Electronic Engineering and Communication Technology BSc Program Specifications

(By-Law 2000)

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مقدمة

الهندسة هى المعرفة بالعلوم الطبيعية والرياضية، والتنتكتسب بالدراسة والخبرة والممارسة، وتطبق بوعى لتطوير أساليب تستخدم اقتصاديا لتطويع المواد وقوى الطبيعة لصالح البشريّة. وهى أيضا المقدرة على الشروعفي النشاط والسلوك المرتبط بالعمليات الهندسية والنظم والمشاكل والفرص، والتاريخ ، والمستقبل ، والتأثيرات ، والأخلاق والمردودات. كما أنهاتنطوى على المعرفة، وطرق التفكير والتصرفات والقدرات. كما تساعد في إعداد الأفراد لتقديم خيارات مدروسة في إطار كونهم مستهلكين أو عمالاأومواطنين وأعضاء فى المجتمع الدولى وينبغي أن يحقق التعليم الهندسي التميز والتفوق في التعليم العالى والدراسات العليا والبحوث، والخدمة العامة، وتطوير المعارف الهندسية. وهو يهدف الى تخريج مهندسين موهوبين، واسعى المعرفة على درجة عالية من الكفاءة، بالإضافة إلى إنتاج بحوث وتقنيات مفيدة وخلافة من خلال التعليم والنميز الأكاديمي. علاوة على ذلك فإن التعليم الهندسي يهدف إلى إنتاج بحوث وتقنيات مفيدة التربي على التعليم والنمو، كذلك تحقيق وتلبية احتياجات المجتمع ودوليًا. كما يتاج بحوث وتقنيات مفيدة وخلافة من خلال التعليم والنمو، كذلك تحقيق وتلبية المعرفة على ذلك فإن التعليم الهندسي الماريس على وموبين، واسعى المعرفة على درجة عالية من الكفاءة، بالإضافة إلى إنتاج بحوث وتقنيات مفيدة وخلافة من خلال التعليم والنمو، كذلك تحقيق وتلبية احتياجات المجتمع قوميًا ودوليًا. كما يهدف أبي إعداد الطّلبة لمهنة منتجة ومفيدة في المحال الهندسمبنية على أسس حديثة، بما فيها الحاق بعلوم الفضاء والاتصالات الرقمية والنانو، تتممها أخلاقيات معنوية في المجال الهندسمبنية على أسس حديثة، بما فيها اللحاق بعلوم الفضاء والاتصالات الرقمية والنانو، تممها

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

وتقدم دراسة الهندسة للطلاب تعليما فعالا ومبنيا على أسس تكنولوجية، آخذا فى الاعتبار التوقعات المستقبلية للعلم والتكنولوجيا. وهى أيضا توفر المعارف التقنية والمهارات الضرورية لحل المشاكل التي تسمح بمواجهة التحديات المستقبلية . وقد حددتالمعايير الأكاديمية المرجعية (ARS)، لبرنامج هندسة الإلكترونيات وتكنولوجيا الالاتصالات والمعتمدة من الهيئة القومية للاعتماد وجودة التعليم، الطبعة الأولى يوليو ٢٠١٥، مفاهيما شاملة تمثلالتوقعات والطموحات العامة بخصوص معايير درجة البكالوريوس في العلوم الهندسية، كما توضح هذه المفاهيم المواصفات والخصائص التي يتمتع بها خريج البرامج الدراسية الهندسية خاصة:

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

وقد تم تصميم برنامج هندسة الإلكترونيات وتكنولوجيا الإتصالات لإعداد المهندسين المتميزين فى مجالات التصميم الإلكترونى وتكنولوجيا الإتصالات، إضافة إلى هندسة الطاقة الخضراء التى تدرس من خلال مجموعة من إستخدامات الطاقة الشمسية المتميزة والتى تعطى لخريج البرنامج تأهيلا لسد احتياجات سوق العمل.

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

وقسم هندسة الإلكترونيات وتكنولوجيا الإتصالات إذ يقدم هذه الوثيقة الهامة فإنه يتقدم بالشكر لجميع أعضاء هيئة التدريس الذين تضافرت جهودهم لإنجازها كما يقدم الشكر والتقدير لمكتب الجودة بالأكاديمية الذى وفر الخبرات اللازمة والتدريب والاستشارات لإتمام مواصفات البرنامج.

والله ولى التوفيق،،،

د. مختار عبد الحليم منسق البرنامج

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Electronic Engineering and Communication Technology BSc Program Specifications

1. General

1.1 Basic Information	
Program Title:	Electronic Engineering and Communication Technology BSc program
Program Type:	Single
Department:	ElectricalEngineering Department
Coordinator:	Dr. Mokhtar Mahmoud Abd El Haleem.
Assistant Coordinator	: Dr.HanyTawfikKamel
	Dr.Nelly Muhammad Hussein Shafik
External Evaluators:	Prof. Mohammed. Abo Zahhad Abo Zaid, Vice Dean for Postgraduate Studies
	and Research Faculty of Engineering-Assiut University
Academic Standard:	The program adopts the Academic Reference Standards (ARS) for Electronic
	Engineering and Communication Technology BSc program, approved by the
	National Authority for Quality Assurance and Accreditation in Education, first edition,
	July 2015.
Program Started on:	2001-2002
Dates of program specifi	cations approval: August 2015

1.2. Staff Members

The Electronic Engineering and Communication Technology BSc program is taught 29 highly qualified staff members, 26 of them are full time employed and 3 are part time staff members in the Electrical Engineering department, in addition to 21 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 65 full time teaching assistants in addition to 19 engineers and 18 technicians.

1.3. External Reviewing

The program was evaluated internally and by an external reviewer. The report of external reviewer showed that the program specification agrees with Academic Reference Standards(ARS) for Electronic Engineering and Communication Technology BSc program, approved by the National Authority for Quality Assurance and Accreditation in Education, first edition, July 2015.

