC 328	Visual Training (2)	2	1	3	-
ARC 341	History of Architecture (2)	2	2	-	-
ARC 310	Environmental Control	2	2	-	-
ARC 315	Foundation	2	2		
Total		**18**	**12**	**15**	2

Table 13 Junior, Summer Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 360	Architecture Training 1	3	-	-	6
Total		**3**	**-**	**-**	**6**

Table 14 Senior 1, Seventh Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 421	Architectural Design 5	3	1	6	-
ARC 423	Housing & City Planning 1	2	1	3	-
ARC 425	Theories of Architecture and Arts (3)	2	2	-	-
ARC 410	Technical Installations and Plumbing Engineering 1	2	1	3	-
ARC 412	Working Drawing & Construction Methods 1	3	2	3	-
ARC 43*	Elective course of Applied Engineering	2	2	-	-
ARC 45*	Elective course of Basic Humanitarian	2	2	-	-
Total		**16**	**11**	**15**	-

Table 15 Senior 1, Eighth Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 422	Architectural Design 6	3	1	6	-
ARC 424	Housing & City Planning 2	2	1	3	-
ARC 440	History of Architecture and Arts (3)	2	2	-	-
ARC 411	Technical Installations and Plumbing Engineering – B	2	1	3	-
ARC 413	Working Drawing & Construction Methods 2	3	2	3	-
ARC 43*	Elective course of Applied Engineering	2	2		
ARC 45*	Elective course of Basic Humanitarian	2	2	-	-
Total		**16**	**11**	**15**	**-**

Table 16 Senior1, summer Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 460	Architecture Training 2	3	-	-	6
Total		**3**	**-**	**-**	**6**

Table 17 Senior 2, Ninth Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 521	Architectural Design 7	3	1	6	-
ARC 522	City Planning	3	1	4	-
ARC 540	History and theories of Architecture (4)	2	2	-	-
ARC 511	Working Drawing & Construction Documents	4	2	6	-
ARC 53*	Elective course of Applied Engineering	2	2	-	-
ARC 53*	Elective course of Applied Engineering	2	2		
ARC 53*	Elective course of Applied Engineering	2	2		
Total		**18**	**12**	**16**	-

Table 18 Senior 2, tenth Semester

Code	Subject	Total Credits	L	Contact Hours	
				T	P
ARC 513	Quantities Computing & Contracting Methods	2	2	-	-
ARC 512	Building Regulations & Professional Practice	2	2	-	-
ARC 560	Project	6	4	8	-
ARC 523	Urban Design	4	2	4	-
ARC 53*	Elective course of Applied Engineering	2	2		
ARC 53*	Elective course of Applied Engineering	2	2		
Total		**18**	**14**	**12**	-

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 Comments 7

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

Page Intentionally Left Blank

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	CHE 100	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	GEN 141	Contemporary Social Issues	A9, A10	B4, B9, B12	C1,C5	D1, D3, D7, D9
3	MNF 100	Introduction to engineering materials	A2, A3, A4, A18	B1, B2, B5, B13,B15,B17	C1, C2, C19	D1, D3, D7, D9
4	GEN 143	History of Engineering & Technology	A1, A5, A8, A9, A11, A14	B1, B2, B6, B7	C1,C5	D1,D7, D8
5	MEC 101	Mechanics – (1)	A1, A2, A3, A4	B1, B2	C1, C2	D1, D2
6	MTH 101	Mathematics – (1)	A1, A2, A5	B1, B2, B3, B7	C1, C12	D3, D7
7	PHY 101	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	MNF 101	Engineering Graphics	A2, A4, A5, A8 ,A10	B3, B5 ,B7 ,B8,B9	C2, C3, C4 ,C11	D1, D3 ,D9
9	GEN 142	English language	A9, A10	B4	C11, C12	D1, D2, D3, D4, D6, D7, D8
10	MEC 102	Mechanics – (2)	A1, A2, A3, A4, A5	B1, B2, B5, B13,	C1,C2, C3	D1, D2
11	MTH 102	Mathematics – (2)	A1, A3, A5	B1, B2, B3, B4, B7, B11	C1, C12	D1, D3, D7
12	PHY 102	Physics (2)	A1, , A3, , A5	B2, B3, B4, B5,	C1, C5, C12	D5, D7
13	MNF 102	Principles of production Engineering	A1,A2,A4	B2,B3,B10,B18	C1,C3,C7	D1, D3 ,D7 ,D9
14	CMP 110	Program Design and Computer Languages	A1,A2,A4,A5,A8,A13,A15,A16,A18	B1,B2,B3,B4,B7,B13, B14, B17, B18 , B19,	C1,C2,C3,C4, C5,C6 , C13, C14, C15	D1, D2 ,D3, D4, D5, D7, D9
15	ARC 211	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	ARC 221	Architectural Design 1	A4,A13,A14,A22 ,A24	B2,B3,B13	C3,C4,C13,C17	D3,D7

	Course		Program Intended Learning Outcomes			
	Code	Title	Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
17	ARC 213	Building Technology	A1, A5, A24	B4, B5, B13,B17,B23,B25	C1, C2,C23 , C25	D1, D3, D4,D5,D6, D7
18	ARC 214	Computer Applications 1	A2, A4, A8, A14, A15,A21	B1, B2, B3, B13	C5, C12, C13, C14, C24	D1, D3, D6, D7
19	ARC 220	Theories of Architecture (1)	A1,A4,A11,A12,A14 ,A16 ,A18.A19, A23	B3,B9,B12,B20 ,	C1,C2,C13	D1,D2,D3,D7
20	ARC 215	Properties & Resistance of Materials	A1, A3, A4, A15	B3,B5,B6,B13,B17,B18	C2,C10,C15,C21,C22,C23	D1,D3,D5
21	ARC 223	Visual Training (1)	A13 , A20	B4,B13,B14	C13, C17 ,C18	D1,D3, D8
22	ARC 212	Architectural Construction 2	A3, A4, A24	B2,B5,B11, B12, B14 , B22	C2, C3, C12, C14, C23, C24,C25	D1, D2, D3, D6, D7,D8
23	ARC 222	Architectural Design 2	A4,A13,A14, A22, A24	B2, B3, B13	C3, C4,C13,C17	D3,D7
24	ARC 241	History of Architecture (1)	A17,A19	B4, B20,B21	C18,C21,C22	D1,D2,D3,D4
25	MTH 208	Statistical Mathematics for Arch. Engineering (8)	A1, A2, A5,A10	B1, B2, B3,B4 B7,B11	C1, C2,C7,C13	D3, D7
26	ARC 216	Surveying	A4, A8, A14, A24	B2, B9, B18, B22	C1, C6, C15,C16	D3, D5, D6
27	ARC 217	Theory of Structures	A1,A4,A5,A8,A14	B2,B3,B4,B5,B11, B13	C1,C2,C3,C7, C24	D6, D7
28	ARC 218	Sciagraphy and perspective	A4, A13, A20	B4,B14	C13, C18	D3, D8
29	ARC 311	Architectural Construction & Building materials 1	A14, A15, A20, A21, A23, A24,A25	B14, B15, B17 ,B22,B23,B25	C14, C15, C17, C22,C24 ,C23 , C25	D1, D2,D3, D6, D7, D8
30	ARC 321	Architecture & Human Studies	A4,A5,A17,A24	B3,B4,B19	C6,C12,C21,C22, C25	D1, D3, D5, D6
31	ARC 322	Architectural Design 3	A5, A13 ,A14,A17,A18, A21	B3, B4, B13, B14	C3, C6, C17	D3, D7
32	ARC 324	Design Methodology	A4, A5,A8, A9, A11	B5, B7, B20	C3, C4, C8, C18,C12,C15, C20	D3, D5, D6, D7
33	ARC 314	Reinforced concrete & steel structures	A4, A5,A6	B2, B3, B11,B24	C1, C3, C7, C24	D6, D7
34	ARC 327	Theories of Architecture (2)	A15,A17,A18,A19	B1,B2,B3,B4,B5,B6,B7,B8	C1,C2,C3	D1,D2,D3,D4, D5,D6,D7,D8, D9
35	ARC 326	History and Theories of planning	A16,A15,A17,A18	B2,B3,B18,B20,B21	C13,C21,C22	D1,D7,D8
36	ARC 312	Architectural Construction & Building materials 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	ARC 313	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
38	ARC 323	Architectural Design 4	A5, A13,A14,A17,A18, A21	B3, B4, B13, B14	C3, C6, C17	D3, D7
39	ARC 328	Visual Training (2)	A1, A19, A13	B13, B14, B16	C13, C14	D1, D2, D3, D6, D7
40	ARC 341	History of Architecture (2)	A12,A19	B7,B13,B14,B20, B21	C12,C13.C18	D2,D3,D4,D5, D9
41	ARC 310	Environmental Control	A5, A8, A12,A24	B2, B3, B13, B15, B17	C1, C2, C11, C17, C19,C25	D1, D2,D3, D4,D5,D6, D7, D8
42	ARC 315	Foundation	A3, A4 A5 A9, A15	B2, B5, B6, B22,	C2,C12, C13,	D6

	Course			Program Intended Learning Outcomes			
	Code		Title	Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
						C14	
43	ARC 360		Architecture Training 1	A10,A 14	B2,B16,B 18	C7, C 8	D1, D3, D8
44	ARC 421		Architectural Design 5	A4,A11,A13,A23	B3,B4,B13,B14,B 16,B17,B19,B20	C4. C13. C15 . C17. C18 . C19 . C20 . C21	D1,D3,D6,D7
45	ARC 423		Housing & City Planning 1	A11,A16,A17,A19	B10,B11	C6,C20	D2,D3,D5
46	ARC 425		Theories of Architecture and Arts (3)	A4,A13,A19,A21,A2 4	B3,B12,B14,B21	C13,C17,C18, C19	D3,D4,D5,D9
47	ARC 410		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
48	ARC 412		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
49	ARC 422		Architectural Design 6	A4,A11,A13,A14,A1 7,A23	B3,B4,B13,B14,B 16,B17,B19,B20	C4,C13,C15,C 17,C18,C19,C 20,C21	D1,D3,D6,D7
50	ARC 424		Housing & City Planning 2	A16,A17,A19, A22	B10,B11,B12,B13	C5,C6,C21	D2,D3,D5
51	ARC 440		History of Architecture& Arts 3	A18, A19	B4,B13,B 20,B21	C20, C21,C22	D1, D3, D4, D8
52	ARC 411		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, C23,,C25	D6
53	ARC 413		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
54	ARC 43*	Elective course of Applied Engineering	ARC 33	Construction & Building Equipment	A14 ,A15 ,A16,A24	B2,B3,B9,B20,B2 2,B23	C11.C12,C15, ,C23	D1,D3,D6, D7
			ARC 43	Building Economics	A2,A5. A6, A14,A15	B2, B9, B16, B22	C2,C9 C15,C23,C25	D3, D8
			ARC 430	Housing in Developing Countries	A9,A16,A22,A24	B2,B4,B12	C15,C16	D2,D6,D8,D9
			ARC 43	Urban Renewal	A7,A16	B10,B11,B20	C1,C8	D6,D7
			ARC 43	Design, Environmenta 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
			ARC 43	Building Technology & Structure System	A1,A3, A4,A8, A17, A24,A25	B4, B5, B13,B23,B22	C1, C2,C23,C25	D1, D3, D4, D5, D6, D7
			ARC 43	Modular Coordination	A1,A6,A8	B1,B2,B9	C1,C5,C10	D6
55	ARC 45*	Elective course of Basic Human.	ARC 45	Project Manag.	A3, A6,A7, A25	B3, B17	C2, C3,C9	D6, D9
			ARC 45	Architecture, Civilization & Heritage	A5, A9, A11, A17	B18,B19, B21	C19, C21,C22	D3, D6, D9
			ARC 45	Advanced Studies in Interior Design	A12,A13,A20,A21	B1, B2, B5, B9, B13, B14, B15,B22	C1, C2, C3,C 4, C10, C16, C17	D1, D2, D3, D5, D6
56	ARC 460		Architecture Training 2	A10,A 20	B1,B2,B 18	C5, C 12	D1, D3, D8
57	ARC 521		Architectural Design 7	A13, A14,A20,A21	B4, B14, B16, B20,B21	C4, C13, C18, C19,C22	D2, D3, D7, D9
58	ARC 522		City Planning	A11, A16, A17, A19	B10, B11,B14, B19	C6, C20	D1,D2, D3, D5
59	ARC 540		History and theories of Architecture (4)	A1, A3, A4, A7, A8, A19, A11, A17,A24	B4, B5, B14, B19	C1, C2, C4, C12	D1, D2, D3, D4, D5, D7
60	ARC 511		Working Drawing & Construction Documents	A3, A5, A6, A11, A12, A15, A20, A21,	B9, B12, B13, B14, B15, B16,	C1, C2, C10, C12, C14,	D1, D2, D3, D6, D7, D8

	Course			Program Intended Learning Outcomes			
	Code		Title	Knowledge and understanding	Intellectual skills	Professional and practical skills	General and transferable skills
				A23,A24	B20,B22,B23,B24, B25	C15,C23,C24, C25,	
61	ARC 513		Quantities Computing & Contracting Methods	A3, A5, A6, A8, A14,,A24,A25	B3,,B9,, B17,B19,B22,B23, B24	C3, C6, C8, C11, C15,C23,	D1, D2, D7
62	ARC 512		Building Regulations & Professional Practice	A7, A16, A25	B12, B20,B25	C1, C8	D6, D7
63	ARC 560		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
64	ARC 523		Urban Design	A9, A16,A19	B10, B20	C13,C18,C19, C22,	D1, D5
65	ARC 53*	Elec. course of Appli. Eng.	ARC 530 Urban & Envir. Conservation	A1, A11, A16,A17,A18,A19,A 21	B18,B19, B21,	C17, C21,C22	D1, D5,D7
			ARC 531 Advanced Building Economics	A4,A6, A14,A24,A25	B16, B22,B23	C2,C9, C16	D3, D8
			ARC 532 Computer in Architecture	A13, A19, A20	B1, B4, B13,B19	C5, C12, C13, C14	D1, D3, D6, D7
			ARC 533 Modern Building System &Materials	A8, A12, A14,A24,A25	B5, B17,B23	C8, C9, C14,C25	D6
66	ARC 55*	Elect.crse .of Basic Human.	ARC 551 Aesthetics & Formation	A13,A14,A16,A19	B4,B5,B13,B18	C3 ,C13	D1, D2, D3, D7, D8
			ARC 552 Architecture Criticism	A9, A11,A16, A17	B18,B19, B20, B21	C18, C20,C21,C22	D3, D6, D9

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	CHE 100	Chemistry	1		1	1	1	1		1			1	1													
2	GEN 141	Contemporary Social Iss.									1	1															
3	MNF 100	Introduction to engineering materials		1	1	1														1							
4	GEN 143	History of Engineering & Technology	1				1			1	1		1			1											
5	MEC 101	Mechanics – (1)	1	1	1	1																					
6	MTH 101	Mathematics – (1)	1	1			1																				
7	PHY 101	Physics (1)	1	1	1	1									1												
8	MNF 101	Engineering Graphics		1		1	1			1		1															
9	GEN 142	English language									1	1															
10	MEC 102	Mechanics – (2)	1	1	1	1	1																				
11	MTH 102	Mathematics – (2)	1		1		1																				
12	PHY 102	Physics (2)	1		1		1																				
13	MNF 102	Principles of Prod. Eng.	1	1		1																					
14	CMP 110	Program Dgn.& Comp.Lan.		1	1		1	1			1					1		1	1		1						
15	ARC 211	Architectural Construction 1				1																				1	
16	ARC 221	Architectural Design 1				1									1	1								1		1	
17	ARC 213	Building Technology	1				1																			1	
18	ARC 214	Computer Applications 1		1		1				1						1	1						1				
19	ARC 220	Theories of Architecture (1)	1			1							1	1		1		1		1	1				1		
20	ARC 215	Prop.& Resistance of Mat.	1		1	1											1										
21	ARC 223	Visual Training (1)													1							1					
22	ARC 212	Architectural Construction 2			1	1																				1	
23	ARC 222	Architectural Design 2				1									1	1								1		1	
24	ARC 241	History of Architecture (1)																	1		1						
25	MTH 208	Statistical Math. for Arch. (8)	1	1			1					1															
26	ARC 216	Surveying				1				1						1										1	
27	ARC 217	Theory of Structures	1			1	1			1						1											
28	ARC 218	Sciagraphy and perspective				1									1							1					
29	ARC 311	Arch. Const.&Build. Mat. 1														1	1					1	1		1	1	1
30	ARC 321	Arch.& Human Studies				1	1												1							1	
31	ARC 322	Architectural Design 3					1								1	1			1	1			1				
32	ARC 324	Design Methodology				1	1			1	1		1														
33	ARC 314	Reinf.concrete& steel struc.				1	1	1																			
34	ARC 327	Theories of Architecture (2)															1		1	1	1						
35	ARC 326	History &Ths. of planning															1	1	1	1							
36	ARC 312	Arch.Const.& Build..mat. 2														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
37	ARC 313	Computer Applications 2	1			1									1	1						1					
38	ARC 323	Architectural Design 4					1								1	1			1	1			1				
39	ARC 328	Visual Training (2)	1												1						1						
40	ARC 341	History of Architecture (2)												1							1						
41	ARC 310	Environmental Control					1			1				1												1	
42	ARC 315	Foundation			1	1	1				1						1										
43	ARC 360	Architecture Training 1										1				1											
44	ARC 421	Architectural Design 5				1							1		1										1		
45	ARC 423	Housing & City Planning 1											1					1	1		1						
46	ARC 425	Theories of Archit.& Arts 3				1									1						1		1			1	
47	ARC 410	Tech. Install.& Plumb.Eng.1	1			1	1	1					1	1		1										1	
48	ARC 412	Work. Dr.& Const. Meth.1 1				1				1					1	1	1						1			1	
49	ARC 422	Architectural Design 6				1							1		1	1			1						1		
50	ARC 424	Housing & City Planning 2																1	1		1			1			
51	ARC 440	History of Arch.& Arts (3)																		1	1						
52	ARC 411	Tech. Install.&Plumb. Eng.2	1			1	1	1					1	1		1										1	
53	ARC 413	Working Drawing &Construction Methods 2				1				1					1	1	1						1			1	
54	ARC 43* Elective course of Applied Engineering	ARC330 Constr. & Bld. Equip.														1	1	1								1	
		ARC430 Building Economics		1			1	1								1	1										
		ARC430 Housing in Developing Countries									1							1						1		1	
		ARC431 Urban Renewal							1										1								
		ARC432 Design, Envir.l Planning & Power											1							1			1			1	
		ARC433 Building Tech. &Structure System	1		1	1				1									1						1	1
		ARC434 Modular Coordination	1					1		1																	
55	ARC 45* Elective course of Basic Humanitarian	ARC450 Project Management for Construction Project	1	1			1	1																		1	
		ARC451 Architecture, Civilization and Heritage				1				1		1						1									
		ARC452 Advanced Studies in Interior											1	1							1	1					
56	ARC 460	Architecture Training 2																									
57	ARC 521	Architectural Design 7										1										1					
58	ARC 522	City Planning													1	1						1	1				
59	ARC 540	History and theories of Architecture (4)											1					1	1		1						
60	ARC 511	Working Drawing & Construction Documents	1		1	1			1	1			1						1		1					1	
61	ARC 513	Quantities Computing & Contracting Methods			1		1	1					1	1			1					1	1		1	1	
62	ARC 512	Building Regulations & Professiona Practice			1		1	1		1						1										1	1
63	ARC 560	Project							1									1									1
64	ARC 523	Urban Design				1	1			1	1	1	1	1	1				1								
65	ARC 53*	ARC530 Urban & Envir. Conservation	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
Elective course of Applied Engineering	ARC531	Advanced Building Economics				1		1								1										1	1
	ARC532	Computer in Architecture													1						1	1					
66	ARC533	Modern Bld. System & Materials						1				1		1										1	1	1	1
ARC 55*	ARC551	Aesthetics & Formation											1	1		1			1								
Elective course	ARC552	Architecture Criticism									1		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	CHE 100	Chemistry	1	1	1	1		1		1		1		1													
2	GEN 141	Contemporary Social Iss.				1					1			1													
3	MNF 100	Introduction to eng. materials	1	1			1								1		1		1								
4	GEN 143	History of Engineering & Technology	1	1				1	1																		
5	MEC 101	Mechanics – (1)	1	1																							
6	MTH 101	Mathematics – (1)	1	1	1				1																		
7	PHY 101	Physics (1)	1	1	1				1						1				1			1					
8	MNF 101	Engineering Graphics			1		1		1	1	1																
9	GEN 142	English language				1																					
10	MEC 102	Mechanics – (2)	1	1			1								1												
11	MTH 102	Mathematics – (2)	1	1	1	1			1				1														
12	PHY 102	Physics (2)		1	1	1	1																				
13	MNF 102	Principles of Prod. Eng.		1	1							1								1							
14	CMP 110	Program Dgn.& Comp.Lan.	1	1	1	1			1						1	1			1	1	1						
15	ARC 211	Architectural Construction 1		1			1						1	1		1								1			1
16	ARC 221	Architectural Design 1		1	1										1												
17	ARC 213	Building Technology				1	1								1				1						1		1
18	ARC 214	Computer Applications 1	1	1	1										1												
19	ARC 220	Theories of Architecture (1)			1						1			1								1					
20	ARC 215	Prop.& Resistance of Mat.			1		1	1							1				1	1							
21	ARC 223	Visual Training (1)				1									1	1											
22	ARC 212	Architectural Construction 2		1			1						1	1		1								1			1
23	ARC 222	Architectural Design 2		1	1										1												
24	ARC 241	History of Architecture (1)				1																1	1				
25	MTH 208	Statistical Math. for Arch. (8)	1	1	1	1			1				1														
26	ARC 216	Surveying		1							1									1				1			
27	ARC 217	Theory of Structures		1	1	1	1						1		1												
28	ARC 218	Sciagraphy and perspective				1										1											
29	ARC 311	Arch. Const.&Build. Mat. 1														1	1		1					1	1		1
30	ARC 321	Arch.& Human Studies			1	1															1						
31	ARC 322	Architectural Design 3			1	1									1	1											
32	ARC 324	Design Methodology					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
33	ARC 314		Reinf.concrete& steel struc.			1	1								1												1	
34	ARC 327		Theories of Architecture (2)		1	1	1	1	1	1	1	1																
35	ARC 326		History &Ths. of planning			1	1															1		1	1				
36	ARC 312		Arch.Const.& Build..mat. 2														1	1	1		1					1			1
37	ARC 313		Computer Applications 2		1			1					1				1	1	1						1				
38	ARC 323		Architectural Design 4				1	1									1	1											
39	ARC 328		Visual Training (2)														1	1		1									
40	ARC 341		History of Architecture (2)								1						1	1						1	1				
41	ARC 310		Environmental Control			1	1										1		1		1								
42	ARC 315		Foundation			1			1	1																1			
43	ARC 360		Architecture Training 1			1														1		1							
44	ARC 421		Architectural Design 5				1	1									1	1		1	1		1	1					
45	ARC 423		Housing & City Planning 1											1	1														
46	ARC 425		Theories of Archit.& Arts 3				1									1		1							1				
47	ARC 410		Tech. Install.& Plumb.Eng.1			1	1	1	1		1				1												1		
48	ARC 412		Work. Dr.& Const. Meth.1 1				1	1													1				1		1	1	
49	ARC 422		Architectural Design 6				1	1									1	1		1	1		1	1					
50	ARC 424		Housing & City Planning 2											1	1	1	1												
51	ARC 440		History of Arch.& Arts (3)					1									1							1	1				
52	ARC 411		Tech. Install.&Plumb. Eng.2			1	1	1	1		1				1												1		
53	ARC 413		Working Drawing &Construction Methods 2				1	1													1					1		1	1
54	ARC 43*	Elective course of Applied Engineering	ARC330	Constr. & Bld. Equip.		1	1						1											1		1	1		
			ARC430	Building Economics		1							1							1						1			
			ARC430**	Housing in Developing Countries		1		1								1													
			ARC431	Urban Renewal										1	1									1					
			ARC432	Design, Envir.l Planning & Power		1	1										1		1		1					1		1	
			ARC433	Building Tech. &Structure System				1	1								1									1	1		
			ARC434	Modular Coordination	1	1							1																
55	ARC 45*	Elective course o Basic Humanitarian	ARC450	Project Management for Construction Project			1														1								
			ARC451	Architecture, Civilization and Heritage																		1	1		1				
			ARC452	Advanced Studies in Interior Design	1	1			1				1				1	1	1							1			
56	ARC 460		Architecture Training 2																										
57	ARC 521		Architectural Design 7		1	1																1							
58	ARC 522		City Planning					1										1		1				1	1				
59	ARC 540		History and theories of Architecture (4)											1	1			1					1						
60	ARC 511		Working Drawing & Construction Documents					1	1									1					1						
61	ARC 513		Quantities Computing & Contracting Methods										1			1	1	1	1	1				1		1	1	1	1
62	ARC 512		Building Regulations & Professional Practice				1						1								1		1			1	1	1	
63	ARC 560		Project													1								1					1
64	ARC 523		Urban Design			1	1	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
65	ARC 53*	Elective course of Applied Engineering	ARC530	Urban & Envir. Conservation																		1	1		1				
			ARC531	Advanced Building Economics																1						1	1		
			ARC532	Computer in Architecture	1			1									1						1						
			ARC533	Modern Bld. System & Materials					1												1						1		
66	ARC 55*	Elective course of Basic Humanitarian	ARC551	Aesthetics & Formation				1	1								1					1							
			ARC552	Architecture Criticism																		1	1	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	CHE 100	Chemistry	1	1	1		1			1				1													
2	GEN 141	Contemporary Social Iss.	1				1																				
3	MNF 100	Introduction to engineering materials	1	1																	1						
4	GEN 143	History of Engineering & Technology	1				1																				
5	MEC 101	Mechanics – (1)	1	1																							
6	MTH 101	Mathematics – (1)	1											1													
7	PHY 101	Physics (1)	1					1						1				1	1								
8	MNF 101	Engineering Graphics		1	1	1							1														
9	GEN 142	English language											1	1													
10	MEC 102	Mechanics – (2)	1		1		1																				
11	MTH 102	Mathematics – (2)	1											1													
12	PHY 102	Physics (2)	1				1							1													
13	MNF 102	Principles of Prod. Eng.	1		1				1																		
14	CMP 110	Program Dgn.& Comp.Lan.		1	1	1	1	1	1							1	1	1									
15	ARC 211	Architectural Construction 1		1	1									1		1									1	1	1
16	ARC 221	Architectural Design 1			1	1									1				1								
17	ARC 213	Building Technology	1	1																					1		1
18	ARC 214	Computer Applications 1					1							1	1	1										1	
19	ARC 220	Theories of Architecture (1)	1	1											1												
20	ARC 215	Prop.& Resistance of Mat.		1								1					1							1	1	1	
21	ARC 223	Visual Training (1)													1				1	1							
22	ARC 212	Architectural Construction 2		1	1									1		1									1	1	1
23	ARC 222	Architectural Design 2			1	1									1				1								
24	ARC 241	History of Architecture (1)																		1			1	1			
25	MTH 208	Statistical Math. for Arch. (8)	1					1									1	1									
26	ARC 216	Surveying	1	1	1				1																	1	
27	ARC 217	Theory of Structures													1					1							