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 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.

Electronics becomes more and more influential on the human society. The reason for this is that almost all electronic products are produced in huge quantities so interfering with every one's life. In addition, electronic subsystems become part of almost any industrial product nowadays. Beside the basic laws of

physical sciences, mathematics, and basic engineering sciences, electronics engineering programs combine electronic engineering principles and traditional computer science with good practice in design and project management applied to technically demanding problems. Graduates will be well qualified to play a disciplined and innovative part in research and development across the IT and Electronics sector.

An electronics engineer should have strong background in basic sciences and basic mathematics and be able to use these tools in their own engineering field. He should employ necessary techniques, hardware, and communication tools for modern engineering applications. He also should be able to work in a multi- disciplinary environment, and follow and contribute to the developments in their own field recognizing the significance of lifelong learning.

2.2. Program Mission and Aims

2.2.1. Program mission

The mission of the Bachelor of Science in Electronic Engineering and Communication 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 Aim

The Electronic Engineering and communication Technology program aims at providing future engineers with appropriate theoretical knowledge and technical skills to respond to professional market demands.

2.2.3. The aimed graduate

By the end of the study, the graduates of Electronic Engineering and Communication Technology BSc Engineering program 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. Participate in and lead quality improvement projects.
- 13. Manipulate with the electronic circuits, all the way from the discrete components level, circuits' analysis and design, to the troubleshooting with emphasis on electronic power devices.
- 14. Apply control theory and measurement principals for industrial variables, signal conversion, conditioning and processing.
- 15. Deal with the computer's hardware, software, operating systems and interfacing.
- 16. Design, operate and maintain digital and analog communication, mobile communication, coding, and decoding systems.
- 17. Adapt to new telecommunication technologies.
- 18. Analyze, design, and implement telecommunication systems.

- 19. Deal with high frequency techniques.
- 20. Analyze and solve problems in antennas, wave propagation, microwave circuits, radars, and Satellites.
- 21. Planning and analyzing communication networks.

2.2.4. Graduate Career Opportunuties

A B.Sc. degree in Electronics and Telecommunications Engineering Technology is designed for students who seek careers as engineers in industry, army, consulting firms and private and governmental agencies. This degree is also appropriate for students who plan to be researchers or who intend to pursue an advanced degree in engineering. A typical program curriculum incorporates analytical tools, creative thought and diversity of skills as well as the state of art of the profession.

The mission of the Bachelor of Science in Electronics and Telecommunications engineering 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.

The electronics and Telecommunications technology program aims at providing future engineers with appropriate theoretical knowledge and technical skills to respond to professional market demands in the fields of **electronics and telecommunications engineering technology**.

2.3. Intended Learning Outcomes (ILO's)

The academic reference standards represent the general expectations about the qualifications, attributes and capabilities that graduates of the engineering programs should be able to demonstrate.

2.3.1 Knowledge and Understanding:

By the end of the study, the graduates of Electronic Engineering and Communication Technology BSc Engineering program program should 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. Elementary science underlying electronic engineering systems and information technology;
- A13. Basics of design and analyzing electronic engineering systems, while considering the constraints of applying inappropriate technology and the needs of commercial risk evaluation;
- A15. Principles of Analyzing and design of electronic circuits and components;
- A16. Principles of Analyzing and design of control systems with performance evaluation;
- A17. Biomedical instrumentation;
- A18. Communication systems
- A19. Coding and decoding techniques
- A20. Microwave applications

- A21. Antenna and wave propagation
- A22. Usage of optical fiber
- A23. Methods of fabrication of Integrated circuits
- A24. Analysis of signal processing
- A25. Optical communication systems
- A26. Satellite communications.
- A27. Wireless communication techniques.
- A28. One way and two ways communication systems.
- A29. Broadcasting, acoustic engineering, and television engineering.

2.3.2 Intellectual Skills

By the end of the study, the graduates of Electronic Engineering and Communication Technology BSc Engineering program program should 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. Develop innovative solutions for the practical industrial problems.
- B14. Plan, conduct and write a report on a project or assignment.
- B15. Analyze the performance of digital and analog communication, mobile communication, coding, and decoding systems.
- B16. Synthesize and integrate electronic systems for certain specific function using the right equipment.
- B17. Select appropriate technical methods to solve communication problems.
- B18. Analyze different parameters of digital communication systems.
- B19. Select optimum frequencies of digital and analog communication systems.

2.3.3 Practical and Professional Skills

By the end of the study, the graduates of Electronic Engineering and Communication Technology BSc Engineering program program should 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. Use appropriate mathematical methods or IT tools.
- C14. Practice computer programming for the design and diagnostics of digital and analog communication, mobile communication, coding, and decoding systems.
- C15. Use relevant laboratory equipment and analyze the results correctly.
- C16. Troubleshoot, maintain and repair almost all types of electronic systems using the standard tools.
- C17. Identify appropriate specifications for required devices.
- C18. Use appropriate tools to measure system performance.
- C18. Use appropriate devices to measure different parameters of communication systems.
- C20. Use laboratory equipment to design and implement high frequency measurements.
- C21. Troubleshoot, maintain, and repair different types of communication systems.

2.3.4 General and Transferable Skills

By the end of the study, the graduates of Electronic Engineering and Communication Technology BSc Engineering program program should 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 Effectively manage tasks, time, and resources.
- D7 Search for information and engage in life-long self-learning discipline.
- D8 Acquire entrepreneurial skills.
- D9 Refer to relevant literatures.

2.4. Curriculum Structure and Contents

2.4.1. Program Content:

The program duration is five years, 10 semesters. The following are the subjects taught during this program.

1st Year / 1st Semester

		Те	achir	ng Ho	ours			Mar	king			Sı	ıbje	ect A	\rea	1	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
B111	Mathematics I	4	2	0	6	3	30	0	70	100		6					
B131	Physics I	4	0	2	6	3	20	20	60	100		6					
B141	Chemistry	2	0	2	4	3	20	20	60	100		4					
B121	Mechanics I	2	1	0	3	3	30	0	70	100		3					
M160	Production Engineering - Workshop I	2	0	2	4	3	30	10	60	100			2			2	
M150	Engineering Drawing & projection I	-	4	0	4	3	40	0	60	100			4				
E111	Introduction to Computers I	2	0	2	4	3	20	20	60	100					4		
B101	English Language I	2	0	0	2	2	15	0	35	50	2						
	Total	18	7	8	33	23	205	70	475	750	2	19	6	0	4	2	0

1st Year/ 2nd Semester

		Те	achir	ng Ho	ours			Mar	king			Sı	ubje	ct A	Area	1	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
B112	Mathematics II	4	2	-	6	3	30	-	70	100		6					
B132	Physics II	2	2	2	6	3	20	20	60	100		6					
B122	Mechanics II	2	1	-	3	3	30	-	70	100		3					
B142	Descriptive Geometry	2	2	1	4	3	30	-	70	100			4				
M161	Production Engineering - Workshop II	2	-	2	4	3	30	10	60	100			2			2	
E112	Introduction to Computers II	2	I	2	4	3	20	20	60	100					4		
M151	Engineering Drawing & Projection II	1	4	-	4	3	30	0	70	100			4				
B102	English Language II	2	-	-	2	2	15	-	35	50	2						
	Total	16	11	6	33	23	205	50	495	750	2	15	10	-	4	2	-

2nd Year / 1st Semester

		Теа	achin	g Ho	urs			Mar	king			Sı	ıbje	ct A	Area	1	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
B211	Mathematics III	4	2	-	6	3	30	-	70	100		6					
E201	Electrical Circuits Analysis	2	2	1	5	3	20	20	60	100			5				
B221	Physics III	2	2	1	5	3	20	20	60	100		5					
A060	Civil Engineering Technology	2	2	-	4	3	30	-	70	100			4				
E210	Computer Programming I	2	-	2	4	3	20	20	60	100					4		
E220	Instruments & Measurements I	2	-	2	4	3	20	20	60	100			2			2	
B200	English III	2	-	-	2	2	15	-	35	50	2						
E212	Digital Logic Circuits	4	-	1	5	3	20	20	60	100			5				
	Totals	20	8	7	35	23	175	100	475	750	2	11	16	-	4	2	

2nd Year/ 2nd Semester

		Теа	achin	g Ho	urs			Mar	king			S	Subje	ect /	Area	1	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
B212	Mathematics IV	4	2	-	6	3	30	-	70	100		6					
E202	Electrical Circuits Analysis	2	2	-	4	3	30	-	70	100			4				
E240	Data Structures	3	-	-	3	3	30	-	70	100			3				
M051	Tech of mechanical Engineering	2	2	-	4	3	30	-	70	100			4				
B222	Physics IV	2	-	2	4	3	20	20	60	100		4					
E213	Computer Programming II	2	1	2	4	3	20	20	60	100					4		
B202	History of Science	2	I	I	2	2	15	-	35	50	2						
E221	Instruments & Measurements II	2	-	2	4	3	20	20	60	100			2			2	
	Totals	19	6	6	31	23	195	60	495	750	2	10	13	-	4	2	

3rd Year / 1st Semester

		Теа	achin	g Ho	urs			Mar	king			Sı	ıbje	ct A	Area	I	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
B311	Mathematics V	4	2	-	6	3	30	-	70	100		6					
E301	Microelectronic I	2	2	-	4	3	30	-	70	100			4				
E311	Field Theory	4	2	-	6	3	40	-	60	100			6				
E321	Digital Logic Circuits Design	2	2	2	6	3	30	30	90	150				4		2	
E351	Control Engineering I	2	2	2	6	3	30	30	90	150			6				
B300	English IV	2	-	-	2	2	15	-	35	50	2						
E330	Computer Applications I	1	-	2	3	3	20	20	60	100					3		
E399	Project			2	2	-		50		50	-					2	
	Total	17	10	8	35	20	195	130	475	800	2	6	16	4	3	4	

3rd Year/ 2nd Semester

		Теа	achin	g Ho	urs			Mar	king			S	Subje	ect /	Area	1	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
E302	Microelectronic II	2	-	2	4	3	20	20	60	100			4				
E314	Computer Architecture	2	2	-	4	3	30	-	70	100					4		
E332	Communication Systems I	2	2	1	5	3	20	20	60	100				3		2	
E362	Electric Machines & Power Systems	2	2	1	5	3	20	20	60	100				2			3
E352	Control Engineering II	2	2	1	5	3	20	20	60	100			3				2
M360	Industrial Environment	2	-	-	2	2	15	-	35	50	2						
E331	Computer Applications II	2	-	2	4	3	20	20	60	100					4		
E399	Project	-	-	2	2	-	-	50	-	50						2	
	Total	14	8	9	31	20	145	150	405	700	2	-	7	5	8	4	5

4th Year / 1st Semester

		Te	achin	g Ho	urs			Mar	king			Su	ıbje	ct /	Area		
ode	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proi. & Practice	Discretionary
B411	Mathematics IV	2	2	-	4	3	30	-	70	100		4					
E401	Design of Electronic Circuits	3	2	2	7	3	30	30	90	150				4			3
E421	Microprocessors I	3	2	1	6	3	30	30	90	150					6		
E442	Communication systems II	4	1	2	7	3	30	30	90	150				5		2	
E431	Computer Organization	3	3	-	6	3	50	-	100	150					6		
B401	Environments Technology	3	-	-	3	2	15	-	35	50	3						
	Total	18	10	5	33	17	185	90	475	750	3	4	-	9	12	2	3