	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
28	ARC 218	Sciagraphy and perspective														1	1		1					1	1	1	1
29	ARC 311	Arch. Const.&Build. Mat. 1						1						1									1	1			1
30	ARC 321	Arch.& Human Studies			1			1											1								
31	ARC 322	Architectural Design 3			1	1			1					1			1					1					
32	ARC 324	Design Methodology	1		1				1																	1	
33	ARC 314	Reinf.concrete& steel struc.	1	1	1																						
34	ARC 327	Theories of Architecture (2)													1								1	1			
35	ARC 326	History &Ths. of planning	1					1									1	1									
36	ARC 312	Arch.Const.& Build..mat. 2														1	1			1						1	1
37	ARC 313	Computer Applications 2														1	1		1				1				
38	ARC 323	Architectural Design 4			1			1											1								
39	ARC 328	Visual Training (2)													1	1											
40	ARC 341	History of Architecture (2)												1	1					1							
41	ARC 310	Environmental Control	1	1									1						1		1						1
42	ARC 315	Foundation		1										1	1	1											
43	ARC 360	Architecture Training 1							1	1																	
44	ARC 421	Architectural Design 5				1									1		1		1	1	1	1	1				
45	ARC 423	Housing & City Planning 1						1														1					
46	ARC 425	Theories of Archit.& Arts 3													1				1	1	1						
47	ARC 410	Tech. Install.& Plumb.Eng.1	1											1			1				1			1	1		1
48	ARC 412	Work. Dr.& Const. Meth.1 1				1						1				1	1			1				1	1	1	
49	ARC 422	Architectural Design 6				1									1		1		1	1	1	1	1				
50	ARC 424	Housing & City Planning 2					1	1															1				
51	ARC 440	History of Arch.& Arts (3)																				1	1	1			
52	ARC 411	Tech. Install.&Plumb. Eng.2	1											1			1				1			1	1		1
53	ARC 413	Working Drawing &Construction Methods 2				1						1				1	1			1					1		
544	ARC 43* Elective course of Applied Engineering	ARC330 Constr. & Bld. Equip.											1	1			1								1		
		ARC430 Building Economics		1							1						1										1
		ARC430** Housing in Developing Countries															1	1									
		ARC431 Urban Renewal	1							1																	
		ARC432 Design, Envir.l Planning & Power	1	1										1					1		1						1
		ARC433 Building Tech. &Structure System	1	1																					1		1
		ARC434 Modular Coordination	1				1					1															
55	ARC 45* Elective course of Basic Humanitarian	ARC450 Project Management for Construction Project		1	1						1																
		ARC451 Architecture, Civilization and Heritage																			1		1	1			
		ARC452 Advanced Studies in Interior Design	1	1	1	1						1						1	1								
56	ARC 460	Architecture Training 2					1							1													
57	ARC 521	Architectural Design 7				1									1					1	1			1			

	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
58	ARC 522		City Planning							1														1					
59	ARC 540		History and theories of Architecture (4)		1	1		1								1												
60	ARC 511		Working Drawing & Construction Documents		1	1								1		1		1	1							1	1	1
61	ARC 513		Quantities Computing & Contracting Methods				1			1		1			1				1							1		
62	ARC 512		Building Regulations & Professional Practice		1							1																
63	ARC 560		Project		1	1	1	1								1	1											
64	ARC 523		Urban Design														1					1	1				1		
65	ARC 53*	Elective course of Applied Engineering	ARC530	Urban & Envir. Conservation																1				1	1			
			ARC531	Advanced Building Economics		1							1							1									
			ARC532	Computer in Architecture					1							1	1	1											
			ARC533	Modern Bld. System & Materials								1	1					1											1
66	ARC 55*	Elective course of Basic Humanitarian	ARC551	Aesthetics & Formation			1										1												
			ARC552	Architecture Criticism																		1		1	1	1			

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	CHE 100	Chemistry	1	1	1	1	1		1		
2	GEN 141	Contemporary Social Issues	1		1				1		1
3	MNF 100	Introduction to engineering materials	1		1				1		1
4	GEN 143	History of Engineering & Technology	1		1				1		1
5	MEC 101	Mechanics – (1)	1	1							
6	MTH 101	Mathematics – (1)			1				1		
7	PHY 101	Physics (1)	1	1	1	1	1	1	1	1	1
8	MNF 101	Engineering Graphics	1		1						1
9	GEN 142	English language	1	1	1	1		1	1	1	
10	MEC 102	Mechanics – (2)	1	1							
11	MTH 102	Mathematics – (2)	1		1				1		
12	PHY 102	Physics (2)					1		1		
13	MNF 102	Principles of production Engineering	1		1				1		1
14	CMP 110	Program Design and Computer Languages	1	1	1	1	1		1		1
15	ARC 211	Architectural Construction 1	1	1	1			1	1	1	
16	ARC 221	Architectural Design 1			1				1		
17	ARC 213	Building Technology	1		1	1	1	1	1		
18	ARC 214	Computer Applications 1	1		1			1	1		
19	ARC 220	Theories of Architecture (1)	1	1	1				1		

	Code	Subject			General and transferable skills (D)								
					01	02	03	04	05	06	07	08	09
20	ARC 215	Properties & Resistance of Materials			1		1		1				
21	ARC 223	Visual Training (1)			1		1					1	
22	ARC 212	Architectural Construction 2			1	1	1			1	1	1	
23	ARC 222	Architectural Design 2					1				1		
24	ARC 241	History of Architecture (1)			1	1	1	1					
25	MTH 208	Statistical Mathematics for Arch. Engineering (8)					1				1		
26	ARC 216	Surveying					1		1	1			
27	ARC 217	Theory of Structures								1	1		
28	ARC 218	Sciagraphy and perspective					1					1	
29	ARC 311	Architectural Construction & Building materials 1			1	1	1			1	1	1	
30	ARC 321	Architecture & Human Studies			1		1		1	1			
31	ARC 322	Architectural Design 3					1				1		
32	ARC 324	Design Methodology					1		1	1	1		
33	ARC 314	Reinforced concrete & steel structures								1	1		
34	ARC 327	Theories of Architecture (2)			1	1	1	1	1	1	1	1	1
35	ARC 326	History and Theories of planning			1						1	1	
36	ARC 312	Architectural Construction & Building materials 2			1	1	1			1	1	1	
37	ARC 313	Computer Applications 2			1	1	1		1	1	1	1	
38	ARC 323	Architectural Design 4					1				1		
39	ARC 328	Visual Training (2)			1	1	1			1	1		
40	ARC 341	History of Architecture (2)				1	1	1	1				1
41	ARC 310	Environmental Control			1	1	1	1	1	1	1	1	
42	ARC 315	Foundation								1			
43	ARC 360	Architecture Training 1			1		1					1	
44	ARC 421	Architectural Design 5			1		1			1	1		
45	ARC 423	Housing & City Planning 1				1	1		1				
46	ARC 425	Theories of Architecture and Arts (3)					1	1	1				1
47	ARC 410	Technical Installations and Plumbing Engineering 1								1			
48	ARC 412	Working Drawing & Construction Methods 1											
49	ARC 422	Architectural Design 6				1	1			1	1		
50	ARC 424	Housing & City Planning 2			1		1			1	1		
51	ARC 440	History of Architecture and Arts (3)				1	1		1				
52	ARC 411	Technical Installations and Plumbing Engineering 2			1		1	1				1	
53	ARC 413	Working Drawing & Construction Methods 2								1			
54	ARC 43*	Elective course of Applied Engineerin	ARC330	Construction & Building Equipment	1		1			1	1		
			ARC430	Building Economics			1					1	
			ARC 430**	Housing in Developing Countries		1				1		1	1
			ARC431	Urban Renewal						1	1		
			ARC432	Design, Environmental Planning Power	1	1	1	1	1	1	1	1	
			ARC433	Building Technology and Structure System	1		1	1	1	1	1		
			ARC434	Modular Coordination						1			
55	ARC 45*	Elective course of Basic Humanitarian	ARC450	Project Management for Construction Project						1			1
			ARC451	Architecture, Civilization and Heritage			1			1			1
			ARC452	Advanced Studies in Interior Design	1	1	1		1	1			
56	ARC 460	Architecture Training 2			1		1					1	

	Code	Subject			General and transferable skills (D)								
					01	02	03	04	05	06	07	08	09
57	ARC 521	Architectural Design 7				1	1				1		1
58	ARC 522	City Planning			1	1	1		1				
59	ARC 540	History and theories of Architecture (4)			1	1	1	1	1		1		
60	ARC 511	Working Drawing & Construction Documents			1	1	1			1	1	1	
61	ARC 513	Quantities Computing & Contracting Methods			1	1					1		
62	ARC 512	Building Regulations & Professional Practice								1	1		
63	ARC 560	Project				1	1	1		1	1	1	
64	ARC 523	Urban Design			1				1				
65	ARC 53*	Elective course of Applied Engineering	ARC530	Urban & Environmental Construction	1				1		1		
			ARC531	Advanced Building Economics			1					1	
			ARC532	Computer in Architecture	1		1			1	1		
			ARC533	Modern Building System & Materials						1			
66	ARC 55*	Elective course of Basic Humanitarian	ARC551	Aesthetics & Formation	1	1	1				1	1	
			ARC552	Architecture Criticism			1			1			1

Appendix 2

Courses Specifications

Page Intentionally Left Blank

FRESHMAN

Basic Science

Level 1

Course Specifications

Credit Hours System

Page Intentionally Left Blank

FRESHMAN
Basic Science
Level 1

S	Course	
	Code	**Title**
1	CHE 100	Chemistry
2	GEN 141	Contemporary Social Issues
3	MNF 100	Introduction to engineering materials
4	GEN 143	History of Engineering & Technology.
5	MEC 101	Mechanics – (1)
6	MTH 101	Mathematics – (1)
7	PHY 101	Physics (1)
8	MNF 101	Engineering graphics
9	GEN 142	English language
10	MEC 102	Mechanics – (2)
11	MTH 102	Mathematics – (2)
12	PHY 102	Physics (2)
13	MNF 102	Principles of production Engineering
14	CMP 110	Program Design and Computer Languages.

Page Intentionally Left Blan

Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

CHE 100: 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:** CHE 100 **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

GEN 141: 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:** GEN 141 **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

MNF100: 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:** MNF100 **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	Theory & Experim	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

GEN 143: 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:** GEN 143 **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 يستحدم 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

MEC 101: 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 Scienc Department
Date of specifications approval: September, 2015

B - Basic information

Title: Mechanics-1 **Code:** MEC 101 **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:

Asesement 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

MTH 101: 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: MTH101	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:

Asesement 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

PHY 101 : 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: PHY101** **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			
ell ect	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.

.

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

MNF101: 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:** MNF101 **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
GEN 142: 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:** GEN142 **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

MEC 102: 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:** MEC 102 **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 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	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:

Asesement 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

MTH 102: 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 the course: Basic Science Department
Date of specifications approval: September, 2015

B - Basic information

Title: Mathematics - 2 **Code:** MTH102 **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:

Asesement 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

PHY 102: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 Scienc Department
Date of specifications approval: September, 2015

B - Basic information

Title: Physics 2 **Code:** PHY102 **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:

Asesement 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

MNF102: 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:** MNF 102 **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

CMP 110: 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: CMP110
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 2

Course Specifications

Credit Hours System

Page Intentionally Left Blank

SOPHOMORE

First year Architecture

Level 2

S	Course	
	Code	**Title**
1	ARC 211	Architectural Construction 1
2	ARC 221	Architectural Design 1
3	ARC 213	Building Technology
4	ARC 214	Computer Applications 1
5	ARC 220	Theories of Architecture (1)
6	ARC 215	Properties & Resistance of Materials
7	ARC 223	Visual Training (1)
8	ARC 212	Architectural Construction 2
9	ARC 222	Architectural Design 2
10	ARC 241	History of Architecture (1)
11	MTH 208	Statistical Mathematics for Arch. Engineering (8)
12	ARC 216	Surveying
13	ARC 217	Theory of Structures
14	ARC 218	Sciagraphy and perspective

Page Intentionally Left Blank

Modern Academy for Engineering and Technology

Course Specification

ARC 211:Architectural Construction 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: September , 2015

B - Basic information

Title: Architectural Construction 1 **Code:** ARC 211 **Level:** Sophomore -Level 2 - 3rd Semester

Credit Hours: 3 **Lectures:** 2 **Tutorial/Exercise:** 3 **Practical:**
Pre-requisite: None

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is studying the construction processes and the main building construction elements, systems, and materials starting from the foundation till reaching the roof, and recognizing the details of the main elements in the building.

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 details of small projects (A4)
a3 - Modern and traditional construction methods, capabilities and limitations (A24). (A27)
a4 - Materials properties and uses in different building contexts. (A3)
a5 - Construction processes, activities, and management. (A24)

B - Intellectual skills:

By the end 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:

By the end 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

By the end 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. (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).	2	3	
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. Revison Steel floors: Sections and details.	2	3	
15. Revison	2	3	
Total hours	**30**	**45**	

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	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:

Asesement Method	Timing	Grade (Degrees)
Research, Drawing Sheets	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
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:

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:.Anaheed Waked
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 221 Architectural Design 1

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 Dpt.
Date of specifications approval: September , 2015

B - Basic information

Title: Architectural Design 1 **Code:** ARC 221 **Level:** Sophomore -Level 2 - 3rd Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:** 6 **Practical:** -
Pre-requisite: -

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to acquire the basics of Design process and . Develop design skills.