4th Year/ 2nd Semester

		Te	achin	g Ho	urs			Mar	king				Sub	oject	Area	l	
opoO	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
E412	Information Systems	4	2	-	6	3	50	-	100	150					6		
E441	Waves & Antennas I	3	1	2	6	3	30	30	90	150				6			
E402	Large Integrated Systems	3	2	2	7	3	20	20	60	100				7			
E422	Microprocessors II	2	1	1	4	3	20	20	60	100					4		
E432	Electronic Measurements	2	-	4	6	3	30	30	90	150				2		4	
B412	Business Management	3	-	-	3	2	15	-	35	50	3						
E400	Summer Training	-	-	-	-	-	30	-	20	50							
	Total	17	6	9	32	17	195	100	455	750	3	-	-	15	10	4	-

5th Year / 1st Semester

		Te	achin	g Ho	urs			Mar	king			Sı	ubje	ct A	rea	1	
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
M561	Engineering Economy	2	2	-	4	2	15	-	35	50	4						
E501	Digital Signal Processing	3	1	2	6	3	30	30	90	150				6			
E511	Microwave Circuits	3	1	2	6	3	30	30	90	150				4		2	
E522	Radio & TV Engineering	3	1	2	6	3	30	30	90	150				4			2
E562	Communication System III	4	2	1	7	3	30	30	90	150				5			2
E552	Elective Course	4	-	-	4	2	30	-	70	100				2			2
	Total	19	6	8	33	16	165	120	465	750	4	-	-	21	-	2	6

5th Year/ 2nd Semester

		Теа	achin	ig Hoi	urs			Mar	king				Sub	ject	Area		
Code	Course Name	Lectures	Exercises	Practical	Total hours	Wr. Exam Dur.	Year work	Practical Exam	Written Exam	Total	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
B512	Laws and Regulations	3	-	-	3	2	30	-	20	50	3						
E519	Waves & Antennas II	3	1	2	6	3	30	30	90	150				4		2	
E524	Advanced Communication Systems	4	2	1	7	3	30	30	90	150				5			2
E582	Radar Systems and Remote Sensing	4	2	-	6	3	40	-	60	100				4			2
E572	Elective Course	3	2	-	5	3	20	20	60	100				5			
E599	Project	-	-	4	4	-	100	-	100	200						4	
	Total	17	7	7	31	14	250	80	420	750	3	-	-	18	-	6	4

	Т	eachii	ng Ho	urs			Mar	king				Sub	ject A	Area		
Semester	Lectures	Exercises	Practical	Total hours	Year work	Practical Exam	Written Exam	Total	Course Teaching houre	Hum. & Soc. Sc.	Math. & B. Sc.	B. Eng. Sc.	App. Eng. & Des.	Comp. App. & ICT	Proj. & Practice	Discretionary
Total 1 st Year/ 1 st	18	7	8	33	205	70	475	750	33	2	19	6	-	4	2	-
Total 1 st Year/ 2 nd	16	11	6	33	205	50	495	750	33	2	15	10	-	4	2	-
Total 2 nd Year/ 1 st	20	8	7	35	175	100	475	750	35	2	11	16	-	4	2	-
Total 2 nd Year/ 2 nd	19	6	6	31	195	60	495	750	31	2	10	13	-	4	2	-
Total 3 rd Year/ 1 st	17	10	8	35	195	130	475	800	35	2	6	16	4	3	4	-
Total 3 rd Year/ 2 nd	14	8	9	31	145	150	405	700	31	2	-	7	5	8	4	5
Total 4 th Year/ 1 st	18	10	5	33	185	90	475	750	33	3	4	-	9	12	2	3
Total 4 th Year/ 2 nd	17	6	9	32	195	100	455	750	32	3	0	0	15	10	4	-
Total 5 th Year/ 1 st	19	6	8	33	165	120	465	750	33	4	-	-	21	-	2	6
Total 5 th Year/ 2 nd	17	7	7	31	250	80	420	750	31	3	-	-	18	-	6	4
Total of Five Years	17 5	79	73	327	1915	950	4635	7500	327	25	65	68	72	45	30	18
% of Five Years					25.5	12.7	61.8	100		7.6%	20%	20.7 %	22%	13.7 %	9.2%	5.5%
% NARS										6-8%	20-23%	20-22%	20-22%	10-13%	8-10%	6-8%

Total teaching hours and subjects distribution over the subject areas

The previous table shows that the program structure agrees with the Academic Reference Standards (ARS) for Electronic Engineering and Communication Technology BSc program, approved by the National Authority for Quality Assurance and Accreditation in Education, first edition, July 2015. Moreover it is approved by the Engineering sector committee of the supreme council of universities.

2.5. Curriculum Mapping

Appendix 1 is dedicated to the curriculum mapping. It aims at insuring that the program courses cover the program ILO's. The courses coordinators prepared a table indicating the program ILO's covered by their courses and the courses subject areas hours. These tables were used to develop the mapping matrix. Program courses/program ILO's.The mapping matrix showed that the program courses present balanced contribution to the program ILO's which proves the correct adoption of Academic Reference Standards (ARS) for Electronic Engineering and Communication Technology BSc program, approved by the National Authority for Quality Assurance and Accreditation in Education, first edition, July 2015.

Two additional tables were added to Appendix 2, 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 2009. 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

- > Attendance of program is on full-time basis.
- A student may be transferred to a following academic year if she/he passes all attended courses but a maximum of two in accumulation – excluding humanity or cultural courses
- > The humanity and cultural courses are not counted as non-passing courses, but have to be completed before graduation.
- > The study follows the semester system with two semesters per year, 15 weeks each.
- > The minimum time for the Bachelor degree is five academic years.
- A minimum of 75 % student attendance to lectures, tutorials and laboratory exercises per course is necessary for taking the final exams, in accordance with the Departmental Board recommendation approved by the Academy Council; otherwise students would be deprived from taking their final exam(s).
- The student is entitled to re-set failed exam(s) with fellow-students undertaking the course(s) in following term(s).
- Final-year students who fail no more than two courses plus any number of humanity cultural courses are re-examined in November.
- If they fail re-set(s), they will be re-examined with fellow-students undertaking the course(s) in following term(s).
- Except for those in final-year, students who provide evidence of successfully completing particular courses in parallel academic institutions, which are recognized by the Ministry of Higher Education, may be exempted from attending these courses. This may only take place after a decision from the Academy Chairman, following the Education & Student Affairs Council and the Faculty and Departmental Boards approval respectively; with no desecration of Article (36) of University Regulation Law.
- > The course which is taught in one semester and has one examination mark and more than examination answer sheets, is treated as one-course as regards the course evaluation.
- 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 year.
- > No mark is recorded for the student who fails to appear in the written examination.

Appendix 3 gives the details of program progression and grades evaluation.

5. Teaching and Learning Methods

Teaching methods

- Lecture
- Presentations and Movies
- Discussions
- Tutorials
- Problem solving
- Brain storming
- Projects
- Modeling and Simulation
- Laboratory Experiment

Learning methods

- Site visits
- Self-learning
- Cooperative
- Discovering

6. Student Assessment

- Written exam
- Quizzes and reports
- Oral exams
- Practical
- Project applied on a practical field problems
- Other assessment methods

7. Program Evaluation

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

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Appendix 1 Curreculum Mapping

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Appendix A1 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.

Code	Name	Knowledge and understanding	Intellectual skills	Professional and practical	General and transferable skills
A060	Civil Engineering Technology	A1, A3, A12	B2, B11	C2, C13	D7, D9
B101	English Language I	A9, A10	B4	C11, C12	D1, D2, D3, D4, D6, D7, D8
B111	Mathematics I	A1, A5	B1, B2, B3, B7	C1, C12	D3, D7
B121	Mechanics I	A1, A3, A4	B1, B2, B3, B4, B11	C1, C2, C7	D1, D2, D3, D8, D9
B131	Physics I	A1, A3, A4, A13	B1, B2, B3, B7, B17, B20	C1, C6, C12, C16, C17	D1, D2, D3, D4, D5,D6,D7,D8,D9
B141	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
E111	Introduction to Computer I	A1, A4, A14, A16, A17	B4, B8	C1, C7, C13	D2, D3, D4, D7
M150	Engineering Drawing I	A1, A2, A4, A5	B2, B3, B4, B8	C1, C2, C3	D1, D3, D7
M160	Production Engineering I	A1, A2, A4	B2, B3, B8, B10	C1, C3, C7	D1, D3, D6
B102	English Language II	A9, A10	B4	C11, C12	D1, D2, D3, D4, D6, D7, D8
B112	Mathematics II	A1, A3, A5	B1, B2, B3, B4, B7, B11	C1, C12	D1, D3, D7
B122	Mechanics II	A1 A3, A4	B1, B2, B3, B4, B11	C1, C2, C7	D1, D2, D3, D8, D9
B132	Physics II	A1,A3, A5	B2, B3, B4, B5	C1, C5,C12	D5, D7
B142	Descriptive Geometry	A1 , A5	B3 , B4	C1 , C4	D3 , D4
E112	Introduction to Computer II	A1, A4, A14, A16, A17	B4,B8	C1, C7, C13	D2, D3, D4, D7
M151	Engineering Drawing II	A1, A2, A4	B2, B8, B9	C1, C3, C4	D3, D9

A1.1 Program ILO.s covered by the individual courses.

Code	Name	Knowledge	Intellectual	Professional	General and
		and understanding	skills	and practical	transferable skills
M161	Production Engineering II	A1, A2, A4	B2, B3, B10	C1, C3, C7	D1, D3, D7, D9
B212	Mathematics IV	A1, A5	B1, B2, B3, B7	C1, C13	D3, D7
B221	Physics III	A1, A2, A3, A8, A9	B1, B2, B4, B5, B6, B7, B8, B12	C1, C2,C3, C4, C7, C8, C11,	D1, D3, D4, D7, D9
B222	Physics (4)	A1, A2, A3, A8, A9	B1, B2, B4, B5, B6, B7, B8, B12	C1, C3,C3, C4, C7, C11, C12	D1, D3, D4, D7, D9
B200	English Language III	A9, A10	В4	C11, C12	D3
B202	History of Science & Technology	A1, A5, A8, A9, A11,A14	B1, B2, B6, B7	C1, C5	D1, D7, D8
B211	Mathematics III	A1, A12	B1, B7	C1, C13	D3, D7
B300	English Language IV	A9, A10	B4	C11, C12	D3
B311	Mathematics V	A1, A2, A5	B1, B2, B3, B7,B11	C1, C13	D3
B411	Mathematics VI	A1, A3, A5	B1, B2, B3, B4, B7	C1, C13	D1, D3, D7
B401	Environmental science and Technology	A9, A10	B4, B9, B12	C1, C13	D1, D3, D7, D9
B412	International Business Management	A4, A5, A7, A8, A10, A12	B7	C1, C5	D1, D2, D3,D7, D8, D9
B512	Laws and Regulations for Engineers	A5, A6, A9, A10, A11	B3, B4, B9, B12	C1, C5	D1, D3, D7, D9
M051	Mechanical Eng. Technology	A1, A2, A3, A4, A8, A10, A11	B1, B2, B3, B4, B7, B9, B13	C1, C2	D1, D2, D3, D5
M360	Industrial Psychology	A4, A6, A9, A11	B3, B5, B9	C1, C2, C9	D1, D2, D6, D9
M561	Engineering Economy	A1, A2, A5, A10	B1, B2, B3, B4, B9, B12, B13	C1,C5,C6, C7,C9	D1, D2, D3, D8
E210	Computer Programming I	A1, A2, A4, A5, A13, A15, A16, A18	B1, B2, B3, B6, B8, B13, B14, B16, B17	C6, C14, C15, C18	D1, D3, D4, D7
E213	Computer Programming II	A1, A2, A4, A13, A15, A16, A18	B1, B2, B3, B6, B16, B17	C6, C14, C15, C18	D1, D3, D4, D7
E201	Electrical Circuits Analysis (I)	A1, A2, A3, A4, A5, A6, A8, A15	B1, B2, B4, B5, B6, B7	C1, C3, C5, C6, C9, C10, C11	D1, D2, D3, D6, D7, D9
E202	Electrical Circuits Analysis (II)	A1, A2, A3, A4, A5, A6	B1, B2, B3, B4, B5, B6, B7	C1, C2	D1, D2, D3, D7, D9
E220	Instrumentation and Testing I	A1, A4, A14,&A15	B1,B3,B5,B6,B7,B9, B10,B11,B13,&B14	C2,C3,C5,C15,C 16,C17,C18,&	D1,D3,D6,D8,&D9
E221	Instrumentation and Testing II	A1, A4, A14,&A15	B1,B3,B5,B6,B7,B9, B10,B11,B13,&B14	C2,C3,C5,C15, C16,C17,C18,	D1,D3,D6,D8,&D9
E240	Data Structures	A1, A2, A3, A4, A5, A9, A12, A16,A18	B1, B2, B4, B8, B12, B14, B17, B18	C13	D1, D2, D3, D4, D6, D7
E212	Digital Logic Circuits	A1, A2, A3, A5, A14	B1, B2, B3, B4, B8, B12, B14	C1, C2, C3, C5, C6	D3, D4, D5, D6, D7, D9