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:

By the end 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:

By the end 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:

By the end 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	A4,A13,A14,A22 ,A24
B	Intellectual skills	B2,B3,B13
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
1. First Project : Dream House :Analysis of program elements	1	6	
2. Research on residential buildings	1	6	
3. Zoning (bubble diagram – matrix of function)	1	6	
4. 3d modeling (masses + site)	1	6	
5. Concept development till final approval	1	6	
6. Drawing layout by using glass box +4 elevations	1	6	
7. Mid-Term Exam	1	6	
8. Drawing final layout (to scale)	1	6	
9. Drawing Ground floor plan	1	6	
10. Final plans	1	6	
11. Final elevations	1	6	
12. Drawing 2 sections	1	6	
13. Final sections	1	6	
14. Drawing final skis (pre-complete project)	1	6	
15. Representing final project & Jury	1	6	
Total hours	15	90	

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			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					
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										
	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:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes

6-2 Essential books (text books)

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

6-3 Recommended books: 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:

- White boards, Data show , Drawing halls

Course coordinator: Associate Professor:.Ibrahim Gouda
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC213: BUILDING TECHNOLOGY

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: September , 2015

B - Basic information

Title: Building Technology **Code:** ARC213 **Level:** Sophomore -Level 2 - 3rd Semester

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

Pre-requisite: None

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the meaning, fundamentals of technology, its development &the impact of that on building technology (Equipment ,materials, construction systems).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)
a2- development of building technology through ages until modern age. (A1).
a3- construction Equipments (their names ,functions & specifications. (A24)
a4- classefication of construction materials& systems. (A24)
a5- the effect of science development on building technology. (A25), (A24).
a6- prefabricated buildings (historic view ,concepts disciplines). (A1), (A24), (A24)
a7- structural units & connection in prefabricated building. (A24)
a8- the expected future of construction in Egypt (problems, potentials…). (A1),(A5)

B - Intellectual skills:

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

b1-show the differences &compare between construction Equipments(B4)
b2- Recognize the differences between construction systems and its execution methods (B4), (B25) (B23)
b3- Discover &analyze the advantages and disadvantages of construction systems and materials. (B5)
b4- compare between structural units in prefabricated building. (B4)
b5 - compare between different construction systems (traditional, new &prefab). (B13),(B17)

C- Professional and practical skills:

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

c1- manage 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), (C23)

c3- merge between construction systems to reach better solutions for constructions problems (C2), (C23) , (C23)

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 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, A5, A24 ,
B	Intellectual skills	B4, B5, B13,B17,B23 ,B25
C	Professional and practical skills	C1, C2,C23 , C25
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- Construction Equipment (classifications & types).	2		
3- Construction Equipments(site,transportation&concrete equipments)	2		
4- Construction methods (traditional methods)	2		
5- Construction methods (new construction methods)1	2		
6- Construction methods (new construction methods)2			
7- Mid-Term Exam	2		
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	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	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	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	1	1			
	a5	1	1	1		1		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		1	1				
	a8	1		1		1			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		1	1	1			
	b3	1	1	1		1					1	1				1		1					
	b4	1	1					1			1	1				1		1	1				
	b5	1	1	1		1			1				1	1	1	1		1	1				
Applied Professional Skills	c1	1	1	1					1			1	1	1	1	1		1	1				
	c2	1	1	1					1			1	1	1	1	1		1	1				
	c3	1	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							1				
	d4			1		1					1	1		1		1		1	1				
	d5		1	1		1					1	1	1	1	1	1		1	1				

5- Assessment Timing and Grading:

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

6- List of references:

6-1 Course notes:

- Zakaria Ahmed, Dr. Asamer, "Building Technology"(Arabic), 2008

6-2 **Required books :**Non

6-3 Recommended 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)

6-4 Periodicals, Web sites, etc.:

- http://www.archdaily.com
- http://www.slipform-steelformer.com/SystemService.htm

7- Facilities required for teaching and learning:

- White board
- overhead projector / Data Show
- Audio Video facilities: Video, T.V, P.C.

Course coordinator: Dr. Asamer Zakaria
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 214 Computer Applications 1

A- Affiliation

Relevant program: Architecture Engineering and Building Technology

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: September , 2015

B - Basic information

Title: *Computer Applications 1* **Code:** ARC 214 **Level:** Sophomore -Level 2 - 3rd Semester
Credit Hours: 4 **Lectures:** 2 **Tutorial/Exercise:** 3 **Practical:** 2
Pre-requisite: CMP 110

C - Professional information

1 – Course Learning Objectives:

The course familiarizes students with computer applications in architecture. It introduces to them one of the computer applications in architecture, which is Computer Aided Design and Drafting [CAD] techniques, while focusing mainly on the 2D dimension drawing and presentation.

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 - 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:

By the end 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:

By the end of the course the student should practice:
C1 - Introducing professional 2D drawings (C5)
C2- Basic techniques of computer presentation using different tools(C13)
C3 - Mastering the use of computer in the design process in the architectural projects (C5)
C4 - Mastering execution design and full working drawings for architectural projects (C14, C24)

D General and transferable skills:

By the end of the course the student should be able to:
d1 - Interacte 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	2	3	2
2. Drawing & Modifying Commands	2	3	2
3. Drawing & Modifying Commands	2	3	2
4. Layers Management	2	3	2
5. Advanced Layers Management	2	3	2
6. Revision	2	3	2
7. Mid Term Exam	-	-	-
8. Hatch Techniques & Blocks	2	3	2
9. Dimensions, Text & Project Introduction	2	3	2
10. Photo editing / Xref / Attributes / Design Centre / Tool Palettes	2	3	2
11. Plotting & Paper Space	2	3	2
12. Advanced Commands & Project Correction	2	3	2
13. Revision & Makeup classes	2	3	2
14. Project submission	-		-
Practical Exam	-		-
Total hours	**24**	**24**	**24**

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
	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	Weekly	20
Project & Oral Exam	10-th Week till 13-th Week	10
Mid-Term Exam	7-th Week	10
Practical Exam	15-th Week	20
Written Exam	16-th week	40
Total		100

6- List of references:

6-1 Course notes: Computer Applications (1)

6-2 Required books

- Hamad, M. M., (2010), "AutoCAD 2010 Essentials", Published by Jones and Bartlett Publishers, LLC, United Kingdom.
- AutoCAD 2010 Help Manual.

6-3 Recommended books:

- 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 or Lecture Hall with Datashow
- Computer Laboratories and CAD software program

Course coordinator: Dr. Reham Mostafa
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 220 Theories of Architecture - (1)

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architectural Engineering and Building Technology Dpt.
Department offering the course: Architectural Engineering and Building Technology Dpt.
Date of specifications approval: September , 2015

B - Basic information

Title: Theories of Architecture - (1) **Code:** ARC 220 **Level:** Sophomore -Level 2 - 3rd Semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** **Practical:**
Pre-requisite: -

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to acquire the basics of Design process and how to get the best architectural design by knowing buildings elements, components and forming principles ..

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 theories of architecture (A1,A19)
a2 Types and typologies for architectural Buildings (A1,A19)
a3 - Principles of design process (A4,A14)
a4 - Buildings elements, components , forming principles (A1,A4,A19),
a5 -Contemporary Architectural topics (A12,A19)
a6 - The impact of Architectural design in societal context (A11,A18)
a7 - The impact of advanced building theories on design (A16, A23)

B - Intellectual skills:

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

b1 -Think systematically along the design process (B3, B12),
b2- Produce innovative design ideas, forms and concepts (B3),
b3 -Ability to understand and develop philosophical analogies and symbolic metaphors in architectural context (B3)
b4- Ability to Evaluate the Architectural building from (plans, elements, shapes ,colors, textures, forming principles)(B9),(B20)

C- Professional and practical skills:

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

c1 -Think, Analyze, understands and makes use of contexts. (C2)
c2 -Analyze Design directions and principles to design the Architectural projects(C1)
c3 - Draw effectively sketches. (C13)

D - General and transferable skills:

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

d1 Ability to search for information from references and internet. (D7)
d2 Prepare convenient presentations (D7)
d3 - Communicate effectively (D3)
d4 Search for information and adopt self-learning (D7)
d5 Work in stressful environment within constraints. (D2)
d6 Collaborate effectively within teamwork (D1)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A4,A11,A12,A14 ,A16 ,A18.A19, A23
B	Intellectual skills	B3,B9,B12,B20 ,
C	Professional and practical skills	C1,C2,C13
D	General and transferable skills	D1,D2,D3,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Introduction: about the relationship between architecture and theories of architecture.	2		
2. Architectural definitions and constrains	2		
3. Types and typologies of Buildings	2		
4. Design Process :-Briefing -Analysis	2		
5. Design Process: synthesis	2		
6. Design Process: Design- Appraisal Evaluation.- Communications	2		
7. Mid Term Exam	2		
8. Architectural Spaces is the basic of design and forming:1:- Architectural Spaces	2		
9. Architectural Spaces forming:2 :-Buildings and spaces elements	2		
10. Architectural Spaces forming: :circulation,vertical,horizontal	2		
11. Architectural Forming: Shape- Color- Texture	2		
12. The Principles of Architectural Forming Process:-	2		
13. Introduction about Architectural Theories: (Functionalism) , (Organism)	2		
14. Researches Discussion	2		
15. Researches Discussion	2		
Total hours	30		

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		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		1					
	a7	1	1	1						1	1	1				1		1					
Intellectual Skills	b1	1		1								1				1				1			
	b2	1		1	1							1				1				1			
	b3	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			
	c2				1		1	1						1									
	c3						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				
	d4			1				1				1		1	1	1			1	1			
	d5		1		1									1	1	1			1				
	d6	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

Anaheed Waked ,"History and theories of architecture "-part one-2009

6-2 Essential books (text books)

6-3 Recommended books:

- **عرفان سامى ـ نظريات العمارة (مقرر السنة الاولى عمارة) ـ دار نافع للطباعة والنشر ـ القاهرة**

Ching, Francis,DK"Architecure Form,Space and Order", N.Y,VNR Company,1979.

6-4 Periodicals, Web sites, etc.

www.greatbuildings.com
www.Archspace.com

7- Facilities required for teaching and learning:

- Computer, Data show

Course coordinator: Associate Professor:. Anaheed Waked
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 215: Properties & Strength of Materials

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: September , 2015

B - Basic information

Title: Properties & Strength of Materials **Code:** ARC 215 **level:** Sophomore -Level 2 – 3rd Semester
Credit Hours:2 **Lectures: 1** **Tutorial/Exercise: 3** **Practical: -**
Pre-requisite : None

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:

By the end of the course the student should acquire knowledge 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:

By the end 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:

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

By the end 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	▪ Types of structures. Types of loads and supports.	2	3	
2	▪ Resultant of loads. Reactions.	2	3	
3	▪ Simple and compound beams.	2	3	
4	▪ Concentrated loads and moments.	2	3	
5	▪ Equilibrium and stability in planner statically determined structures.	2	3	
6	▪ Trussed beams.	2	3	
7	▪ Mid Term Exam	2	3	
8	▪ Internal forces definition / Simple frames, frames with link members, and closed frames..	2	3	
9	▪ Internal forces in beams, frames, and arches.	2	3	
10	▪ Trusses; definition, method of joints and method of sections.	2	3	
11	▪ Stability conditions.	2	3	
12	▪ Uniform and triangular loads.	2	3	
13	▪ Normal stresses	2	3	
14	▪ Shear stresses	2	3	
15	▪ Combined stresses	2	3	
	Total hours	**30**	**45**	

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	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
Knowledge	a1	1	1	1				1		1				1		1		1
	a2	1			1					1				1		1		1
	a3	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
	b4	1			1		1							1		1		1
	b5	1			1		1							1		1		1
Applied	c1	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
general	d1	1		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	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

Properties and Resistance of Materials, Adham Elalfy

6-2 Required books

Applied Strength of Materials, Robert L. Mott, 2008.

المواد الهندسيه، د. كريم محمد عطا، دار الكتب، ١٩٩٥

6-3 Periodicals, Web sites

www.ACI.com

7- Facilities required for teaching and learning:

Projectors and data show

Course coordinator: Associate Professor : Adham Elalfy

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 223 Visual Training (1)

A- Affiliation

Relevant program: Architecture Engineering and Building TechnologyBSC Prog.

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: September , 2015

B - Basic information

Title: Visual Training (1) **Code:** ARC 223 **level:**Sophomore -Level 2 - 3rd Semester
Credit Hours:2 **Lectures: 1** **Tutorial/Exercise: 3** **Practical: -**
Pre-requisite : None

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:

By the end of the course the student should acquire the flowing knowledge and understanding:

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:

By the end 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:

By the end 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:

By the end 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	1	3	-
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	**15**	**45**	**-**

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	1			1	1			
	a3	1			1		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	1	1		1	1		1	1		1	1	1			
	b2	1	1		1		1	1	1	1		1	1		1	1		1	1	1			
	b3	1	1		1		1	1	1	1		1	1		1	1		1	1	1			
	b4	1	1		1		1	1	1	1		1	1		1	1		1	1	1			
Applied Professional Skills	c1	1	1		1		1			1		1	1			1		1	1	1			
	c2	1	1		1		1			1		1	1			1		1	1	1			
	c3	1	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 (%)	Grade (Degrees)
Semester Work: assignments	Bi-Weekly	50%	50
Mid-Term Exam	7-th Week	10 %	10
Final Exam	Sixteenth week	40 %	40
Total		100%	100

6- List of references:

6-1 Course notes

Lecture notes.

6-2 Required books

- **ربيع الحرستانى ،الاظهار المعمارى واللون ، دار قابس ، ١٩٨٧، بيروت ، لبنان.**
- **محمد احمد عبد الله ، الاظهار المعمارى ،١٩٩٧ ، الانجلو ، جمهورية مصر العربية.**

6-3 Recommended books

Elements of Drawing, John Raskin, M.A., Smith, Elder and Co. 1857, London.
Perspective drawing handbook, Joseph D.Amelio, Dover Publications,2000, Canada.

6-4 Periodicals, Web sites, etc.

- www.BookSence.com
- www.Amazon.Com
- Dover Publications.Com-puplisher.

7- Facilities required for teaching and learning:

White boards and markers.
Drawing halls for exercises.

Course coordinator: Associate Professor: Mona Albassyouni

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC212 Architectural Construction 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: September , 2015

B - Basic information

Title:: Architectural Construction 2 **Code:**ARC 212 **Level:** Sophomore -Level 2 – 4th Semester
Credit Hours: 3 **Lectures:** 2 **Tutorial/Exercise:**3 **Practical:**
Pre-requisite: ARC 211

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:

By the end 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:

By the end 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:

By the end 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).	2	3	
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 &steel floors: Sections and details.	2	3	
14. Revision	2	3	
15. Revision	2	3	
Total hours	**30**	**45**	

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	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	1						1	1			
Intellectual Skills	b1	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:

Asesement Method	Timing	Grade (Degrees)
Research, Drawing Sheets	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
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 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.

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:.Anaheed Waked
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 222 Architectural Design 2

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architectural Engineering and Building Technology Dpt.
Department offering the course: Architectural Engineering and Building Technology Dpt.
Date of specifications approval: September , 2015

B - Basic information

Title: Architectural Design 2 **Code:** ARC 222 **Level:** Sophomore -Level 2 – 4th Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:** 6 **Practical:** -
Pre-requisite: ARC 221

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to acquire the basics of Design process and Develop design skills.

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:

By the end 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:

By the end 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(C13)
c4 - Present architectural project(C12)

D - General and transferable skills:

By the end 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	A4,A13,A14, A22, A24
B	Intellectual skills	B2, B3, B13
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
1. Choosing one project from 5 general projects	1	6	
2. Analysis of program elements	1	6	
3. Research on the chosen project	1	6	
4. Zoning (bubble diagram , matrix of functions	1	6	
5. 3D modeling (masses , site) , skis	1	6	
6. Concept development , skis	1	6	
7. Mid Term Exam	1	6	
8. Final plans	1	6	
9. Final sections	1	6	
10. Final elevations	1	6	
11. 3D perspectives	1	6	
12. Development project till final approval	1	6	
13. Representing project by digital media or manual method	1	6	
14. Representing project by digital media or manual method	1	6	
15. Representing final project , jury	1	6	
Total hours	15	90	

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			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					
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										
	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:

Asesement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes

6-2 Required books

Neufert Architect's Data, Halsied Press, a Division of John Willey & sons Inc, and New York. USA.

-Time saver standards for architectural design data –michael J. crosbie

-Form,space,and order third edition – francis D.k. ching

6-3 Recommended books:

- Steele, J., "Architecture Today", Second edition, Phaeton Press Limited, London, UK, 2001.

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:

- White boards, Data show , Drawing halls

Course coordinator: Associate Professor:.Ibrahim Gouda
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 241 History of Architecture

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architectural Engineering and Building Technology Dpt.
Department offering the course: Architectural Engineering and Building Technology Dpt.
Date of specifications approval: September , 2015

B - Basic information

Title:: HISTORY OF ARCHITECTURE (1) **Code:**ARC 241 **Level:**Sophomore -Level 2 – 4th Semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** **Practical:**
Pre-requisite: -

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to acquire the Heritage of The Ancient Historical Architecture What is Architecture? Directions of Architecture in different ages. Impact of social, economical, and political conditions on architecture. Prehistoric architecture. Ancient Egyptian architecture. Greek architecture. Roman architecture. Regeneration of architectural features through ages.

..

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:

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:

By the end 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:

By the end 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		
2. The pharaonic Character and Features	2		
3. The Architectural Buildings(Tombs)	2		
4. The Architectural Buildings (Temples)	2		
5. The Architectural Buildings(Temples)	2		
6. The Hellenistic Architecture:	2		
7. Mid Term Exam	2		
8. Greek Architecture: Character and Features			
9. The Greek Columns ,Temples, Buildings	2		
10. The Roman Architecture: Features -Columns-temples	2		
11. Buildings (theater-Amphitheater-….	2		
12. Seminars	2		
13. Researches Discussion	2		
14. Researches Discussion	2		
15. Revision	2		
Total hours	30		

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	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			
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											
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		1					
General Tran. Skills	d1			1			1					1		1									
	d2			1								1				1				1			
	d3	1	1	1				1				1		1		1		1					
	d4		1							1		1						1					
	d5		1							1		1											
	d6		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

Anaheed Waked ,"History and theories of architecture "-part two-2009

6-2 Essential books (text books)

6-3 Recommended books:

Sir Banister Fletcher's ,A History of Architecture , London, UK,2000

Ching, Francis,DK"Architecure Form,Space and Order", N.Y,VNR Company,1979.

6-4 Periodicals, Web sites, etc.

www.Egyptmyway.com

7- Facilities required for teaching and learning:

- Computer, Data show

Course coordinator: Associate Professor: Anaheed Waked
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering & Technology

Basic Sciences Department

Course Specification

MTH 208: Mathematics-8 (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, 2015

B - Basic information

Title: Mathematics-8(Statistical Mathematics) **Code:** MTH 208 **Level:** Sophomore **Semester**: 4th

Credit Hours: 2 **Lectures:** 1 **Tutorial:** 3 **Practical:** -

Pre-requisite: MTH102

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
Functions, curve equation relationship.	2	6	
Set theory, Random events, and probability functions.	2	6	
Mathematical expectation, conditional probability.	2	6	
Binomial distribution, normal distribution.	2	6	
Sampling and the central limit theorem.	2	6	
Estimation, hypothesis testing.	1	3	
Regression and correlation.	2	6	
Chi-square analysis and analysis of variance.	2	6	
Total hours	**15**	**45**	

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	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: quizzes and assignments	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:

Osama El-Gayar, Statistical Mathematics for Architectural Engineering, Lecture Notes, Modern Academy, Egypt, 2013.

6-2 Required books

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

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: Dr. Osama El-Gayar
Head of the Department: Dr. Lila Soliman
Date: September 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 216: Surveying

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: September , 2015

B - Basic information

Title: Surveying **Code:** ARC 216 **level:** Sophomore -Level 2 – 4th Semester
Credit Hours:2 **Lectures: 1** **Tutorial/Exercise: 1** **Practical: 2**
Pre-requisite : None

C - Professional information

1 – Course Learning Objectives:

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

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire knowledge 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 survey systems and mapping methods (A8), (A24)

B - Intellectual skills:

By the end 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:

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

By the end 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
▪ Definition of surveying.	1	1	2
▪ Types of measurements.	1	1	2
▪ Measurement errors.	1	1	2
▪ Linear measurements.	1	1	2
▪ Taping.	1	1	2
▪ Distance corrections.	1	1	2
▪ Mid-Term Exam	1	1	2
▪ Types of Levels. / Leveling.	1	1	2
▪ Profile and cross-sectional leveling.	1	1	2
▪ Area computations	1	1	2
▪ Angle measurements and Theodolites	1	1	2
▪ Traverse surveys and computations	1	1	2
▪ Contour Maps / Cut and Fill	1	1	2
▪ Topographic surveying	1	1	2
▪ Practical exam	1	1	2
Total hours	**15**	**15**	**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			
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																	
	b4	1			1	1																	
	b5	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			
	c3	1			1	1	1					1	1						1	1			
	c4	1			1	1																	
General Tran Skills	d1				1							1								1			
	d2				1							1								1			
	d3				1																		
	d4				1																		

5- Assessment Timing and Grading:

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

6- List of references:

6-1 course notes

كتاب العملى د.أميره جوهر ,المساحه، أدهم عبد الراز ق

6-2 Recommended books

المساحه المستوية، علي سالم شكري، منشأة المعارف، ١٩٩٥

مساحة الأراضي، الشحات بركه، دار الكتب المصرية، ١٩٩٧

6-4 Periodicals, Web sites

ASCE Managazine

www.ACI.com

7- Facilities required for teaching and learning:

Projectors and data show

Course coordinator:
Dr.Amira Gouhar

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 217: Theory of Structures

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: September , 2015

B - Basic information

Title: Theory of Structures **Code:** ARC 217 **level:** Sophomore -Level 2 – 4th Semester
Credit Hours:2 **Lectures: 1** **Tutorial/Exercise: 3** **Practical: -**
Pre-requisite : None

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing students to the principles of structural analyses, be able how to define, analyze and solve structure elements. .