Code	Name	Knowledge and understanding	Intellectual skills	Professional and practical	General and transferable skills
E301	Micro Electronics I	A3, A4 , A8 , A13	B2 , B5 , B7	C2, C3	D3, D5 , D6 ,D7
E302	Microelectronic II	A1, A3,A4,A15	B2,B3,B5	C1,C7,C15,C18	D2,D3,D6,D7,D9
E311	Electromagnetic Field Theorem	A1, A3, A5, A21	B1, B2	C1, C2	D6
E321	Digital Logic Circuits Design	A2, A4	B2, B3	C2, C3	D3, D5, D6, D7
E351	Control Engineering I	A1, A4, A5, A16	B1, B2, B3, B7	C1, C2, C3, C5, C12, C13, C15	D1, D3, D7, D9
E352	Control Engineering – 2	A1, A4, A5, A16	B1, B2, B3, B7	C1, C2, C3, C5, C12, C15	D1, D3, D7, D9
E330	Engineering Computer Applications (I)	A1, A2, A5, A12, A13, A16	B1, B2, B3, B5, B7, B13, B14, B17,B18	C1, C2, C3, C4, C5, C6, C7, C14, C15	D1, D3, D4, D5,D7, D9
E331	Engineering Computer Application II	A1,A2,A3,A4,A5, A12,A13,A15	B1,B2,B3,B4,B5,B 6, B7,B8,B9	C1,C2,C3,C4,C5 ,C6,C13,C14, C15	D1,D3,D4,D5,D7,D9
E314	Computer Architecture	A1,A3,A4,A5,A8, A10,A13,A18	B1,B2,B4,B7,B11	C2, C3	D2,D3,D7
E362	Electrical Machines & Power	A1, A3, A4,A5, A6, A7, A8, A11,	B1, B2, B3, B6, B9, B11	C1, C2, C4, C5, C8	D2, D3, D6, D7, D8
E332	Communications System I	A18, A24, A27	B7, B15.	C19, C20.	D3, D5, D6, D7.
E399	3 rd Year Project	A2, A3, A4, A5, A10, A15, A16	B2, B13.	C4, C5, C14, C15, C17.	D1
E401	ELECTRONIC CIRCUITS DESIGN	A1, A2, A4,A5,A8, A14, A15	B2, B3, B5, B6, B19	C2, C3, C12, C14, C15,	D1, D2, D3, D5, D6, D7, D8
E431	Computer Organization	A1, A2,,A3, A 9, A13, A16	B1,B2, B3, B4, B12, B14	C2, C3	D1, D3, D4, D5,D7, D9
E412	Information Systems	A1, A2,A3,A7,,A8, A9, A12, A18, A19, A20	B1,B2, B3, B4, B12, B14 ,B18.B19	C13	D1, D3, D4, D5,D6,D7, D9
E421	Microprocessor Based- Systems I	A4, A5, A9, A14, A15, A16, A18	B1, B2, B3, B4, B5, B6, B9, B11, B12, B13, B16, B17	C5, C6, C12, C14, C15	D3, D5, D7, D9
E422	Microprocessor Based- Systems II	A4, A5, A9, A14, A15, A16, A18	B1, B2, B3, B4, B5, B6, B9, B11, B12, B13, B16, B17	C5, C6, C12, C14, C15	D3, D5, D7, D9
E402	Large Scale Integrated Systems	A5, A8, A10, A12, A14, A15, A23	B1, B3, B9, B12	C1, C2, C3, C5, C9, C12, C15,	D3, D4, D7
E432	Electronic Measurements	A5,A10,A15	B2, B3 ,B12	C3, C12 , C15, C20	D4 ,D6 ,D7
E442	Communications System II	A18, A24, A27	B15, B19	C19, C20	D3, D6, D7
E441	Antenna and Waves I	A20,A21	B15,B16,B18	C17,C20	D6, D9
E400	Summer Training	A8, A10, A12, A17, A23	B3, B8, B13	C8, C9, C11, C12, C15, C17	D3, D4, D6

Code	Name	Knowledge and understanding	Intellectual skills	Professional and practical	General and transferable skills
E501	Digital Signal Processing	A2, A5, A8, A10 & A24	B1, B3, B7, B11, B14 & B15	C2, C5, C6, C12, C14 & C15	D3, D4 & D7
E511	Microwave Circuits and Devices	A15,A20	B16,B17	C15,C17,C20	D7, D9
E522	Radio &TV Engineering Systems	A18, A24, A27, A29	B5, B15	C15, C17, C19	D3, D6, D7
E519	Antennas and Waves II	A1, A1, A2, A5, A21, A29	B1, B2, B5, B7	C1, C2, C7	D1, D2, D3, D5, D6, D7
E562	Communications System III	A2, A4, A17, A18	B1, B2, B3, B11, B14	C5, C6, C12, C13	D3, D6, D7
E524	Advanced Communication Systems	A18, A26, A27	B2, B15, B18	C15, C18, C19	D3, D6, D7
E582	Radar System & remote sensing	A4,A18,A20,A21,A24, A28	B2,B4,B5,B15,B1 7	C1, C2, C3	D1,D4,D7,D9
E552(d)	POWER ELECTRONICS	A14, A15, A16	B13	C1, C2	D7
E572	Optoelectronics	A22, A24, A25	B2, B12, B17	C15, C18	D2, D6, D7
E599	5 th Year Project	A2, A4, A5, A6, A7, A8, A9, A11, A12, A14	B1, B3, B4, B5, B7, B8, B9, B12, B13, B14, B15, B16	C1, C2, C3, C4, C5, C6, C7, C8, C9	D3, D4, D5, D6, D7

Curriculum Mapping Matrix

Table A2.2-1a Curriculum Mapping Matrix (As)

	0 T''										A	– "K	ínov	vlec	lge	and	un	ders	stan	din	g"									
Code	Course little	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	26	27	28	29
A060	Civil Engineering Technology																													_
B101	English Language I																													
B102	English Language II																													
B111	Mathematics I																													
B112	Mathematics II																													
B121	Mechanics I																													
B122	Mechanics II																													
B141	Chemistry																													
B131	Physics I																													
B132	Physics II																													
B221	Physics III																													
B222	Physics IV																													
B200	English Language III																													
B202	History of Science & Technology																													
B211	Mathematics III																													
B212	Mathematics IV																													
B300	English Language IV																													
B311	Mathematics V																													
B411	Mathematics VI																													
B401	Environmental Science and																													
B412	International Business																											1		
B512	Laws and Regulations for																													
M150	Engineering Drawing I																													
M151	Engineering Drawing II																													
M160	Production Engineering I																													
M161	Production Engineering II																													
M051	Mechanical Engineering																													
M360	Industrial Psychology																													

											Δ	_ "K	nov	vled	lae	and	un	ders	stan	din	a"									
Code	Course Title	-	2	3	4	5	9	7	∞	6	9	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
M561	Engineering Economy																													
E111	Introduction to Computers I																													
E112	Introduction to Computers II																													
E210	Computer Programming I																													
E213	Computer Programming II																													
E201	Electrical Circuits analysis I																													
E202	Electrical Circuits analysis II																													
E220	Instruments and Testing I																													
E221	Instrument and Testing II																													
E240	Data structure																													
E212	Digital logic circuits																													
E301	Microelectronics I																													
E302	Microelectronics II																													
E311	Electromagnetic Field Theory																													
E321	Digital logic circuits design																													
E351	Control Engineering																													
E352	Control Engineering																													
E330	Engineering Computer																													
E331	Engineering Computer																													
E314	Computer Architecture																													
E362	Electric machines & power systems																													
E332	Communication systems I																													
E399	Training Project I																													
E421	Based systems Microprocessors I																													
E422	Based systems Microprocessors II																													
E401	Electronic circuits design																													
E431	Computer organization																													
E412	Information systems																													
E402	Large scale integrated systems																													

Code	Course Title										Α	– "K	nov	vled	lge	and	une	ders	stan	din	g"									
Coue		1	2	3	4	5	9	7	8	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
E432	Electronic measurements																													
E442	Communication systems II																													
E441	Antennas and Waves I																													
E400	Summer training																													
E501	Digital signal processing																													
E511	Microwave circuits and devices																													
E522	Radio & TV engineer																													
E519	Antennas and Waves II																													
E562	Communication system III																													
E524	Advanced communication																													
E582	Radar systems and Remote Sensing																													
E552	Elective course I (Power Electronics)																													
E572	Elective course II (Optoelectronics)																													
E599	Training project II																													

	0 11 <i>1</i>								В –	"Inte	llectu	ial sk	ills"							
Code	Subject	1	2	°	4	5	9	7	8	6	10	11	12	13	14	15	16	17	18	19
A060	Civil Engineering Technology																			
B101	English Language I																			
B102	English Language II																			
B111	Mathematics I																			
B112	Mathematics II																			
B121	Mechanics I																			
B122	Mechanics II																			
B141	Chemistry																			
B131	Physics I																			
B132	Physics II																			
B221	Physics III																			
B222	Physics IV																			
B200	English Language III																			
B202	History of Science & Technology																			
B211	Mathematics III																			
B212	Mathematics IV																			
B300	English Language IV																			
B311	Mathematics V																			
B411	Mathematics VI																			
B401	Environmental Science and Technology																			
B412	International Business Management																			
B512	Laws and Regulations for Engineers																			
M150	Engineering Drawing I																			
M151	Engineering Drawing II																			
M160	Production Engineering I																			
M161	Production Engineering II																			
M051	Mechanical Engineering Technology																			

Table A4-1b Curriculum Mapping Matrix (Bs)