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	1	3	-
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	**15**	**45**	**-**

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	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
general	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: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 218: Sciagraphy and Perspective

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSC Prog.

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: September , 2015

B - Basic information

Title: Sciagraphy and Perspective **Code:** ARC 218 **level:** Sophomore -Level 2 – 4th Semester
Credit Hours:3 **Lectures: 2** **Tutorial/Exercise: 4** **Practical: -**
Pre-requisite : None

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:

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

By the end 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:

By the end 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:

By the end 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	2	4	-
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	**30**	**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		
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			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 Professional Skills	c1	1	1		1		1			1		1	1			1		1	1	1		
	c2	1	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			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Semester Work: assignments	Bi-Weekly	50%	50
Mid-Term Exam	7-th Week	10 %	10
Final Exam	Sixteenth week	40 %	40
Total		100%	100

6- List of references:

6-1 Course notes

None

6-2 Required books

- Nassar, Abdel Rahman, Shades, shadows and perspective, 1980, The Anglo bookshop, Cairo.
- Mc Goodwin, Henry, Architectural shades and shadows, 1991, American Institute of Architects press.

6-3 Recommended books

- Shafie, Zakia, Shades and shadows, presentation by scientific rules, 1977, Dar Al-Alam Al-Araby print, Cairo.
- Shafie, Zakia, Architectural perspective, 1997, 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

7- Facilities required for teaching and learning:

White boards and markers.
Engineering tools (Triangles + Ruler + Compass + …….).
Drawing halls for exercises.

Course coordinator: Associate Professor: Mona Albassyouni

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

JUNIOR

Second year Architecture
Level 3

Course Specifications
Credit Hours System

Page Intentionally Left Blank

JUNIOR
Second year Architecture
Level 3

S	Course	
	Code	**Title**
1	ARC 311	Architectural Construction & Building materials 1
2	ARC 321	Architecture & Human Studies
3	ARC 322	Architectural Design 3
4	ARC 324	Design Methodology
5	ARC 314	Reinforced concrete & steel structures
6	ARC 327	Theories of Architecture (2)
7	ARC 326	History and Theories of planning
8	ARC 312	Architectural Construction & Building materials 2
9	ARC 313	Computer Applications 2
10	ARC 323	Architectural Design 4
11	ARC 328	Visual Training (2)
12	ARC 341	History of Architecture (2)
13	ARC 310	Environmental Control
14	ARC 315	Foundation
15	ARC 360	Architecture Training 1

Modern Academy for Engineering and Technology

Course Specification

ARC 311:Architectural Construction & Building Materials 1

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: Septmber , 2015

B - Basic information

Title: Architectural Construction & Building Materials 1 **Code:**ARC 311 **Level:**Junior - Level 3 – 5th Semester

Credit Hours: 3 **Lectures:** 2 **Tutorial/Exercise:**3 **Practical:** -
Pre-requisite: ARC 212

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing students to construction methods and the detailed phases of execution – Description of execution phases and the sequence of building works. Formworks. Execution drawings (plans; elevations; partial (wall) sections

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 teehniqws 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 ,qulity mangment 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 prepore abuilding site for constructi (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 totransfer specihic 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 -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,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	D1, D2,D3, D6, D7, D8

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	2	3	
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	2	3	

Hardware).			
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	**30**	**45**	

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	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.	50
Mid-term exam	7-th Week	10
Final 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

Mohamed Abd Allah , Building Construction &Building Technology, Anglo Library, Cairo 2002.
W.B.McKay (vol.1), Building Construction.

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.

http://products.construction.com/- Sweets Construction .

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: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC321: Human Architecture Studies

A- Affiliation

Relevant program:	Architecture Engineering and Building Technology BSc Program
Department offering the program:	Architectural Engineering and Building Technology Dpt.
Department offering the course:	Architectural Engineering and Building Technology Dpt.
Date of specifications approval:	Septmber , 2015

B - Basic information

Title: Architectural and human studies	**Code:ARC: 321**	**Level:** Junior-Level 3 – 5th Semester
Teaching Hours:	**Lectures:2**	**Tutorial:**
Pre-requisite :ARC 222	**Practical:**	**Total:2**

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to introduce the basic concepts and theories of human studies in architectural design and urban design

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. Introduction, basic definitions and terminology	2		
2. Main topics of human studies &Architecture	2		
3. Human needs & its impact on space& Arch.	2		
4. Islamic culture in Arch.	2		
5. Arch. values in Islamic city	2		
6. Arch. As build environment The role of the environment (green &smart) Arch	2		
7. Mid Term Exam	2		
8. Shaping the culture & behavior of a Society throughout history	2		
9. Shaping the culture & behavior of a Society throughout history	2		
10. Vernaculars & traditional arch	2		
11. Relation between man & environment	2		
12. Relation between man & environment 13. Natural & informal arch. Nubian / siwa / etc.	2		
14. Informal arch	2		
15. Community participation	2		
Total hours	**30**		

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

6- List of references:

6-1 Course notes

Human Architecture Studies lecture notes

6-2 Essential books (text books)

ناهد احمد عمران : محاضرات الدراسات الأنسانية المعمارية

أسماعيل سراج الدين:التجديد والتأصيل في عمارة المجتمعات الإسلامية ،كتاب اليوم،مكتبة الأسكندرية،الأسكندرية،٢٠٠٧.

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: Ohamed Thabat

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 322:Architectural Design 3

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: Septmber , 2015

B - Basic information

Title: Architectural Design 3 **Code:**ARC 322 **Level:**Junior -Level 3 – 5th Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**6 **Practical:** -
Pre-requisite: ARC 222

C - Professional information

1 – Course Learning Objectives:

- The objective of the course is to develop students' capacities to deal with architectural design as to solve problems in plan: site plan relationships Drawing master plan Formation development in elevations Drawing 3d perspectives or isometric Final site 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 - 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	1	6	
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	15	90	
Total hours			

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						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				
Applied Professional Skills	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:

Asessement Method	Timing	Grade (Degrees)
Sketches		
Mid-term exam	7th week	10
project	Six week	40
Final exam	2nd week	60
Total		100

6- List of references:

- **6-1 Course notes:** lecture notes & handouts

6-2 Required books

- Steele, J., "Architecture Today", Second edition, Phaeton Press Limited, London, UK, 2001
- Timesaver standard for landscape architecture
- Neufert & architecture , division of john willy & sans IRC , network , USA , press

6-3 **Recommended books:** Libraries vol. 1, 2. image

6-4 Periodicals, Web sites, etc.

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

Al Beneaa Ksa

7- Facilities required for teaching and learning:

- Classroom
- Drawing hall
- Store for saving project of student
- Computer Lab for students who prefer modeling by computer

Course coordinator: Dr.Asamer Zakaria
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 324: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: Septmber , 2015

B - Basic information

Title: Design Methodology **Code:** ARC 324 **Level:** Junior -Level 3 – 5th Semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC 222

C - Professional information

1 – Course Learning Objectives:

The course aims to ameliorate the proficiency of students in organizing the loosing operation through the recognition of traditional and new methods and different tools. Design process: program preparation according to needs and constricts. Analysis of project components (parts, relationships and variables). Determination of beeches. Development of basic concepts of project, alternatives comparison; tools and ways of design – Applications. Introduction for the use of computers in the support of design process concepts & methodologies with its different stages and steps, and practical exercise

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	2		
	2		
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	**30**		

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	10
Mid-term exam	Seven week	20
Final exam	Sixteenth week	70
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:

Edward. White, " Concept source Book a vocabulary of Architectural Forms" ., 1974.

Architectural form Space and Order Francis D.K Ching

- Concept source Book a vocabulary of Architectural Forms .Edward. white, 1974

- ثلاثيةالابداعالفنيفيالعمارة(د.علي رافت الابداعالمعماري)

6-4 Periodicals, Web sites, etc.

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: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 314: Reinforced Concrete & Steel Structures

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:	Septmber , 2015

B - Basic information

Title: Reinforced Concrete & Steel Structures **Code:** ARC 315 **level:** Junior -Level 3 – 5th Semester

Credit Hours:3 **Lectures: 2** **Tutorial/Exercise: 3** **Practical: -**

Pre-requisite : ARC 217

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing students to Reinforced Concrete & steel structures; properties, function, usage in building construction.

2 - Intended Learning Outcomes (ILOS)

A- Knowledge and understanding:

By the end of the course the student should acquire knowledge 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 (A6)

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:

By the end 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 (B3-B4-B24)

b5 - Classify, compare, examine and assess the validity / feasibility of pre-set alternatives. (B11)

C- Professional and practical skills:

By the end 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-C24)
c4 - Design R.C & steel projects of various scales and levels of complexity (C3)

D - General and transferable skills:

By the end 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,A6
B	Intellectual skills	B2, B3, B11,B24
C	Professional and practical skills	C1, C3, C7, C24
D	General and transferable skills	D6, D7

3 – Contents

	Topic	Lecture hours	Tutorial hours	Practical hours
1	Introduction to reinforced concrete.	2	3	
2	Design fundamentals for concrete structures.	2	3	
3	Analysis and design of sections under bending moment	2	3	
4	Load distribution	2	3	
5	Details of beams' reinforcement	2	3	
6	Solid slabs.	2	3	
7	Mid-Term Exam	2	3	
8	Stairs- Columns.	2	3	
9	Special slabs.	2	3	
10	Design fundamentals of steel structures.	2	3	
11	Details for trusses.	2	3	
12	Details for steel frames	2	3	
13	Design of columns	2	3	
14	Design o beams	2	3	
15	Design of connections	2	3	
	Total hours	**30**	**45**	

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	Brain storming					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	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 Professional Skills	c1	1	1		1	1	1									1	1	1	1	1			
	c2	1			1		1									1		1	1	1			
	c3	1		1	1	1	1					1	1						1	1			
	c4	1			1	1																	
General Tran. Skills	d1			1	1							1								1			
	d2			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	Sixteen week	70%	70
Total		100%	100

6- List of references:

course notes

Reinforced Concrete-a , Aiman Ezzat

6-1 Recommended books

Reinforced Concrete Design Handbook, Abd Elfatah Ibrahim, Dar Elkotob 1988

6-4 Periodicals, Web sites

ASCE Managing

www.ACI.com

7- Facilities required for teaching and learning:

Projectors and data show

Course coordinator: Dr. Aiman Ezzat

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 327:Theories of Architecture (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: Septmber , 2015

B - Basic information

Title: Theories of Architecture (2) **Code:** ARC 327 **Level:** Junior -Level 3 – 5th Semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** **Practical:**
Pre-requisite: ARC 220

C - Professional information

1 – Course Learning Objectives:

Theories of architecture: The course aims at studying the philosophy and the design criteria for public and service buildings: educational, cultural, healthcare, social, commercial, recreational and office buildings

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(A15)
a2 - Spatial regards for cultural context and environmental constraints (A17)
a3- The relationships between built forms, socio-economic and environmental parameters(A18,A19)
a4- The relationship between aesthetics and functionality, flexibility and adaptability(A18)
a5- Spatial requirements for human needs and occupants' comfort (A18)

B - Intellectual skills:

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

b1-Deduct grounded criteria and guidelines from a given design problem(B1)
b2- Induct theoretical models out of a particular studied context (B2)
b3- Integrate theoretical studies with practical reality(B3)
b4- Promote investigation and exploration abilities in research work(B6)
b5- Improve logical reasoning faculties(B5)
b6- Distill knowledge from precedent experiences (B6)
b7- Improve environmental sense(B7)
b8- Understand and develop philosophical analogies and symbolic metaphors in architectural context(B8)

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 accourding to what have been studied(C1)

c2- Design projects of various scales and levels of complexity (C2)
c3- Master architectural morphology and spatial organization within sound geometric relations according to the studied era. (C3)

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- involvement in-group discussions and mutual critiques(D2)
d3- Improve communication skills with versatile backgrounds in field research-(D3)
d4- Defend ideas and convincing others (D4)
d5- Present seminars and public talks (D5)
d6- Work in team environments(D6)
d7- Allocate task amongst team members(D7)
d8- Manage time to meet deadlines(D8)
d9- Coordinate work amongst various sites and parties(D9)
d10Work under pressure
d11- Interact with libraries, books, periodicals, internet …
d12- Organize work and documents

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A15,A17,A18,A19
B	Intellectual skills	B1,B2,B3,B4,B5,B6,B7,B8
C	Professional and practical skills	C1,C2,C3
D	General and transferable skills	D1,D2,D3,D4,D5,D6,D7,D8,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. building types	2		
2. Educational building	2		
3. Educational building	2		
4. office building	2		
5. hotels	2		
6. Commercial buildings	2		
7. Mid-Term Exam	2		
8. Restaurants	2		
9. Restaurants	2		
10. Theatres	2		
11. Theatres	2		
12. Museum	2		
13. Hospitals – parking	2		
14. architectural themes	2		
15. architectural themes	2		
Total hours	**30**		

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							
	a2	1	1	1	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	1							
Intellectual Skills	b1	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				1				1				1			
	b6	1		1								1				1							
	b7	1	1	1			1					1				1							
	b8	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			
General Tran. Skills	d1	1	1	1			1	1				1											
	d2			1			1	1				1				1				1			
	d3	1	1	1	1		1	1				1				1							
	d4	1	1		1							1	1			1							
	d5	1	1	1			1	1															
	d6	1	1	1								1				1				1			
	d7	1	1				1	1				1								1			
	d8	1	1	1	1		1					1			1	1				1			
	d9	1										1			1	1				1			
	d10			1			1	1				1				1				1			
	d11	1	1				1	1				1								1			
	d12	1	1	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	20
Written Exam	Sixteenth week	60
Total		100

6- List of references

6-1 Course notes

Lecture notes & hand out , book

6-2 Required books

Arfan sami, theories of architecture

6-3 Recommended books

Tawfek abd gawad Islamic architecture,1984. Alanglo.

Ali Raafat ,Triad of Architecture Creativity,1997, Alahram .

6-4 Periodicals, Web sites, etc.

(concept & civilization) , Anglo library , Cairo

7- Facilities required for teaching and learning:

Blackboard / whiteboard & chalk.
Listing methods.
Books, scientific references, specific internet sites.
Data Show projects.

Course coordinator: Dr Walaa Nour
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC326: 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: Septmber , 2015

B - Basic information

Title: History & Theory of planning **Code:** ARC 326 **level:** Junior -Level 3 – 5th Semester
Credit Hours:2 **Lectures: 2** **Tutorial/Exercise:** **Practical: -**
Pre-requisite : ARC220

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing historic experiences in human settlement in different civilizations; Historical rise of city planning. Ancient Egypt and Mesopotamia. Greek and Roman civilizations. Industrial revolution and subsequent utopian ideas. Defining city planning, its objectives, and its levels. Visual and urban problems. Practical application.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should gain the following knowledge.
a1 - Articulating architectural and urban planning process. (A16)
a2 - The concepts, methods of the city planning processes, its stages, building types, elements, etc. (A15)
a3 - The pattern and problems of city at the local, urban and regional levels. (A17)
a4 - Significance of urban spaces and the replicable effects between man and the visual elements of the city. (A18)
a5 - 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-B20)
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 - Produce new architectural forms and design solutions of real societal problems. (C21,C22)

D - General and transferable skills:

By the end of the course the student should be able to:
d1 - Search for information's from references, journals and internet. (D1)
d2 - Write technical reports and prepare convenient presentations(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,A15,A17,A18
B	Intellectual skills	B2,B3,B18,B20,B21
C	Professional and practical skills	C13,C21,C22
D	General and transferable skills	D1,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	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		

15	Final revision – discussion for the second requirement report	2		
	Total hours	**30**		

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				
	a5	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)
Semester Work: assignments	Bi-Weekly	20%	20
Mid-Term Exam	8-th Week	10%	10
Final Exam	Fifteenth week	70%	70
Total		100%	100

6- List of references:

6-1 Course notes

Dr. Nahed Omran, City History & Theory of urbanPlanning ***(lecture notes)***

6-2 Essential books (text books)

Non

6-3 Recommended books

أحمد خالد علام،تاريخ ونظريات تخطيط المدن،مكتبة الأنجلو،القاهرة،٢٠٠٠

احمد خالد علام:تخطيط المدن،مكتبة الأنجلو،القاهرة،١٩٩٨

توفيق محمد عبد الجواد: العمارة وحضارة مصر الفرعونية ،مكتبة الأنجلو،القاهرة، القاهرة

توفيق محمد عبد الجواد: العمارة الأسلامية فكر وحضارة ،مكتبة الأنجلو،القاهرة

6-4 Periodicals, Web sites, etc.

www.googleearth.com

art- Wikipedia, the free encyclopedia.mht www.Islamic

7- Facilities required for teaching and learning:

Projectors and data show- white board

Course coordinator: Associate Professor: Nahed Omran

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 312:Architectural Construction & Building Materials 2

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: Septmber , 2015

B - Basic information

itle: Architectural Construction & Building Materials 2 **Code:**ARC 312 **Level** : Junior -Level 3 – 6th Semester

Credit Hours: 3 **Lectures:** 2 **Tutorial/Exercise:**3 **Practical:** -
Pre-requisite: ARC 311

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing students to construction methods and the detailed phases of execution finishing works. Detail study (carpentry – metal works – etc…) – expansion and settlement joints – Introduction to modern systems of construction and construction equipment.

2 - Intended Learning Outcomes (ILOS)

000A - 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, 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. 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	2	3	
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 tabel	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	**30**	**45**	

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			
	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:

Asesement Method	Timing	Grade (Degrees)
Assignments and term papers	Bi-weekly class and home exercises .	50
Mid-term exam	7TH -Week	10
Final exam	Sixteen -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

Mohamed Abd Allah , Building Construction &Building Technology, Anglo Library, Cairo 2002.
W.B.McKay (vol.1), Building Construction.

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

6-4 Periodicals, Web sites, etc.

http://products.construction.com/ - Sweets Construction .

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: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 313:Computer Applications 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: Septmber , 2015

B - Basic information

Title: Computer Applications 2 **Code:** ARC 313 **Level:** Junior -Level 3 – 6th Semester
Credit Hours: 4 **Lectures:** 2 **Tutorial/Exercise:** 3 **Practical:** 2
Pre-requisite: ARC 214

C - Professional information

1 – Course Learning Objectives:

The course identifies various computer applications in Architecture, with particular emphases on 3D modeling, presentation and colors. Solids extrude 3D operation 3D meshes, accessing MAXScript & MAXScript tools and interaction with 3D Max Lighting & background.

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 textures.....Using this course in design

drawings. (B17)

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	2	3	2
2. Accessing MAXScript	2	3	2
3. Locating Information in Help File	2	3	2
4. 2d modeling	2	3	2
5. Modeling & modifying	2	3	2
6. MAXScript syntax an terminology	2	3	2
7. Mid – term	2	3	2
8. General advanced topic	2	3	2
9. Practical questions	2	3	2
10. Lighting & background	2	3	2
11. Materials	2	3	2
12. Materials	2	3	2
13. MAXScript tools and interaction with 3D Max	2	3	2
14. Camera & view ports	2	3	2

15. Modifiers	2	3	2
Total hours	**30**	**45**	**30**

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			
	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			
	b6	1				1	1			1					1					1			
	b7	1				1	1			1					1					1			
	b8	1	1			1	1									1	1			1			
	b9	1		1		1	1	1		1						1				1			
	b10	1				1	1			1					1	1				1			
Applied Professional Skills	c1				1	1				1										1			
	c2					1	1	1		1		1				1	1			1			
	c3				1	1				1						1				1			
	c4				1	1				1						1				1			
	c5	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													
	d5			1			1	1		1										1			
	d6			1			1	1		1					1								
	d7			1			1	1		1										1			
	d8			1			1	1		1		1			1					1			
	d9	1		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	Sixteenth week	70%	70
Total		100%	100

6- List of references:

6-1 Course notes: Lecture notes

6-2 Required books

Autodesk manual book (AutoCAD LT User's Guide) -
Photoshop manual - 3Dmax

6-3 Recommended books:

6-4 Periodicals, Web sites, etc.

Autodesk home page
MAX Script references

7- Facilities required for teaching and learning:

- Lap with networking – AutoCAD and 3Dmax program – net meeting program

Course coordinator: Dr. Hosam Mohamed Abd el Aziz
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 323:Architectural Design 4

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: Septmber , 2015

B - Basic information

Title: Architectural Design 3 **Code:**ARC 323 **Level:**Junior -Level 3 – 6th Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**6 **Practical:** -
Pre-requisite: ARC 322

C - Professional information

1 – Course Learning Objectives:

The objective of the course is to develop students' capacities to deal with architectural design as to solve spatial problems at different levels: Site plan relationships and constraints. Form and functional, individual, social and civic needs

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. (B3)
b3 -Deduce grounded criteria and guidelines from a given design problem(B4)
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	1	6	
7. Concept development	1	6	
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	15	90	

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						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				
Applied Professional Skills	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:

Asessement Method	Timing	Grade (Degrees)
Mid-term exam	At the 7th week of 2nd semester	-
Final exam	At the end of 2nd semester	
Sketches	2nd week biweekly	
project	Week 15	
Total		100

6- List of references:

- **6-1 Course notes:** lecture notes & handouts

6-2 Required books

- Jencks, C., "Architecture 2000 and Beyond", John Wiley & Sons Ltd, UK, 2000.
- Timesaver standard for landscape architecture
- Neufert & architecture , division of john willy & sans IRC , network , USA , press

6-3 Recommended books:

- Libraries vol. 1, 2. image

6-4 Periodicals, Web sites, etc.

- www.archinform.com
- www.greatbuildings.com
- Arca
- Medina
- Alem Al Benaa
- Al Beneaa Ksa

7- Facilities required for teaching and learning:

- Classroom
- Drawing hall
- Store for saving project of student
- Computer Lab for students who prefer modeling by computer

Course coordinator: Dr. Asamer Zakaria
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 328:Visual 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: Septmber , 2015

B - Basic information

Title: Visual training (2) **Code:** ARC 328 **Level:** Junior -Level 3 – 6th Semester
Credit Hours: 2 **Lectures:** 1 **Tutorial/Exercise:** 3 **Practical:** -
Pre-requisite: ARC 223

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing the students to proportions and aesthetes using charcoal and colors in presenting visual, architectural, and natural elements. Study of colors: achromatic and chromatic sensations. Wheels and palettes of colors; harmony and contrast in colors. Hue, saturation, brightness of colors. Addition of colors. Description of colors: Factors of color harmony. Applications on color theories. Achromatic and chromatic designs as a freehand and visual exercise.

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 (munsell 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	1	3	
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 architecturalwater 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	**15**	**45**	

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	1			
	a3	1	1		1				1	1		1				1				1			
	a4	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			
	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						1				1	1			
	c2	1	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			
	d3			1				1		1		1											
	d4	1	1									1				1			1	1			
	d5						1		1			1			1								
	d6	1	1									1				1			1	1			

4 - Teaching and Learning and Assessement methods:5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Mid-term exam	Week 7	20%
Researches	Week 9	5%
Assignments (Drawing Sheets)	Every week	35%
Final exam	Week 16	40%
Total		100

6- List of references:

6-1 Course notes: lecture notes and hand outs

6-2 Required books : -

6-3 Recommended books: 1- David Roth, B "understanding colors at home", thames & Hudson, 1999.

٢ - د.محمد عبدالله – الاظهار المعمارى – الانجلو المصريه – ١٩٩٧

2- ربيع الحرستانى – الاظهار المعمارى واللون – دار القابس بيروت – ١٩٨٧

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

Hall for lectures
Drawing hall .

Course coordinator:	Dr.Amira Mostafa
Head of the Department:	Associate Professor: Nahed Omran
Date:	September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 341:History of Architecture (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: Septmber , 2015

B - Basic information

Title: History of Architecture (2) **Code:** ARC 341 **Level:** Junior -Level 3 – 6th Semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** **Practical:**
Pre-requisite: ARC 241

C - Professional information

1 – Course Learning Objectives:

The course aims at studying the evolution of architecture until the end of renaissance era. Analytic study of the architecture of historical epochs: the Christian age and Coptic architecture in Egypt; Byzantine architecture; Romanesque architecture Gothic style in Europe. Architecture of the European renaissance age

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		
2. Christian age	2		
3. Christian age	2		
4. Coptic architecture	2		
5. Byzantine architecture	2		
6. Byzantine architecture	2		
7. Mid-Term Exam	2		
8. Romanesque architecture	2		
9. Gothic style in France	2		
10. Gothic style in Italy	2		
11. Gothic style in Europe	2		
12. Digital Presentation of the Final Researches: 13. (Jury) : *Staff's Criticism / Evaluation for each Student*	2		
14. Digital Presentation of the Final Researches: 15. (Jury) : *Staff's Criticism / Evaluation for each Student*	2		
Total hours	**30**		

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							
	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:

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

None

6-2 Essential books (text book)

- Reham Ibrahem momtaz – 2009

6-3 Recommended books

- Ali Raafat ,Triad of Architecture Creativity
- Cruickshank , D., A History of Architecture
- Becktel, H. "The Built Environment", USA, (1998).
- Tawfek abd gawad – Islamic architecture-Al-anglo (1982)

- Kaufmann, E., Architecture in the Age of reason , Baroque and post – Baroque in England
- Mcnutt , S. Churches & Cathedrals Masterpieces of Architecture

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: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 310:Environment 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: Septmber , 2015

B - Basic information

Title: Environment Control
Credit Hours:2
Code: ARC 310 **Level:** Junior -Level 3 – 6th Semester
Lectures: 2 **Tutorial/Exercise:**-1 **Practical:** -
Pre-requisite: ARC 213

C - Professional information

1 – Course Learning Objectives:

The course introduces students to the basic principles of environmental performance in the built envelope. Definition of environment and its elements: climate, shelter and climate – influence of climate upon human comfort – heat transfer and thermal comfort measures. Climatic regions and settings in Egypt. Environmental regards in design process – Thermal behavior of buildings and basic architectural treatments – design for sustainable energy consumption. Basics of natural ventilation and air movement – design for natural lighting and control

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 – climatic regions and levels of studing	2		
2. Climatic Elements affecting design process	2		
3. Solar Radiation and its properties	2		
4. Design of sun breakers	2		
5. eat and thermal behavior of the building	2		
6. wind and air movement	2		
7. Mid-Term Exam	2		
8. basics of natural ventilation Heat performance of the building	2		
9. Elements of human comfort	2		
10. Components of day lighting Day lighting design tools	2		
11. Research presentation & Discussion	2		

12. Introduction –Environment and its physical aspects – climatic regions and levels of studing	2		
13. Climatic Elements affecting design process	2		
14. Solar Radiation and its properties	2		
15. Design of sun breakers eat and thermal behavior of the building	2		
Total hours	**30**		

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 Professonal 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:

Asesement Method	Timing	Grade (Degrees)
Mid-term exam	7th week	10
Researches	15th week	3
Assignments (problems)	Every week	20
Final exam	16th week	67
Total		100

6- List of references:

6-1 Course notes: Okba, Ehab mahmoud.2007. Environmental Control (Arabic).Cairo, Egypt
6-2 Required books
Koesinger, " Environmental Control Handbook", 2000

6-3 Recommended books:

-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.
- 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.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Data Show
- Overhead projector
- Projection screen

Course coordinator: Dr. Reham Mostafa
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC315: Foundations

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: Septmber , 2015

B - Basic information

Title Foundations **Code:** ARC 315 **level:** Junior -Level 3 – 5th Semester
Credit Hours:2 **Lectures: 2** **Tutorial/Exercise:** **Practical: -**
Pre-requisite : ARC314

C - Professional information

1 – Course Learning Objectives:

The course aims at introducing students to Soil Mechanics and properties, Principles of Foundation Design. They should acquire skills of analyzing and designing of foundation components.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should acquire knowledge 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:

By the end 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:

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

By the end 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		
2	• Soil Exploration	2		
3	• Soil classification	2		
4	• Physical properties of soil	2		
5	• Mechanical properties	2		
6	• Active soil pressure	2		
7	• Mid-Term Exam	2		
8	• Bearing Capacity of the types of soil Compaction of soil	2		
9	• Foundation introduction	2		
10	• Design of isolated square footing	2		
11	• Design of isolated rectangular footing	2		
12	• Design of combined footing	2		
13	• Design of raft foundation	2		
14	• Deep foundation	2		
15	• Deep foundation	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			
Knowledge & Understanding	a1	1	1	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																	
	b4	1			1	1																	
	b5	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			
	c3	1		1	1	1	1					1	1						1	1			
	c4	1			1	1																	
General Tran. Skills	d1			1	1							1								1			
	d2			1								1								1			
	d3			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	sixteenth week	70%	70
Total		100%	100

6- List of references:

6-1 Course notes

Foundations, Adham Elalfy

6-2 Recommended books

khalil waked, Foundation design, Dar Elkotob, Cairo, 1998

6-3 Periodicals, Web sites

www.ACI.com

7- Facilities required for teaching and learning:

Projectors and data show

Course coordinator: Associate Professor Adham El Alfy

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Architecture Trainning

Modern Academy for Engineering and Technology

Course Specification

ARC 360: 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: Septmber , 2015

B - Basic information

Title: Architecture Training **Code:** ARC 360 **level:** Junior -Level 3 –Summer
Credit Hours:3 **Lectures: --** **Tutorial/Exercise: -** **Practical:6**
Pre-requisite : ARC 323

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. Amr Moatasem

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Page Intentionally Left Blank

Senior 1

Third year Architecture
Level 4

Course Specifications

Credit Hours System

Page Intentionally Left Blank

Senior 1
Third year Architecture
Level 4

S	Course	
	Code	**Title**
1	ARC 421	Architectural Design 5
2	ARC 423	Housing & City Planning 1
3	ARC 425	Theories of Architecture and Arts (3)
4	ARC 410	Technical Installations and Plumbing Engineering 1
5	ARC 412	Working Drawing & Construction Methods 1
6	ARC 422	Architectural Design 6
7	ARC 424	Housing & City Planning 2
8	ARC 440	History of Architecture and Arts (3)
9	ARC 411	Technical Installations and Plumbing Engineering – B
10	ARC 413	Working Drawing & Construction Methods 2
11	ARC 43*	Elective course of Applied Engineering
12	ARC 43*	Elective course of Applied Engineering
13	ARC 45*	Elective course of Basic Humanitarian
14	ARC 45*	Elective course of Basic Humanitarian
15	ARC 460	Architecture Training 2

Page Intentionally Left Blank

Modern Academy for Engineering and Technology

Course Specification

ARC 421: 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: Septmber , 2015

B - Basic information

Title: Architectural Design 5 **Code:** ARC 421 **Level:**Senior 1,Level 4**,** 7th Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**6 **Practical:** -

Pre-requisite: ARC 323

C - Professional information

1 – Course Learning Objectives:

This course aims to develop the student awareness and understanding of architectural design implications emphasizing application of analytical, conceptual, and representational skills integral to the architect.

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
1- Introduction to the design 1st project (A type of a project with a complex and multipurpose functions and spaces)	1	6	
2- Research: relevant architectural data and similar projects either International or local projects.	1	6	
3- Research: Data gathering, site analysis, climatic studies, zoning and analysis of similar projects	1	6	
4- Sketch 1 (Schematic / conceptual design)	1	6	
5- Sketch 2 (focuses on designing and formulating project plans)	1	6	
6- Sketch 3 (Design development for plans) + Sketch 4 (focuses on designing and formulating project elevations)	1	6	
7- Mid-Term Exam	1	6	
8- Sketch 5 (focuses on preparing project sections)		6	
9- Semi final sketch (Design Development for Layout, plans, elevations, sections and 3d models)	1	6	
10- Final sketch (Presenting Layout, plans, elevations, sections and 3d models for approval). Presentation and rendering sessions		6	
11- Final Submission and Project Discussion	1	6	
12- Introduction to 2nd project(A type of a building of symbolic and structural implications)	1	6	
13- Sketch 1 (Schematic / conceptual design)	1	6	
14- Sketch 2 (Presenting proposed layout, plans, elevations, sections and 3d models) Final Submission and Project Discussion	1	6	
15- 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	**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 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														
	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											
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	50
Mid Term Exam	7th week	10
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:** 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

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.
- Electronic Pub. URL: www.greatbuildings.com

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: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 423: Housing & City Planning 1

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the course: Architecture Engineering and Building Technology Department
Date of specifications approval: Septmber , 2015

B - Basic information

Title: Housing & City Planning 1 **Code:** ARC 423 **Level:** Senior 1,Level 4,7thSemester
Credit Hours: 2 **Lectures:** 1 **Tutorial/Exercise:**3 **Practical:** -
Pre-requisite: ARC 326

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 (GIS Application)	1	3	
6. Following up the project (GIS Application)	1	3	
7. Mid-Term Exam	1	3	
8. Following up the project (GIS Application)	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	**15**	**30**	

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							
Applied Professional 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	10
Researches	Week 2, 4	10
Oral discussion	weekly	10
Mid-term exam	Week 7	10
Project	Week 14	20
final Exam	Week 16	40
Total		100

6- List of references:

- **6-1 Course notes:** The Residential neighborhood – M. HasanAllana

6-2 Required books

- **6-3 Recommended books:** The Residential neighborhood – M. HasanAllana

6-4 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. Mohamed Mostafa
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 425: Theories of Architecture and Arts (3)

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: Theories of Architecture & Arts (3) **Code:** ARC 425 **Level:** Senior 1,Level 4**,** 7thSemester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:**-
Pre-requisite: ARC 326

C - Professional information

1 – Course Learning Objectives:

Main objective of this course is to explore & analyise the social, political, and cultural forces which shaped architecture &art. Aspects & paradigme starting from Renaissance era until the end of 19th century: Introduction to Modern Architecture, Rationalism, Functionalism, Organic Architecture, Industrial Revolution.

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
1	General introduction for the course	2		
2	Architectural characteristics of Renaissance Era Analyzing projects of Architects.	2		
3	Architectural characteristics of Renaissance Era Analyzing projects of Architects.	2		
4	Architectural characteristics of BAROQUE, Analyzing projects of Architects	2		
5	Architectural characteristics of The Age of Enlightenment	2		
6	Social, technical and urban transformation in19th century The influences of the industrial revolution on art and architecture in 19th century	2		
7	Mid term exam	2		
8	Architectural trends and schools in 19thcentury	2		
9	Architectural trends and schools in 19thcentury	2		
10	Architectural trends and schools in 19thcentury	2		
11	The impact of new materials on architecture	2		
12	Architecture of steel and reinforced concrete in19th century	2		
13	Architecture of steel and reinforced concrete in19th century	2		
14	Digital Presentation of the Final Researches: (Jury) : *Staff's Criticism / Evaluation for each Student*	2		
15	**Final Revision**	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			
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			
	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:

Asesement 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 books

- **6-3 Recommended books:** Ali Raafat ,Triad of Architecture Creativity
- Cruickshank , D., A History of Architecture
- Kaufmann, E., Architecture in the Age of reason , Baroque and post – Baroque in England.
- Sir Banister Fletcher, ' A History Of Architecture ' London,UK.(2000)

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. Passaint Masoud
Head of the Department:	Associate Professor: Nahed Omran
Date:	September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 410: Technical Installations and Plumbing Engineering 1

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: Technical Installations and Plumbing Engineering 1 **Code:** ARC410 **Level:** Senior 1,Level 4**,** 7th Semester

Credit Hours: 2 **Lectures:**1 **Tutorial/Exercise:**3 **Practical:** -

Pre-requisite ARC 312

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to introduce the basic concepts and theory of Designing technical installation in buildings

2 - Intended Learning Outcomes (ILOS)

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 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.	1	3	
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	**15**		

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:

Asesement 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 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.

Course coordinator: Dr. Sayed Abd El Kalek
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 412: Working Drawing and Construction Methods (1)

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: Working Drawings and Construction Methods (1)

Code: ARC 412 **Level:** Senior 1, Level 4, 7th Semester

Credit Hours: 3 **Lectures: 2** **Tutorial/Exercise: 2** **Practical:**

Pre-requisite: ARC 312

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:

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:

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:

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 (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
D	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	2	
2. An overview of the selected projects and determining the project for each student	2	2	
3. Floor plans (Ground floor plans) 4. 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	2	
5. Typical floor plans	2	2	
6. Basement plans	2	2	
7. Roof plans	2	2	
8. Mid-Term Exam	2	2	

9. Site plan (Layout) **10.** 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	2	
11. Sections 12. 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	2	
13. Elevations 14. 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	2	
15. Sanitary drawings (1) **16.** Water supply systems and plumbing fixture	2	2	
17. Sanitary drawings (2) **18.** Sanitary Drainage and sewage disposal systems	2	2	
19. Electrical drawings (1) **20.** Electric power and lighting outlets.	2	2	
21. Electrical drawings (2) **22.** Electric power and lighting outlets.	2	2	
23. Final Project submission and discussion.	2	2	
Total hours	**30**	**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	projects	sketches			Self-learning	Discovering	Researches and Reports	Projects	Written Exam	Practical Exam	Quizes	Mid-Term Exam	Assignments	Project		
Knowledge & Understanding	a1	1						1	1						1	1		1	1	1	1		
	a2	1						1	1					1							1		
	a3	1						1	1						1	1					1		
	a4	1													1						1		
	a5	1												1	1						1		
Intellectual Skills	b1	1						1	1						1	1			1	1	1		
	b2	1													1	1				1	1		
	b3	1						1	1						1	1			1	1	1		
Applied Professional Skills	c1	1													1	1		1	1	1	1		
	c2								1						1					1	1		
	c3	1													1	1							
	c4							1							1	1			1	1	1		
	c5	1						1						1	1	1				1	1		
	c6	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	1	1		
	d4							1						1	1					1	1		

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: Weekly Drawing Sheets, quizes, and researches	Bi-Weekly	25
Mid-Term Exam	7-th Week	10
Term Project	Fifteenth week	25
Written Exam	Sixteenth week	40
Total		**100**

6- List of references:

6-1 Course notes

- د.هيثم سمير " الرسومات التنفيذية وطرق الانشاء" مذكرات الأكاديمية الحديثة للهندسة والتكنولوجيا - للسنة الرابعة عمارة

6-2 Essential books (text books)

- Barry, R., 'The Construction of Buildings ", Blackwell, USA
- فاروق عباس حيدر "الموسوعة الحديثة فى تشييد المبانى" الطبعة الرابعة، منشأة المعارف، الاسكندرية، ١٩٩٤
- محمد عبد الله " الرسومات التنفيذية والتفاصيل المعمارية" مكتبة الأنجلو المصرية، القاهرة، ١٩٨٩
- محمد عبد الله " إنشـــاء المبانى" مكتبة الأنجلو المصرية، القاهرة، ١٩٨٩

6-3 Recommended books

- 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.

- Non

7- Facilities required for teaching and learning:

- Design studio equipped with appropriate drawing boards.
- Resources available in the library.
- Computer lab with AutoCAD installed on computers

Course coordinator: Dr. Haitham Samir
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 422: 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: Septmber , 2015

B - Basic information

Title: Architectural Design 6 **Code:** ARC 421 **Level:** Senior 1,Level 4,8th Semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:**6 **Practical:** -
Pre-requisite: ARC 421

C - Professional information

1 – Course Learning Objectives:

This course aims to develop the student awareness and understanding of architectural design implications emphasizing application of analytical, conceptual, and representational skills integral to the architect.

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 International or local projects.	1	6	

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	**30**	**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 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														
	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	50
Mid Term Exam	7th week	10
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:** 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

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.
- Electronic Pub. URL: www.greatbuildings.com

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: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 424: Housing & City Planning 2

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: Housing & City Planning 2 **Code:** ARC 424 Senior 1,Level 4,8th Semester

Credit Hours: 2 **Lectures:** 1 **Tutorial/Exercise:**3 **Practical:** -

Pre-requisite: ARC 423

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 (Revision on GIS)	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	1	3	
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	**15**	**30**	

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							
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	10
Researches	Week 2, 4	10
Oral discussion	weekly	10
Mid-term exam	Week 7	10
Project	Week 14	20
final Exam	Week 16	40
Total		100

6- List of references:

- **6-1 Course notes:** The Residential neighborhood – M. HasanAllana

6-2 Required books

- **6-3 Recommended books:** The Residential neighborhood – M. HasanAllana

6-4 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. Marwa Adel
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 440: History of Architecture and Arts (3)

A- Affiliation

Relevant program:	Architecture Engineering and Building Technology BSC Prog.
Department offering the program:	Architecture Engineering and Building Technology
Department offering the course:	Architecture Engineering and Building Technology
Date of specifications approval:	Septmber , 2015

B - Basic information

Title: History of Architecture and Arts **Code:** ARC 440 Senior 1,Level 4,8th Semester(3)
Credit Hours:2 **Lectures: 2** **Tutorial/Exercise: -** **Practical: -**
Pre-requisite :ARC 341

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:

By the end of the course the student should acquire the flowing knowledge and understanding:

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:

By the end 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:

By the end 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:

By the end 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
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	-	-
2	Caliph. Periods.	2	-	-
3	Tulane's period.	2	-	-
4	Building concepts in Islamic Arch.	2	-	-
5	Fatimid caliphs' period.	2	-	-
6	Fatimid caliphs' period. (Site Visit) / Ayyubids period.	2	-	-
7	Mid-Term Exam	2	-	-
8	Home in Islamic Arch.	2	-	-
9	Mamluks (Bahri and Circassian) period.	2	-	-
10	Mamluks (Bahri and Circassian) period.	2	-	-
11	Mamluks (Bahri and Circassian) period.(Site Visit)	2	-	-
12	Ottoman (Turks) period.	2	-	-
13	Napolic Invasion (Mohamed Ali) period.	2	-	-
14	Research	2	-	-
15	Individual presentation.	2	-	-
	Total hours	**30**	**-**	**-**

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 exoeriments	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		
	a2	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				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		
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		

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (%)	Grade (Degrees)
Semester Work: assignments ,Research	Bi-Weekly	25%	25
Mid-Term Exam	7-th Week	5 %	5
Final Exam	Sixteenth week	70 %	70
Total		100%	100

6- List of references:

6--1 Course notes

Course notes, The mosque, Mona Elbasyoni, 2008.

6-2 Required books

- العمارة الاسلامية فكر وحضارة، توفيق عبد الجواد،مكتبة الأنجلو ـالقاهرة ١٩٨٧
- Robert Hillenbrand, Islamic Architecture, 1994, 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.

http://www.islamonline.com

7- Facilities required for teaching and learning:

White boards and markers.
Well equipped space for lectures and digital presentation.
Site visits

Course coordinator: Associate Professor: Mona Albassyouni

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 411: Technical Installations and Plumbing Engineering 2

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: Technical Installations and Plumbing Engineering 2 **Code:** ARC411 Senior 1,Level 4,8th Semester

Credit Hours: 2 **Lectures:**1 **Tutorial/Exercise:**3 **Practical:** -

Pre-requisite ARC 410

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to introduce the basic concepts and theory of Designing technical installation in buildings

2 - Intended Learning Outcomes (ILOS)

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.	1	3	
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	**15**	**45**	

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	20
Mid-Term Exam	6-th Week	10
Written Exam	Sixteenth week	70
Total		100

6- List of references:

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.

Course coordinator: Dr. Sayed Abd El Kalek
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 413: Working Drawing and Construction Methods (2)

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: Working Drawings and Construction Methods (2) **Code:** ARC 413 **Level:** 4, 8th Semister

Credit Hours: 3 **Lectures:2** **Tutorial/Exercise: 3** **Practical:**

Pre-requisite: ARC 412

C - Professional information

1 – Course Learning Objectives:

This course continues on from where the first course (A412) 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
D	General and transferable skills	D2, D3, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. **Stairs, elevators and escalators** (an overview of the design, types and requirements)	2	3	
2. **Concrete stairs**	2	3	
3. **Steel stairs**	2	3	
4. **Special stairs**	2	3	
5. Door types, operation, hardware & finishes.	2	3	
6. Window types, operation, hardware & finishes. Finish work and flooring (Gypsum plaster and Cement plaster or stucco, Ceramic tiles, Marble, wood, Terrazzo and stone flooring)	2	3	
7. Mid-Term Exam	2	3	
8. Suspended ceilings (Gypsum borads and tiles, acoustic tiles, aluminium panels and grid systems	2	3	
9. Bathroom space, plumbing fixtures and details (	2	3	
10. Cladding (Precast concrete panels, GRC, GRP, GRG, Marbel	2	3	

cladding fixation, Masonry veneer, Metal and Aluminium comoposit sheets cladding)			
11. Glazed curtain walls and systems (ordinary currtain wall, structural glazing, spider system)	2	3	
12. Wall sections with different construction materials	2	3	
13. Skylight details	2	3	
14. Genral architectural details	2	3	
15. Final Project submission and discussion.	2	3	
Total hours	**30**	**45**	

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	1		
	a2	1						1	1					1							1		
	a3	1						1	1						1	1					1		
	a4	1													1						1		
	a5	1												1	1						1		
Intellectual Skills	b1	1						1	1						1	1			1	1	1		
	b2	1													1	1				1	1		
	b3	1						1	1						1	1			1	1	1		
Applied Professional Skills	c1	1													1	1		1	1	1	1		
	c2								1						1					1	1		
	c3	1													1	1							
	c4							1							1	1			1	1	1		
	c5	1						1						1	1	1				1	1		
	c6	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	1	1		
	d4							1						1	1					1	1		

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: Weekly Drawing Sheets, quizes, and researches	Bi-Weekly	25
Mid-Term Exam	7-th Week	10
Term Project	Fifteenth week	25
Written Exam	Sixteenth week	40
Total		**100**

6- List of references:

6-1 Course notes

- د.هيثم سمير " الرسومات التنفيذية وطرق الانشاء" مذكرات الأكاديمية الحديثة للهندسة والتكنولوجيا - للسنة الرابعة عمارة

6-2 Essential books (text books)

- Barry, R., 'The Construction of Buildings ", Blackwell, USA
- فاروق عباس حيدر "الموسوعة الحديثة فى تشييد المبانى" الطبعة الرابعة، منشأة المعارف، الاسكندرية، ١٩٩٤
- محمد عبد الله " الرسومات التنفيذية والتفاصيل المعمارية" مكتبة الأنجلو المصرية، القاهرة، ١٩٨٩
- محمد عبد الله " إنشـــاء المبانى" مكتبة الأنجلو المصرية، القاهرة، ١٩٨٩

6-3 Recommended books

- 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.

- Non

7- Facilities required for teaching and learning:

- Design studio equipped with appropriate drawing boards.
- Resources available in the library.
- Computer lab with AutoCAD installed on computers
-

Course coordinator: Dr. Haitham Samir
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Elective Courses

43* Applied Engineering and Design Subjects Elective Courses (2 courses)

ARC 330	2	2	-	-	Construction & Building Equipment	ARC 213
ARC 430	2	2	-	-	Building Economics	ARC 312
ARC 433	2	2	-	-	Building technology and structure systems	ARC 213
ARC 434	2	2	-	-	Modular Coordination	ARC 312

ARC 430	2	2	-	-	Housing in developing countries	ARC 321
ARC 431	2	2	-	-	Urban Renewal	ARC 321
ARC 432	2	2	-	-	Design, Environmental planning and power	ARC 325

45* Humanitarian Elective Courses (2 courses)

Course Code	Total Credits	L	Contact Hours		Course Title	Prerequisites
			T	P		
ARC 450	2	2	-	-	Project Management for construction projects	None
ARC 451	2	2	-	-	Architecture, Civilization and Heritage	ARC 321
ARC 452	2	1	3	-	Advanced Studies in Interior Design	ARC 223

Applied Engineering and Design Subjects Elective

43*

Modern Academy for Engineering and Technology

Course Specification

ARC 330:Construction Equipment

(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: Construction Equipment **Code:**ARC 330 Senior 1 , Level 4

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

Pre-requisite: ARC 213

C - Professional information

1 – Course Learning Objectives:

Study of the basic principles, practices, and techniques used in the construction industry for selecting and managing construction equipment and construction the operations as a dynamic process. Focuses on understanding the time value of money, estimating equipment ownership and operating costs, selecting the proper equipment for specific construction tasks, and estimating equipment production.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

a1 - Construction equipment in site. (A15)
a2 - Site Planning and preparation for construction equipment. (A16,A24)
a3 -Understanding the Program for management construction equipment. (A15, A16)
a4 - Principles of building technologies, structure & construction methods, technical installations, properties of materials and their equipment , and the way they may influence design decisions and planning sites (A14)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 - Assess and evaluate effectively the characteristics and performance of the construction equipments in site. (B2-B3-B4,B22)
b2 - The role of the architecture profession relative to the construction industry. (B3-B9,B23)
b3 - Solve engineering design problems in site planning for construction equipments. (B4-B9-B20)
b4 - Select and appraise appropriate equipment for solving a variety of engineering problems in site planning. (B2-B3-B4)
b5 - Develop systems for the construction equipments. (B9-B20)

C- Professional and practical skills:

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

c1 - Establish a design system using the specialized information in the material. (C11-C12,C23)

c2 - Modify the system after the design to adapt with the surrounding circumstances. (C15)

c3 - Establish the Storage and maneuvering areas needed for construction and building equipment.

c4 - Evaluate the system; put the efficiency criteria for this system. (C15,C23)

D - General and transferable skills:

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 - Manage tasks and resources for equipments used in site efficiently (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A14 ,A15 ,A16,A24
B	Intellectual skills	B2,B3,B9,B20,B22,B23
C	Professional and practical skills	C11.C12,C15,C23
D	General and transferable skills	D1,D3,D6,D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
• Introduction to construction Equipment	2		
• Construction equipment in site	2		
• Cost analysis(The productivity ofthe equipment)	2		
• Wrenches wood used in the construction work	2		
• Different techniques optimizing equipment for best production	2		
• Site Planning and preparation for a constructionequipment (1).	2		
• Site Planning and preparation for a construction equipment (2).	2		
• Determining Equipment Costs	2		
• Time Schedule	2		
• Calculating Equipment Costs	2		
• Energy consumed in the construction of buildings	2		
• Elements of theenergy consumptioninthe construction phase ofthe building	2		
• Factors affecting theenergy consumptionat the stage ofconstruction of the building	2		
• Program for construction equipment.	2		
• Complete construction project	2		
Total hours	**30**		

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			
	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																	
	b4	1			1	1																	
	b5	1			1	1																	
	b6	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			
	c3	1		1	1	1	1					1	1						1	1			
	c4	1			1	1																	
General Tran. Skills	d1			1	1							1								1			
	d2			1								1								1			
	d3																						

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	20
Mid-Term Exam	8-th Week	10
Written Exam	Fifteenth week	70
Total		100

6- List of references:

١-٦Course notes

- معدات التشييد و البناء، أسامر زكريا
- معدات التشييد و البناء، معتز طلبه
- معدات التشييد و البناء، شريف العطار
- Dr. Shafak El Wakeel," Construction Equipments in sites", AinShamsUniversity press, 2006.
- Time Saver standards, by Joseph de Chiara and others.

6-2 Required books

الموسوعة الهندسيةلأنشاء المباني و المرافق العامة، عبداللطيف العطار، مطابع الوفاء، ١٩٩٤

6-٣ Periodicals, Web sites, etc.

- www.caterpillar.com

7- Facilities required for teaching and learning:

- Visit same site and company who owns construction equipment used in different building operations like earthmoving, foundation construction, concrete, masonry and steel construction methods.

Course coordinator: Dr.Amr almoatassem bella

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 430: Building Economics

(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: Building Economics **Code:** ARC 430 **Level:**Senior 1,Level 4
Credit Hours: 2 **Lectures:**2 **Tutorial/Exercise:-** **Practical:**
Pre-requisite: ARC 312

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. (A 14)
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 (B 22)

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	
2. Economic principles	2	2	
3. Economic Idologies about building technology	2	2	
4. Properties of the construction sector	2	2	
5. Demand in building sector	2	2	
6. Supply in building sector	2	2	
7. Mid-Term Exam	2	2	
8. Related industries to construction technology	2	2	
9. Resources	2	2	
10. Construction Costs	2	2	
11. Housing funds	2	2	
12. Housing Planning	2	2	
13. Feasibility studies	2	2	
14. Depreciation	2	2	
15. SWOT analysis in construction sector	2	2	
16. Applications	2	2	
Total hours	**30**	**30**	

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			
	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 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			
General Tran. Skills	d1			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	Sixteen week	70
Total		100

6- List of references:

6-1 Lecture notes: Exists

6-2 Required books

Non

6-3 **Recommended books:** الموسوعه الهندسية لأنشاء المباني و المرافق العامة، عبد اللطيف أبو العطا، مطابع الوفاء، ١٩٩٤

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: Dr. Mohamed Gobara
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC433:Building technology and structure systems

(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: Building Technology **Code:** ARC433 **Level:**Senior 1,Level 4
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** - **Practical:** -
Pre-requisite: ARC 213

C - Professional information

1 – Course Learning Objectives:

The course aims at defining modern building systems and its applications. Studying modern techniques in fabrication in site and factories. In addition to economic studies of fabrication and project execution (traditional- modern/ mechanized)

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)
a4- classifying &dealing with construction materials& systems. (A4,A24).
a5- the effect of science development on building technology. (A25).
a6- prefabricated buildings (historic view ,concepts disciplines). (A13, A17).
a7- structural units & connection in prefabricated building. (A4, A17).
a8- the expected future of construction in Egypt (problems, potentials…). (A8)

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,B23)
b3- Discover &analyze the advantages &disadvantages of construction systems and materials. (B5, B22)

b4- Recognize the differences &compare between structural units in prefabricated building. (B4)
b5 - compare between different construction systems (traditional, new &prefab). (B1,)

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,C9,C23)
c2- find and implement different systems & alternatives in execution methods (C2).
c3- merge between construction systems to reach better solutions for constructions problems (C2).
C4- Demonstrate environmental studies that are applicable to building technology techniques and processes,.(C28)

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,A3, A4,A8, A17, A24,A25
B	Intellectual skills	B4, B5, B13,B23,B22
C	Professional and practical skills	C1, C2,C9,C23,C25
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. mechanized technology	2		
3. mechanized technology	2		
4. prefabrication technology	2		
5. prefabrication technology	2		
6. prefabrication technology	2		
7. Mid-Term Exam	2		
8. bases for selection between construction systems	2		
9. bases for selection between construction systems	2		
10. Structural units of Prefabricated buildings	2		
11. selection of alternatives for project execution	2		
12. selection of alternatives for project execution	2		
13. selection of alternatives for project execution	2		

14. selection of alternatives for project execution	2		
15. Revision.	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	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					
	a2	1						1	1				1			1		1					
	a3	1	1									1		1		1		1		1			
	4															1		1					
	a5	1	1	1		1		1	1			1	1	1	1	1		1		1			
	a6	1	1			1		1								1		1					
	a7	1	1			1		1				1				1		1					
	a8	1		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					
	b4	1	1					1				1				1		1					
	b5	1	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:

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

6- List of references:

6-1 Course notes:

- Zakaria Ahmed, Dr. Asamer, "Building Technology "(Arabic), 2008

- **Required books :** Dr. Hayder, F.A., "Building Construction", Sixth Edition, Monshaet Elmaaref, Alexandria, 1988.

6-3 Recommended 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)

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: Dr. Asamer Zakaria
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 430 Housing in Developing Countries

(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: Housing in developing countries **Code:** ARC 430 Senior 1,Level 4

Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC 321

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to handle:

Introduction to housing problems in developing countries, different approaches for solving these problems, emphasis on the complex social, cultural and economical parameters & public involvement.

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- 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 –Main policies of dwelling "Centralization – Decentralization". (A16)(A22)
a4 –Users participation in dwelling. (A9)
a5 –Recent Cases. (A24)
…..Knowledge about international leaders in each of (centralization – decentralization)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 –Dwelling projects evaluation. (B2)
b2- Combine, exchange and asses different ideas, views and knowledge from a range of sources. (B4)
b3 –Improving student's skill of logical analysis. (B12)
….Student's reorganization of his country situation

C- Professional and practical skills:

By the end of the course the student should be practice:
c1 - Use available resources with the lowest cost. (C15,16)

D - General and transferable skills:

By the end of the course the student should be able to:
d1– Able to work in all urban sectors. (D2)
d2– Able to evaluate Costs. (D6)
d3- know general knowledge about social & economical studies. (D8)
d4– Refer to relevant literature effectively. (D9)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A9,A16,A22,A24
B	Intellectual skills	B2,B4,B12
C	Professional and practical skills	C15,C16
D	General and transferable skills	D2,D6,D8,D9

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. User's participation US. Policy of centralization	2		
2. John Turners US rod burgess	2		
3. Users participation in dueling	2		
4. Cases of users participation outside Egypt	2		
5. Main elements in dwelling process	2		
6. Turner's Concepts and his main issues	2		
7. Mid-Term Exam	2		
8. Recent dwelling approach in Egypt	2		
9. Recent dwelling approach in Egypt	2		
10. Quantitative proprieties of dwelling sectors	2		
11. Quantitative proprieties of dwelling sectors	2		
12. Quantitative proprieties of dwelling sectors	2		
13. Quantitative proprieties of dwelling sectors	2		
14. Dwelling Levels	2		
15. Dwelling Levels	2		
Total hours	**30**		

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	1			
	a4	1	1	1			1					1				1		1	1				
	a5	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 ProfSkills	C1	1	1			1	1									1	1	1	1	1			
General Tran. Skills	d1			1		1						1				1			1				
	d2		1	1								1							1				
	d3			1		1						1				1			1				
	d4		1	1								1							1				
	d5			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

- Lectures Notes

6-2 Essential books (text books)

6-3 Recommended books

- Alfred Nipage, Warren R. Seyfried, “Urban Analysis: Readings in Housing and Urban Development”, Published by Scott, Foresman, 1970.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

Course coordinator: Dr.Walaa Nour
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 431: 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: ARC 431 **Code:** ARC 431 Senior 1,Level 4
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**-2 **Practical:** -
Pre-requisite: ARC 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	Intellectual skills	B10,B11,B20
C	Professional and practical 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. syout projects	2		
10. Projects analysis	2		
11. Researches	2		
12. Researches	2		
13. Difference between projects	2		
14. General introduction on renovation	2		
15. 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							
d Professional	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 books احمد 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. wala Nour
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 434: Modular Coordination

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: *Modular Coordination* **Code:** ARC 434 **Level:** 4th year ,One semester
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** ---- **Practical:** ----
Pre-requisite: ARC 312

C - Professional information

1 – Course Learning Objectives:

The course aims to introduce the principles of modular coordination in building construction, Measurement procedures & types of scale, Design using modules & module types (Basic module, Multiple modules, Structural module, Design module, and Planning module). In addition it aims to study coordination process, its impact and applications on design and costruction by variouse materials (precast concrete – steel and wood structure). Then, introducing one of the most architectural pioneers in modular coordination.

Finally the course is going to introduce the meaning of Quality, Spacifications; ISO Standards with their different types according to architecture & construction scope as a main goal of the modular coordination precess.

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 measurements, units, methods of measurements (A1)
a2 - Types of modular coordination, Types of structures using modules. (A8)
a3 - Concept of standardization in building construction field and different Quality management systems. (A6)

B - Intellectual skills:

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

b1 -Use modules in mass production projects. (B1)
b2 -Create modules(B2)
b3–Thinking of quality management through architectural design phase. (B9)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1–Design with pre-cast units using different materials. (C1)
c2 -Manage sight and workshops(C1-C5)
c3 - Design using standards modular systems(C5)
c4–How to use different building types codes and standards for construction. (C10)

D - General and transferable skills:

On successful completion of the course, the student should be able to:
d1 -Cooperate with other to collect and select good information resources. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1,A6,A8
B	Intellectual skills	B1,B2,B9
C	Professional and practical skills	C1,C5,C10
D	General and transferable skills	D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1. Meaning & purpose of modular coordination – An Introductionn	2		
2. Measuring units & Measurement	2		
3. modular coordination& Modules	2		
4. Modules Types & its applications	2		
5. Le Corbosier Module	2		
6. Modular coordination & mass production	2		
7. Mid-Term Exam	2		
8. Application on Standardization process	2		
9. Construction by Precast concrete units	2		
10. Steel Construction	2		
11. Timber Construction	2		
12. Organization for Standardization & Quality control	2		
13. ISO Standards	2		
14. ISO Standards	2		
15. Research Presentations	2		
Total hours	**30**		

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			
	a3	1		1								1											
Intellectual Skills	b1	1					1						1										
	b2						1									1		1		1			
	b3	1										1	1										
Applied Professional Skills	c1	1					1									1		1					
	c2	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											

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work:, quizes – reports Research	Every 2 Weeks 14th Week	20
Mid-Term Exam	6-th Week	10
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes:

Lecture Notes

6-4 Required books : Non

6-3 Recommended books:

- د.م. موسى محمود شومان ،**"اسس التوحيد القياسى و الجودة فى العمارة و التشييد"**،الدولية للطباعة،٢٠٠٥.
- د. محمد عبد الله ،**" انشاء المباني – تكنولوجيا البناء"**،مكتبة الأنجلو المصرية، ١٩٩٩.

-Franci D.K Ching ,"**Building Construction Ilustrated**",Fourth Edition,John Wiley & Sons,1998.

6-4 Periodicals, Web sites, etc.

اصدارات الهيئة المصرية العامة للمواصفات والجودة

www.eos.org.eg
www.iso.com

7- Facilities required for teaching and learning:

- Whiteboard.
- Data show.

Course coordinator: Dr. Mohamed Goubara
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 450:Project Management(Humanitarian Elective Courses)

A- Affiliation

Relevant program: Architecture Engineering and Building TechnologyBSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Academic year/level: 4th year , Arch. Eng. ,
Date of specifications approval: Septmber , 2015

B - Basic information

Title: Modern Building systems & materials **Code: A450** Level : Senior 1,Level 4
Credit Hours:2 **Lectures:2** **Tutorial:**
Pre-requisite:-

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to know about introduction to project management and management process: planning, organizing, staffing, and development of a project.

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 - Project management system. (A7,A25)
a2 - Systems of planning projects. (A6)
a3 - Time and financial management in any project (A3,A7)

B- Intellectual skills:

By the end 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 solution for project design. (B3-B18)

C- Professional and practical skills:

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

c1 - Estimate cost budgeting (C2-C3)
c2 - Schedule, crash and control time. (C3-C9)
c3 – Manage resources. (C2,C12)
c4 –Control cost. (C3)

D - General and transferable skills:

By the end of the course the student should be able to:
d1 - Master Report Writing (D9)
d2 – Acquire Presentation Skills (D9)
Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A3, A6, A7,A25
B	Intellectual skills	B3, B17
C	Professional and practical skills	C2, C3,C9
D	General and transferable skills	D6, D9

3 – Contents

Topic	**Lecture hours**	**Tutorial hours**	**Practical hours**
• Introduction to construction industry	2		
• Bid study	2		
• Unbalanced bids	2		
• Project case study (tender project).	2		
• Project planning.	2		
• Project planning..	2		
• Project planning..	2		
• Project planning..	2		
• Project planning..	2		
• Time reduction.	2		
• Time management.	2		
• Financial management.	2		
• Financial management.	2		
• Resource management	2		
• Resource management	2		
Total hours	**30**		

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	Brain storming					Researches and Reports	Modeling and Simulation			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			
	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																	
Applied Professional Skills	c1	1	1		1	1	1									1	1	1	1	1			
	c2	1			1		1									1		1	1	1			
	c3	1		1	1	1	1					1	1						1	1			
	c4	1			1	1																	
General Tran. Skills	d1			1	1							1								1			
	d2			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	8-th Week	10
Written Exam	Fifteenth week	70
Total		100

6- List of references:

6-1 Course notes

-***Construction Project management*** **(lecture notes)**.

6-2 Required books

-الادارة التنفيذية لمشروعات التشييد ج١-٢ د، د.ماجد خلوصى، ١٩٩٦.

6-3 Recommended books

- تشييد المبانى ج١-٢ ،د. فاروق حيدر،منشأة المعارف، ١٩٩٧.

6-4 Periodicals, Web sites, etc.

-***American Society of Civil Engineers***

7- Facilities required for teaching and learning:

- Data Show
- Blackboard / white board nd chalk

Course coordinator: Dr. Amira Abd Elaziz Gouhar

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 451 Architecture , Civilization and Heritage

(Humanitarian Elective Courses)

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: : Architecture , Civilization and Heritage **Code:** ARC 451 Level : Senior 1,Level 4

Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise-** **Practical:** -
Pre-requisite: ARC 321

C - Professional information

1 – Course Learning Objectives:

The aim of the course is to support student's background in the field of human social and cultural aspects as an important input in the design process. By the end of this course the student should be able to understand, develop and criticize architectural and urban patterns from the social and cultural 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- Theories, issues, concepts demonstrating the interrelation between Architecture, Civilization and Culture (A5, 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, analyze, 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	A5, 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. Culture and Architecture. (General definitions, terms, and characteristics of culture and Architecture)	2		
2. Heritage and Architecture (Definitions, Classification of Heritage, World Heritage sites)	2		
3. Paradigms and the three world views (Organismic, Mechnismic and Systemic world views and its relation to Architecture)	2		
4. The Interrelation between culture and Architecture (General theories, concepts and examples)	2		
5. Architecture as cultural expression - Features and characteristics (A detailed discussion of the multi-components of culture and its impacts on the architectural patterns)	2		
6. Social interaction and urban environment – perception , environment image and behavior patterns. The role of the architect towards the local culture of the place. (community design, participatory design approaches)	2		
7. Mid-Term Exam	2		
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. Architectural and 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	**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	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:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, 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 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 Thesies, Periodicals, Web sites, etc.

- أشرف كامل بطرس (١٩٩٨) "الثقافة والنتاج البنائى - منهج لرصد وتحليل واستقراء الأبعاد الثقافية وتوظيفها فى 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) "فى العلاقة بين الانسان والمكان – منهج لرصد العلاقة التبادلية فى نماذج من الفراغات العمرانية بالقاهرة" رسالة ماجستير غير منشورة، كلية الهندسة، جامعة القاهرة.
- نهى محمد نشأت (٢٠٠٢) "أثر التغيرات الثقافية على الأنساق التصميمية للنتاج البنائى"رسالة ماجستير غير منشورة، كلية الهندسة، جامعة القاهرة.

7- Facilities required for teaching and learning:

- Appropriate teaching class including presentation board and data show,
- Resources available in the library

Course coordinator: Dr. Haitham Samir
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 452: ADVANCED STUDIES IN INTERIOR DESIGN

(Humanitarian Elective Courses)

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: ADVANCED STUDIES IN INTERIOR DESIGN **Code** ARC 452 **Level:** Level : Senior 1,Level 4

Credit Hours: 2 **Lectures1** **Tutorial/Exercise:** **Practical:**
Pre-requisite: ARC 223

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 on the basis of 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	A12,A13,A20,A21
B	Intellectual skills	B1, B2, B5, B9, B13, B14, B15,B22
C	Professional and practical skills	C1, C2, C3,C 4, C10, C16, C17
D	General and transferable skills	D1,D2,D3,D5,D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1- Introduction	2		
2- Interior Design process	2		
3- Elements of Interior Design	2		
4- Principles of Interior Design	2		
5- Colors in Interiors (Research)	2		
6- Introduction to Finishings	2		
7- Mid term Exam	2		
8- Flooring Finishings	2		
9- Walls & Ceiling finishes	2		
10- Finishing materials & (Project Introduction)	2		
11- Styles of Furniture	2		
12- Furniture Accessories (1) & (Proj. Study)	2		
13- Furniture Accessories (2)	2		
14- Furniture Accessories (3) & (Proj. Semifinal)	2		
15- Project Final.	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			
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			
	a4	1	1	1			1	1				1				1							
	a5	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			
Intellectual Skills	b1	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			
	b5			1	1		1	1				1			1	1			1	1			
	b6	1	1		1	1	1	1											1	1			
	b7	1	1	1			1	1				1				1			1	1			
	b8	1		1			1	1			1	1	1		1	1			1	1			
	b9	1	1				1					1											
	b10				1	1	1	1		1			1											
	b11	1	1	1			1	1				1			1					1			
	b12	1	1	1			1	1				1			1	1			1	1			
	b13	1	1	1			1	1				1			1	1			1	1			
	b14	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	1			
	c3	1		1	1		1					1				1				1			
	c4			1					1			1			1	1							
	c5	1		1			1									1				1			
	c6	1	1	1			1	1				1			1	1				1			
	c7	1	1	1		1	1	1				1			1	1				1			
	c8	1	1		1	1	1			1		1	1										
	c9			1	1				1	1		1	1		1				1	1			
	c10		1	1	1	1	1	1		1		1				1			1	1			
	c11			1	1	1	1		1	1		1	1		1	1			1	1			
	c12	1	1		1	1	1	1				1	1		1	1			1	1			

	c13	1	1			1	1						1			1			1	1			
	c14	1	1	1	1	1	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			
	d3			1		1	1		1	1	1	1			1								
	d4	1	1	1			1					1											
	d5	1	1	1		1	1					1	1			1			1	1			
	d6	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:

6-6-1 Course notes

1- Lecture notes

6-2 Required books

1-Interior Design books

6-3 Recommended books

1- Interior Design books

6-4 Periodicals, Web sites, etc

7- Facilities required for teaching and learning:

- Free Hand Sketches – AutoCAD and 3Dmax program – Photoshop –Sketch up

Course coordinator: Dr. Amira Mostafa
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC432:Design, Environmental planningand power

(Applied Engineering and Design Elective Course)

A- Affiliation

Relevant program: Architecture Engineering and Building TechnologyBSc Program

Department offering the program: Architecture Engineering and Building Technology
Department offering the course: Architecture Engineering and Building Technology
Date of specifications approval: Septmber , 2015

B - Basic information

Title: Design, Environmental planningand power **Code:** ARC 432 **Level:** Senior 1,Level 4

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

Pre-requisite: ARC 325

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
D	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	
2. Environmental fields and its level	2	2	
3. climatic zone in Egypt Integrated Environmental design	2	2	
4. climatic zone in Egypt Integrated Environmental design	2	2	
5. definition of saving Energy comfort degrees and human needs	2	2	
6. definition of saving Energy comfort degrees and human needs	2	2	
7. Mid-Term Exam	2	2	
8. Ecological system saving from natural condition: sand movement – Beaches/ Ecological system saving from natural condition: sand movement – Beaches	2	2	
9. Floods – facing Air earth pollution	2	2	
10. Environmental effects , forms and site Design	2	2	
11. Daylight needs – Aerodynamics Architecture	2	2	
12. ventilation Design and protection from wind	2	2	
13. renewed energy – solar energy and its efficiency	2	2	

14. renewed energy – solar energy and its efficiency.	2	2	
15. Revision	2	2	
Total hours	**30**	**30**	

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:

Asessement Method	Timing	Grade (Degrees)
Mid-term exam	7th week	10
Researches	15th week	5
Assignments	Every week	15
Final exam	16th week	70
Total		100

6- List of references:

6-1 Course notes: Okba, Ehab mahmoud.2007. Environmental Control (Arabic).Cairo, Egypt

6-2 Required books

Koesinger, " Environmental Control Handbook", 2000

6-3 Recommended books:

Anne R. Beer, Catherine Higgins, Environmental Planning for Site Development; A Manual for Sustainable Local, Published by Taylor & Francis, 2000.

-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.

- 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.

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

- Data Show
- Overhead projector
- Projection screen

Course coordinator: Dr. Reham Mostafa

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Architecture Trainning

Page Intentionally Left Blank

Modern Academy for Engineering and Technology

Course Specification

ARC 460: 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: Septmber , 2015

B - Basic information Level : Senior 1, Level 4

Title: Architecture Training **Code:** ARC 460 **level:** Senior1 : summer Semester
Credit Hours:3 **Lectures: --** **Tutorial/Exercise: -** **Practical:6**
Pre-requisite : ARC422

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

Course coordinator: Dr. Nahed Omran

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Page Intentionally Left Blank

Senior 2

Fourth year Architecture
Level 5

Course Specifications

Credit Hours System

Page Intentionally Left Blank

Senior 2
Fourth year Architecture
Level 5

S	Course	
	Code	**Title**
1	ARC 521	Architectural Design 7
2	ARC 522	City Planning
3	ARC 540	History and theories of Architecture (4)
4	ARC 511	Working Drawing & Construction Documents
5	ARC 513	Quantities Computing & Contracting Methods
6	ARC 512	Building Regulations & Professional Practice
7	ARC 560	Project
8	ARC 523	Urban Design
9	ARC 53*	Elective course of Applied Engineering
10	ARC 53*	Elective course of Applied Engineering
11	ARC 53*	Elective course of Applied Engineering
12	ARC 53*	Elective course of Applied Engineering
13	ARC 55*	Humanitarian Subjects (Elective Courses)
13	ARC 55*	Humanitarian Subjects (Elective Courses)

Page Intentionally Left Blank

Modern Academy for Engineering and Technology

Course Specification

ARC 521: 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: Septmber , 2015

B - Basic information

Title: Architectural Design 7 **Code**: ARC 521 **Level:** Senior 2 ,Level 5 , 9th semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:** 6 **Practical:** -
Pre-requisite: ARC 422

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:
Building design on basic concepts through Interacting buildings and urban projects with surrounding environment.

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 up dated 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							
al	d1	1	1					1												
	d2								1			1					1			

5- Assessment Timing and Grading:

Asesement Method	Timing	Grade (Degrees)
Assignments and sketches	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
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 .

6-4 Periodicals, Web sites, etc.

- Architectural Record
- Architectural Review

7- Facilities required for teaching and learning:

- Data Show

Course coordinator: Dr. Haitham Samir
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 522: City 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: Septmber , 2015

B - Basic information

Title: City Planning **Code:** ARC 522 **Level:** Senior 2 ,Level 5 , 9th semester
Credit Hours: 3 **Lectures:** 1 **Tutorial/Exercise:** 4 **Practical:** -
Pre-requisite: ARC 424

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Extend understanding of spatial & socioeconomics studies
- Apply development concepts with regard of constraints concepts the current situation in planning from diffract aspects (cultural, socioeconomics, etc)
- Perform site analysis studies

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- Planning Principles (A16,A19)
a2- Geographic information systems concepts & application (A17)
a3-Housing principles & how to plan a complete complex (A11)

B - Intellectual skills:

By the end 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)
b2- Develop new ideas during the design process using the principles of planning. (B14)
b3-Analyze data affecting the design process. (B11)
b4-Learn urban problems in city. (B10,11)
b5- Apply Planning principles in new urban areas (B19)

C- Professional and practical skills:

By the end of the course the student should practice:
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. (C6)
c3- Design a residential complex in existing urban areas. (C20)

D - General and transferable skills:

By the end of the course the student should be able to:
d1- Able to work in team (D1)

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,B14, B19
C	Professional and practical skills	C6, C20
D	General and transferable skills	D1,D2, D3, D5

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1) Planning regions in Egypt	1	4	
2) Planning regions in Egypt	1	4	
3) Planning regions in Egypt	1	4	
4) Historians and development approaches	1	4	
5) Historians and development approaches	1	4	
6) Natural resources in Egypt	1	4	
7) Mid-Term Exam	1	4	
8) Sustainable development	1	4	
9) Sustainable development	1	4	
10) Getting maps for menout city	1	4	
11) Getting maps for menout city	1	4	
12) Getting maps for menout city	1	4	
13) Getting maps for menout city	1	4	
14) Report about el sadat city	1	4	
15) Report about el sadat city	1	4	
Total hours	**15**	**60**	

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					
	a2	1							1			1											
	a3	1												1		1							
Intellectual Skills	b1	1							1											1			
	b2	1						1								1	1						
	b3	1							1					1									
	b4	1						1	1					1		1							
	b5							1	1							1		1					
Applied Professional Skills	c1	1	1			1												1					
	c2	1	1			1												1					
	c3	1	1				1	1								1							
General Tran. Skills	d1								1			1											
	d2			1				1				1			1		1						

5- Assessment Timing and Grading:

Asesement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes:
6-2 Required books
6-3 Recommended books:
6-4 Periodicals, Web sites, etc.
www.clac.edu.eg , www.googleearth .com

7- Facilities required for teaching and learning:

- GIPS
- Internet Access
- Updated computers
- Educational Software License
- Data show

Course coordinator: Dr. Marwa Adel

Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC540: History and Theories of Architecture (4)

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: History and Theories of Architecture (4) **Code:** ARC540 **Level:** Semister-9

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

Pre-requisite: ---

C - Professional information

1 – Course Learning Objectives:

This course aims to produce students can comprehend the basic concepts of the Architectural Evolution throughout the 20th Century and figure out the different philosophies & design-styles affecting architecture today through experiencing tens of important projects selected from Europe, USA, & Japan.

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 history of architecture and evolution of architectural theories throughout 20th century, by studying the basic features and trends of Modernism, Late-Modernism, Post-Modernism, Deconstruction, Performative, and Digital Architectures (A13, A17)

a2- New concepts of building forms and aesthetics (A13)

a3- Principles of Architectural Design theories and elements of design (A4)

a4- New ideas of building construction systems and technoloies (A8,A24)

a5- New materials used in building the selected projects (A3)

a6- Initial characteristics of the futuristic Architecture at the 21st Century (A13)

a7- A scientific methodology of how to proceed a technical research (A10)

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 (B14,B19)

b2 - Produce innovative design ideas and concepts (B4, B5)

b3 - Develop the creativity & innovation (B3)

b4 - Solve design problems (B2, B16)

b5- Use different techniques of construction systems in the design projects (B17, B19)
b6 - Know how to extract certain components, systems, & processes from history of architecture, and how to use them into the design process (B5)

C- Professional and practical skills:

On successful completion of the course, the student should be able to:
c1 - Produce creative & innovative ideas (C1, C2)
c2 - Identify the difference between the architectural styles & interpret their concepts (C2,C3)
c3- Examine new types of aesthetics in architecture through experinceing projects of the 20th century (C4)
c4 - 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- Search for information's from references, magazines and internet (D7)
d2- Write reports - singularly/pluraly - and prepare visual presentations (D2, D3, D4)
d3- Train how to present researches in teamwork (D1, D3, D5)
d4- Use the Email for communication (D3, D4)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A3, A4, A7, A8, A19, A11, A17,A24
B	Intellectual skills	B4, B5, B14, B19
C	Professional and practical skills	C1, C2, C4, C12
D	General and transferable skills	D1, D2, D3, D4, D5, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
Week No. 1 General introduction of the course + Recognition of the required research **Architecture of Modernism:** C.I.A.M. Team, Organic Approach, Functionalism + International Style	2		
Week No. 2 Continue… **Architecture of Modernism:** Functionalism + Minimalism, Bauhaus	2		
Week No3 Architecture of Late Modernism: Romanicism, Brutalism, Metapolism, Archigram	2		
Week No. 4 Continue… **Architecture of Late Modernism:** Hi. Tech. Architecture: Works of (Richard Rogers, Norman Foster, Nicholas Grimshaw, Helmut Jahn)	2		
Week No. 5 Architecture of Post Modernism: Historicism, Revivalism, Vernacular	2		
Week No. 6 Continue… **Architecture of Post Modernism:** Adhocism, Metaphoric Sculpture, Metaphorical Trend	2		
Week No. 7 - Mid-Term Exam	2		
Week No. 8 Architecture of Deconstruction: Works of Daniel Libeskind	2		
Week No9 Continue… **Architecture of Deconstruction:** Works of Frank Gehry	2		
Week No. 10 Continue… **Architecture of Deconstruction:** Works of Peter Eisenman	2		

Week No. 11 Performative Architecture: Works of Norman Foster	2		
Week No. 12 Continue... **Performative Architecture:** Works of Toyo Ito, Works of Jean Nouvel	2		
Week No. 13 Digital Architecture: Cyberspace Architecture, Hypersurface Architecture, Hybrids	2		
Week No14 Receiving the printed researches from students and let them presenting their works visually using Data-Shaw equipment and making useful jury	2		
Week No. 15 At the end of the course, the teaching assistant announces the final Year Work degrees which are flexibale to be changed in case of errors	2		
Total hours	**30**		

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		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	1		1				
	a6	1	1					1								1							
	a7	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		1	1			
	b4	1		1		1		1															
	b5	1				1										1	1		1				
	b6	1	1	1		1						1	1	1		1	1						
Applied Professional Skills	c1	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						1				
General Tran. Skills	d1					1				1		1	1	1					1	1			
	d2	1	1	1		1		1		1		1	1	1					1				
	d3	1	1									1	1	1					1				
	d4											1		1					1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semester Work: Assignments (Sketchbook)	Fourteenth week	15
Mid-Term Exam	7-th Week	10
Research and presenting it visually	Fourteenth week	5
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes: Non

6-2 Required books

ماجد نبيل علي، "تاريخ ونظريات العمارة (٤)"، مطبعة الأكاديمية الحديثة للهندسة والتكنولوجيا، القاهرة، مصر، ٢٠١٣

6-3 Recommended books:

علي رأفت، "ثلاثية الإبداع المعماري"، دار نهضة مصر، القاهرة، مصر
ماجد نبيل علي، "ميثولوجيا العالم القديم وأثرها على التصميم المعماري المعاصر"، دار الفكر العربي، القاهرة، مصر، ٢٠٠٩

- Jencks, Charles, "**Architecture Today**", John Wiley & Sons, West Sussex, England, 1993
- Jencks, Charles, "**Language of Post-Modernism**",
- Jencks, Charles, "**Esctatic Architecture**", Academy Edition, London, England, 1999
- Jencks, Charles, "**Meaning in Architecture**", Barrie & Rockliff The Crescent Press, London, England, 1969
- Jencks, Charles, "**The Architecture of Jumping Universe**", Academy Edition, Academy Group, London, England, 1995
- Jencks, Charles, "**The Language of Post-Modern Architecture**", Academy Edition, Academy Group, London, England, 1987
- Jencks, Charles, "**Critical Modernism: Where is Post-Modernism Going?**", John Wiley & Sons, West Sussex, England, 2007

6-4 Periodicals, Web sites, etc.

www.normanfoster.com
www.frankgehry.com
www.jeannouvel.com
www.toyoito.com
www.petereisenman.com
www.daniellibeskind.com

7- Facilities required for teaching and learning:

- Michrophone
- Computer, Data show and Computer programs: Powerpoint & Windows Media Player.

Course coordinator: Associate Professor: Reham Momtaz
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 511: Working Drawing & Construction Documents

A- Affiliation

Relevant program: Architecture Engineering and Building Technology BSc Program

Department offering the program: Architectural Engineering and Building Technology Dpt.
Department offering the course: Architectural Engineering and Building Technology Dpt
Date of specifications approval: Septmber , 2015

B - Basic information

Title: Working Drawing & Construction Documents **Code:** ARC 511 **Level:** Senior 2 ,Level 5 , 9th semester

Credit Hours: 4 **Lectures:** 2 **Tutorial/Exercise:** 6 **Practical:**
Pre-requisite: ARC 413

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 and handle site workshop drawings and details.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

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:

By the end 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:

By the end 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:

By the end 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, A23,A24
B	Professional and practical skills	B9, B12, B13, B14, B15, B16, B20,B22,B23,B24.B25
C	Intellectual 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	2	6	
7-Mid-term Exam	2	6	
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	
Total hours	**30**	**90**	

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									
	a2	1														1		1					
	a3	1					1									1							
	a4	1	1						1							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:

Asessement Method	Timing	Grade (Degrees)

Semister Work: seminars, quizes assignments and reports	Bi-Weekly	50
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes: - Working Drawing & Construction Documents
Prepared by Prof. Dr. Magdy Tammam

6-2 Required books

- 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.

http://products.construction.com/ - Sweets Construction.
All Building Construction Sites
All Architectural 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: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC513: Quantities Computing & Contracting Methods

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: Septmber , 2015

B - Basic information

Title: Quantities & Contracts **Code:** ARC 513 **Level:** Senior 2,Level 5,10th semester
Credit Hours:2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC 413

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to make tender documents for projects & to be able to determine the quality & quantity for engineering projects

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 - 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:

By the end 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:

By the end of the course the student should practice :

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:

By the end 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		
2-General & special conditions for engineering projects.	2		
3-Structural drawings.	2		
4-Fire fighting & sanitary & electricity drawings.	2		
5-HVAC works & drawings.	2		
6-Ordinary & reinforced concrete specifications & BOQ.	2		
7-Mid-Term Exam	2		
8-Concrete insulation specification & BOQ.	2		
9-Masonry work specifications & BOQ.	2		
10-Cement plaster specifications & BOQ.	2		
11-Wall & ceiling painting specifications & BOQ.	2		
12-External & internal wall cladding.	2		
13-Water proof & heat insulation works.	2		
14-Types of stairs & finishing.	2		
15-Door & window specifications & BOQ.	2		
Total hours	**30**		

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			
	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		1			
	b2	1			1	1										1		1	1	1			
	b3	1			1	1	1																
	b4	1			1	1																	
	b5	1			1	1																	
Applied Professional Skills	c1	1	1		1	1										1	1	1	1	1			
	c2	1			1		1									1		1	1	1			
	c3	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)
Semister Work: seminars, quizes assignments and reports	Bi-Weekly	20
Mid-Term Exam	7-th Week	10
Written Exam	six week	70
Total		100

6- List of references:

-1 Course notes

-**technical installation in buildings-a (lecture notes**).

6-2 Required books

Abdel-Fatah ElKasaby, Specification of engineering works

6-3 Recommended books

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

Data Show
Projection screen

Course coordinator: Dr. Sayed Abdelkhalek
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

A512: : Building Regulations and Professional Practice

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: Septmber , 2015

B - Basic information

Title: Building Regulations and Professional Practice **Code:** ARC 512 **Level:** Senior 2,Level 5,10th semester

Credit Hours:2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC 413

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- This course is structured in a format which relates explicitly to the architect and the contractor.
- It introduces the professional and legal responsibilities of the architect and the contractor as well as the building codes and land use legislation.

Principles of professional practice – Scope of work – Fees – Tenders – Contracts between owners and architect and between owner and contractor, Legal responsibilities, Redistribution Scheme, Rebuilding Scheme, Re-housing Scheme, Street Widening Scheme, and Building Scheme.

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 - 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:

By the end 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:

By the end 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

By the end 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**
1-Introduction on the professional and legal responsibilities of the architect	2		
2-Building Regulations	2		
3-Legislations& rules for Building	2		
4-Regulations for urban planning	2		
5-Legislations for urban planning	2		
6-Rules for urban planning	2		
7-Mid-term exam	2		
8-The architects' legal responsibilities	2		
9-The contractors' legal responsibilities.	2		
10-Responsibility for design and construction	2		
11-Relation Between the owners , the architect and the contractor	2		
12-Principles of professional practice - Scope of work	2		
13-Principles of professional practice - Fees – Tenders	2		
14-Contracts between owners and architect and contractor	2		
15-Conclusion on the course	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			
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			
Professional Skills	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:

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

6- List of references:

6-1 Course notes

Lecture notes

6-2 Required books

- LAW NO.106/1976 RELATED TO ORIENTATION AND ORGANIZATION OF BUILDING WORKS AS AMENDED BY LAW NO.30/1983 AND LAW NO. 101/1996.

6-3 Recommended books

-قانون البناء المصري رقم ١١٩ لسنة ٢٠٠٨.

6-4 Periodicals, Web sites, etc.

http://www.cpas-egypt.com

7- Facilities required for teaching and learning:

- The course will be more beneficial if it has more credit hours.
- Data show available and handy all time.

Course coordinator: Dr. Syed Abd Elkhalek

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC560: Graduation Project

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: Graduation Project **Code:ARC560** **Level:** Semister-10
Credit Hours: 6 **Lectures:4** **Tutorial/Exercise: 8** **Practical:** ---
Pre-requisite: ARC5211

C - Professional information

1 – Course Learning Objectives:

This course aims to make students qualified enough to design a large-scale architectural complex, to earn a certain culture through living monthes in a design-experince. In addition, the course prepares students to present a full-detail Avonprojet that included humanistic, functional, aesthetic, structural, environmental, and cultural aspects. 'Graduation Project' course relies on the accumulation of all previously acquired skills and taught courses throughout the four-year architectural 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- 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 information on making the program, zoning diagram.	4	8	
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	4	8	

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.			
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 work and determing a day of hanging the projects in seprated halls distributed over the building**	4	8	
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	**50**
Full Day Esquisse	12-th Week	**10**
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.

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: Associate Professor: Nahed Omran
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 523:Urban Design

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: Septmber , 2015

B - Basic information

Title: Urban Design **Code:**ARC 523 **Level:**Senior 2 ,Level 5 , 10th semester
Credit Hours: 4 **Lectures:** 2 **Tutorial/Exercise:**4 **Practical:** -
Pre-requisite: ARC 423

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Understand the definition of urban design.
- Analyses the site forces for both of physical and cultural dimensions.
- Analyses the urban tissue for its basic elements.

Be aware of landscape elements.

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- 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:

By the end 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:

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:

By the end 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	2	4	
2-Urban design &urban planning 1 – project	2	4	
3-Urban design &urban planning 2 – project	2	4	
4-Urban character 1 – project	2	4	
5-Urban character 2 – project	2	4	
6-Urban fabric 1- project	2	4	
7- Mid-Term Exam	2	4	
8- Urban fabric 2 – project	2	4	
9-Visual perception – project	2	4	
10-Urban space 1 – project	2	4	
11-Urban space 2 – project	2	4	
12-Façade analysis – project	2	4	
13-Urban development – project	2	4	
14-Landscape elements 1 – project/ Landscape elements 2 - project	2	4	
15- Site analysis - project	2	4	
Total hours	**30**	**60**	

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	a 1	1	1									1				1			1				
	a 2	1	1					1	1			1											
	a 3	1	1					1	1			1				1			1				
	A 4															1							
Intellectual Skills	b 1	1							1							1				1			
	b 2	1						1		1		1	1	1	1					1			
	b 3	1						1		1		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									
	C 3															1							
	C 4															1							
General Tran. Skills	d 1			1					1														
	d 2		1				1	1	1									1					

5- Assessment Timing and Grading:

Asesement Method	Timing	Grade (Degrees)
Semister Work	Bi-Weekly	50
Mid-Term Exam	6-th Week	10
Final Graduation project	Sixteenth week	40
Total		100

6- List of references:

6-1 Course notes: Non

6-2 Required books

6-3 Recommended books: Viljoen, “Cplus Continuous Productive Landscapes”, Archiectur, 2005.
Lynch , K. (1960) Image of the city, MIT Press

6-4 Periodicals, Web sites, etc.

- Krier, R. (1979) urban space - Academy Press

7- Facilities required for teaching and learning:

- Blackboard. Transparencies.

Course coordinator: Dr. Walaa Nour
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Elective courses

53* Applied Engineering and Design Subjects

Elective Courses

ARC 530	2	2	-	-	Urban & Environmental Conservation	ARC 424
ARC 531	2	2	-	-	Advanced Building economics	ARC 410
ARC 532	2	1	3	-	Computers in Architecture	ARC314
ARC 533	2	2	-	-	ModernBuilding Systems and Materials	ARC 434

55* Humanitarian Subjects (Elective Courses) one course

ARC 551	2	2	-	-	Aesthetics and formations	ARC 540
ARC 552	2	2	-	-	Architecture criticism	ARC 540

Page Intentionally Left Blank

Modern Academy for Engineering and Technology

Course Specification

ARC530: Urban And Enviromental Conservation

(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: Urban & Enviromental Conservation
Code: ARC530
Level: Senior 2 ,Level 5
Credit Hours:2
Lectures: 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC424

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. (A17 ,A18)
a3- International restoration and conservation charters (A16)
a4- Cultural Heritage and Local Economic Development (A11)
a5-The role of participation and community involvement in Conservation(A18-A11)
a6- urban revitalization of historic areas(A11-A18)
a7- Rehabilitation of historic buildings(A11-A21)
a8 - Conservation economics and the debate between cultural and economic values (A11)
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. (B19-A21)
b2- Deal appropriately with historic areas and quarters of cities. (B2-B21)
b3- Integrate community concerns to conservation projects (B18)
b4- Discuses conservation problems and formulate informed opinions appropriate to architectural and urban heritage (B19)

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. (C17)

c2- Respond effectively to the significant value of heritage sites and buildings with consideration of social and economic concerns(C22)

c3- Contribute positively to the aesthetic, architecture and urban identity, and cultural life of the community (C21,C22)

D - General and transferable skills:

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

d1-workig effectively as a member in the conservation team,reaching the optimum decisions(D1)

d2- Achieving his role as a conservation by guiding community individuals to values & conser their environment (D5)

d3- depending on his experiences & own vision which he gained to find many alternative of solutions for conservation problems (D7)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A11, A16,A17,A18,A19,A21
B	Professional and practical skills	B18,B19, B21,
C	Intellectual skills	C17, C21,C22
D	General and transferable skills	D1, D5,D7

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			
5- The role of international institutions.	2		
6- A critical review of international restoration & conservation charters	2		
7-Mid-Term Exam	2		
8- Cultural Heritage and Local Economic Development	2		
9- The role of participation and community involvement in Conservation	2		
10- urban revitalization of historic areas	2		
11- Rehabilitation of historic buildings	2		
12- Conservation economics and the debate between cultural and economic values	2		
13- The significance of public intervention in heritage	2		
14- Local and international case studies of urban conservation	2		
15- Research project presentation &revision	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	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							
	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					
	a7	1	1	1		1			1			1	1	1	1	1		1		1			
	a8	1		1		1			1			1				1		1					
	a9	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					
Applied Professional 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:

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

6- List of references:

6-1 Course notes:

Samir,Dr.Haithem,"Urban&Enviromental conservation"(Arabic),2009

6-2 Required books: Non

6-3 Recommended books:

- 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.

6-4 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: Dr. Asamer Zakaria
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 531:Advanced Building Economics

(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 offering the course: Architecture Engineering and Building Technology
Date of specifications approval: Septmber , 2015

B - Basic information

Title: Advanced Building Economics **Code:**ARC 531 **Level:** Senior 2 ,Level 5

Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:**-- **Practical:** --
Pre-requisite: ARC 410

C - Professional information

1 – Course Learning Objectives:

The course aims at studying advanced economic issues about construction process. As well as the costs during the construction phases (design- execution). The student should be able to enhance the ability of controlling the expenditures through a time-money plan

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. (A4)
a2 – New Resources, utilities, demand and supply related to building & construction. (A24)
a3 - Definition of new construction systems; markets types, and factors of production (A6,A25)
a4 - how to deal with costs and revenues of construction projects. (A14)

B - Intellectual skills:

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

b1 -Use economic terms, new tools in construction field, (B22)
b2 -Analyze construction and new Economic problems (B16,B23)
b3 -Utilize the relationship between competitiveness and economic terms (B16)

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, (c9,C16)
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 -apply laws to problems. (D3)
d2 -Allocate Resources to projects. (D8)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A4,A6, A14,A24,A25
B	Intellectual skills	B16, B22,B23
C	Professional and practical skills	C2, C9,C16
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	2		
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 Applications	2		
Total hours	**30**		

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			
	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				
Applied Professional Skills	c1	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:

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

6- List of references:

6-1 Lecture notes: Exists

6-2 Required books

Non

6-3 Recommended books: الموسوعه الهندسية لأنشاء المباني و المرافق العامة، عبد اللطيف أبو العطا، مطابع الوفاء، ١٩٩٤

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: Dr. Mohamed Gobara
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC 532:Computers in Architecture

(Applied Engineering and Design Elective Course)

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: Septmber , 2015

B - Basic information

Title: Computers in Architecture **Code:**ARC 532 **Level:** Senior 2 ,Level 5
Credit Hours: 2 **Lectures:** 2 **Tutorial/Exercise:** **Practical:** --
Pre-requisite: ARC 314

C - Professional information

1 – Course Learning Objectives:

The courses 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:

By the end of the course the student should acquire the flowing knowledge and understanding:
a1 - Professional standards of architectural practice(A19)
a2 - potential computer uses in architectural applications(A20)
a3 - The basic orders and functions in the AutoCAD program(A13)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 - Integrate different scales of design, ranging from interior details to urban scales with the computer applications(B13,B19)
b2 - Synthesize solution mechanisms and components properly(B4)
b3 - Produce innovative design and planning ideas and concepts(B4)
b4 - Analyze problems into sub-problems towards a controllable handling of elements(B1)

C- Professional and practical skills:

By the end of the course the student should practice:
c1 - Introducing professional 2D drawings(C13)
c2 - Mastering execution design and full working drawings for architectural projects(C14)
c3 - Mastering the use of computer in the design process in the architectural projects(C5,c13)
c4 - Basic techniques of computer presentation using different tools and media(C12)

D - General and transferable skills:

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

d1 - Familiarity with computer use and some of its applications (D7)

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

d3 - Allocate amongst team members (D6)

d4 Interaction of computer (D1)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A13, A19, A20
B	Intellectual skills	B1, B4, B13,B19
C	Professional and practical skills	C5, C12, C13, C14
D	General and transferable skills	D1, D3, D6, D7

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1-Computers Introduction and Its Components	2		
2-Programming language	2		
3-Definition to the computers capability In architectural and urban fields	2		
4-Definition to the computers capability In architectural and urban fields	2		
5-Problems definition & design needs	2		
6-Computers usage In programming Architects design	2		
7-Mid Term Exam	2		
8-Techniques and Applications which give an efficient using In program Analysis steps	2		
9-Techniques and Applications which give an efficient using In program Analysis steps	2		
10-Designs and its evaluation	2		
11-Preparing the two & three Dimension Drawing and Its calculation	2		
12-Preparing the two & three Dimension Drawing and Its calculation	2		
13-Preparing the two & three Dimension Drawing and Its calculation	2		
14-Preparing the two & three Dimension Drawing and Its calculation	2		
15-Project evaluation.	2		
Total hours	**30**		

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			
& Understandi	a1	1				1														1			
	a2	1		1			1																
	a3	1	1	1		1						1								1			
Intellectual Skills	b1	1				1		1												1			
	b2	1				1		1								1				1			
	b3	1		1		1									1								
	b4	1		1				1				1											
Professional Skills	c1	1			1	1		1												1			
	c2	1	1			1			1							1							
	c3	1	1			1			1							1							
	c4		1			1	1	1					1		1								
General Tran. Skills	d1		1	1								1			1								
	d2			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	20
Mid-Term Exam	7th Week	10
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes: Computer Applications (1)

6-2 Required books FelixCAD4.01 Quick Start Manual, 2001

AutoCAD 2002 Bible, Finkelstein / Hardcover / Wiley, John & Sons, Incorporated /2001

Bauke de Vries, Jos van Leeuwen, Henri Achten ,Computer Aided Architectural Design Futures Published by Springer, 2001.

6-3 Recommended books: Frey, D., "AutoCAD ® 2006 and AutoCAD ® LT 2006, Autodesk, 2006.

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:

Computer facilities and CAD software program

Course coordinator: Dr. Reham Mostafa

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

A533:Modern Systems and Building Materials

(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 offering the course: Architecture Engineering and Building Technology
Date of specifications approval: Septmber , 2015

B - Basic information

Title: Building Regulations and Professional Practice **Code:** ARC 533 **Level:** Senior 2,Level 5

Credit Hours:2 **Lectures:** 2 **Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC 434

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Determine importance of materials & systems for buildings.
- Understand properties and construction of traditional and new technique building.

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 - Properties of building materials. (A14-A24)
a2 - New systems for buildings. (A12-A14-A25)
a3 - New materials for buildings. (A14-A24)

B - Intellectual skills:

By the end of the course the student should be able to:
b1 - Select of new materials for buildings. (B5-B23)
b2 - Assess properties of plain concrete and R. concrete. (B17)
b3 - Determine suitable properties for concrete form work for buildings. (B17)

C- Professional and practical skills:

By the end of the course the student should be able to:
c1 - Determine suitable finishing for spaces. (C8)
c2 - Compare between building systems. (C9-C14-C25)

D - General and transferable skills:

By the end of the course the student should be able to:
d1– know relationship between system & material. (D6)
d2 - know relationship between finishing & cost. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A8, A12, A14,A24,A25
B	Intellectual skills	B5, B17,B23
C	Professional and practical skills	C8,C9, C14,C25
D	General and transferable skills	D6

3 – Contents

Topic	Lecture hours	Tutorial hours	Practical hours
1-Basics of building system & materials	2		
2-Relationship between the structural system & architectural design.	2		
3-Introduction to traditional and advanced construction systems.	2		
4-Concepts of Form work.	2		
5-Concepts of concrete industry.	2		
6-Concrete tests.	2		
7-Mid-Term Exam	2		
8-Mechanization of skeleton construction and foundation works.	2		
9-Lift slab.	2		
10-Tilt- up construction.	2		
11-Vertical slip for system.	2		
12-Tunnel system.	2		
13-Concrete additives and epoxy materials.	2		
14-Paints and proofing materials.	2		
15-Paints and proofing materials.	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			
Knowledge & Understanding	a1	1	1	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																	
Applied Professional Skills	c1	1	1		1	1	1									1	1	1	1	1			
	c2	1			1		1									1		1	1	1			
General Tran. Skills	d1			1	1							1								1			
	d2			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	s week	70
Total		100

6- List of references:

6-1 Course notes

-*Modern Systems and Building Materials* (lecture notes).

6-2 Required books

- *Modern Systems and Building Materials, Dr. Mohammed Abdullah, 2002*

6-3 Recommended books

6-4 Periodicals, Web sites, etc.

-American Society of Civil Engineers

7- Facilities required for teaching and learning:

- Sites
- Blackboard / white board and chalk

Course coordinator: Dr. Amira Abd Elaziz Gouhar

Head of the Department: Associate Professor: Nahed Omran

Date: September , 2015

Elective Courses

Humanitarian Subjects (one course)

Modern Academy for Engineering and Technology

Course Specification

ARC 551: Aesthetics and formations

(Humanitarian 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
Basic Science Department

Date of specifications approval: Septmber , 2015

B - Basic information

Title: Aesthetics and formations **Code:** ARC 551 **Level:** Senior 2 ,Level 5

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

Pre-requisite: ARC 540

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 thoughtf with practical architectural reality(B5,B4)
b3 - select the best Compiance 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 - Acquire 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-sculpturesque form	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				Assessement 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 Visites	Discovering	Written Exam	Practical Exam	Quizes	Term papers	Assignments			
Knowledge & Understanding	a1	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			
	a4	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							
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											
	c4		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	1				1			1								
	d6		1				1					1								1			
	d7		1	1	1		1					1			1					1			

5- Assessment Timing and Grading:

Asesement 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

- lecture notes and hand outs

6-2 Required books

6-3 Recommended books

١ - على رافت -ثلاثيه الابداع المعمارى-انتر كونسلت – القاهره- ٢٠٠٣ -
٢ - محمد شهاب احمد – العماره قواعد واساليب – دار قابس- ١٩٩٠
3-john wilsey-The Architecture Of Ecology-italy-1997.
4- Michal Hays- Architecture theory-U S A- 1998.

6-4 Periodicals, Web sites, etc

7- Facilities required for teaching and learning:

- Black board- White board
- Bo0ks, scientific, internet sites.
- Hall for lectures
- Data Show- Projector

Course coordinator: Dr Amira Mostafa
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Modern Academy for Engineering and Technology

Course Specification

ARC552: 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: Septmber , 2015

B - Basic information

Title: Architecture Criticism **Code:** ARC 432 **Level:** Senior 2 ,Level 5
Credit Hours:2 **Lectur : 2 Tutorial/Exercise:**- **Practical:** -
Pre-requisite: ARC 540

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	2		
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	**30**		

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	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	10
Researches	15th week	5
Assignments	Every week	15
Final exam	16th week	70
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 البنائى - منهج لرصد وتحليل واستقراء الأبعاد الثقافية وتوظيفها فى 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) "فى العلاقة بين الانسان والمكان – منهج لرصد العلاقة التبادلية فى 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. El Moataz Bellah
Head of the Department: Associate Professor: Nahed Omran
Date: September , 2015

Appendix 3

شروط النجاح والتخرج وقواعد حساب التقدير

Page Intentionally Left Blank

الآتى بعد مستخرج من الشق القانونى للائحة الأكاديمية الحديثة للهندسة والتكنولوجيا بالمعادى للدراسة بالساعات المعتمدة (لائحة ٢٠١٢)

الباب الثانى
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 ٢٠١٢-٢٠١٣. 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 ٢٠١٢-٢٠١٣ 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	8.9%	%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.

الباب 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 التخصص	