									В –	"Inte	llectu	ual sk	kills"							
Code	Subject	1	2	3	4	5	9	7	∞	6	10	1	12	13	14	15	16	17	18	19
M360	Industrial Psychology																			
M561	Engineering Economy																			
E111	Introduction to Computers I																			
E112	Introduction to Computers II																			
E210	Computer Programming I																			
E213	Computer Programming II																			
E201	Electrical Circuits analysis I																			
E202	Electrical Circuits analysis II																			
E220	Instruments and Testing I																			
E221	Instrument and Testing II																			
E240	Data structure																			
E212	Digital logic circuits																			
E301	Microelectronics I																			
E302	Microelectronics II																			
E311	Electromagnetic Field Theory																			
E321	Digital logic circuits design																			
E351	Control Engineering I																			
E352	Control Engineering II																			
E330	Engineering Computer applications I																			
E331	Engineering Computer applications II																			
E314	Computer Architecture																			
E362	Electric machines & power systems																			
E332	Communication systems I																			
E399	Training Project I																			
E421	Based systems Microprocessors I																			
E422	Based systems Microprocessors II																			
E401	Electronic circuits design																			
E431	Computer organization																			

Cada	Subject								В –	"Inte	llectu	ial sk	kills"							
Code	Subject	٢	2	3	4	5	9	7	8	6	10	1	12	13	14	15	16	17	18	19
E412	Information systems																			
E402	Large scale integrated systems																			
E432	Electronic measurements																			
E442	Communication systems II																			
E441	Antennas and Waves I																			
E400	Summer training																			
E501	Digital signal processing																			
E511	Microwave circuits and devices																			
E522	Radio & TV engineer																			
E519	Antennas and Waves II																			
E562	Communication system III																			
E524	Advanced communication systems																			
E582	Radar systems and Remote Sensing																			
E552	Elective course I (Power Electronics)																			
E572	Elective course II (Optoelectronics)																			
E599	Training project II																			

C – "Professional and practical skills" Code Subject 12 16 9 19 9 7 13 4 15 1 20 ~ 2 S 9 ~ 6 ო 4 œ Civil Engineering Technology A060 B101 English Language I B102 English Language II B111 Mathematics I B112 Mathematics II B121 Mechanics I B122 Mechanics II B141 Chemistry B131 Physics I B132 Physics II B221 Physics III B222 Physics IV B200 **English Language III History of Science &** B202 Technology B211 Mathematics III B212 Mathematics IV B300 **English Language IV** B311 Mathematics V B411 Mathematics VI **Environmental Science** B401 and Technology International Business B412 Management Laws and Regulations for B512 Engineers M150 **Engineering Drawing I**

Table A4-1c Curriculum Mapping Matrix (Cs)

3

M151

M160

M161

M051

Engineering Drawing II

Production Engineering I

Production Engineering II

Mechanical Engineering

Technology

Code	Subject	C – "Professional and practical skills"																				
Code		1	2	3	4	5	9	7	8	6	10	11	12	13	14	15	16	17	18	19	20	21
M360	Industrial Psychology																					1
M561	Engineering Economy																					
E111	Introduction to Computers																					
E112	Introduction to Computers																					
E210	Computer Programming I																					
E213	Computer Programming II																					
E201	Electrical Circuits analysis																					
E202	Electrical Circuits analysis II																					
E220	Instruments and Testing I																					
E221	Instrument and Testing II																					
E240	Data structure																					
E212	Digital logic circuits																					
E301	Microelectronics I																					
E302	Microelectronics II																					
E311	Electromagnetic Field Theory																					
E321	Digital logic circuits design																					
E351	Control Engineering I																					
E352	Control Engineering II																					
E330	Engineering Computer applications I																					
E331	Engineering Computer applications II																					
E314	Computer Architecture																					
E362	Electric machines & power systems																					
E332	Communication systems I																					
E399	Training Project I																					
E421	Based systems Microprocessors I																					
E422	Based systems Microprocessors II																					
E401	Electronic circuits design																					
E431	Computer organization																					
E412	Information systems																					

Code	Subject	C – "Professional and practical skills"																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
E402	Large scale integrated systems																					
E432	Electronic measurements																					
E442	Communication systems II																					
E441	Antennas and Waves I																					
E400	Summer training																					
E501	Digital signal processing																					
E511	Microwave circuits and devices																					
E522	Radio & TV engineer																					
E519	Antennas and Waves II																					
E562	Communication system III																					
E524	Advanced communication systems																					
E582	Radar systems and Remote Sensing																					
E552	Elective course I (Power Electronics)																					
E572	Elective course II (Optoelectronics)																					
E599	Training project II																					

Code	Subject	D – "General and transferable skills"												
	Casjoor	-	7	ε	4	5	9	7	œ	თ				
A060	Civil Engineering Technology													
B101	English Language I													
B102	English Language II													
B111	Mathematics I													
B112	Mathematics II													
B121	Mechanics I													
B122	Mechanics II													
B141	Chemistry													
B131	Physics I													
B132	Physics II													
B221	Physics III													
B222	Physics IV													
B200	English Language III													
B202	History of Science & Technology													
B211	Mathematics III													
B212	Mathematics IV													
B300	English Language IV													
B311	Mathematics V													
B411	Mathematics VI													
B401	Environmental Science and Technology													
B412	International Business Management													
B512	Laws and Regulations for Engineers													
M150	Engineering Drawing I													
M151	Engineering Drawing II													
M160	Production Engineering I													
M161	Production Engineering II													
M051	Mechanical Engineering Technology													
M360	Industrial Psychology													

Table A4-1c Curriculum Mapping Matrix (Ds)
Code	Subject	D – "General and transferable skills"										
	Casjoor	-	7	ε	4	5	9	7	œ	თ		
M561	Engineering Economy											
E111	Introduction to Computers I											
E112	Introduction to Computers II											
E210	Computer Programming I											
E213	Computer Programming II											
E201	Electrical Circuits analysis I											
E202	Electrical Circuits analysis II											
E220	Instruments and Testing I											
E221	Instrument and Testing II											
E240	Data structure											
E212	Digital logic circuits											
E301	Microelectronics I											
E302	Microelectronics II											
E311	Electromagnetic Field Theory											
E321	Digital logic circuits design											
E351	Control Engineering I											
E352	Control Engineering II											
E330	Engineering Computer applications I											
E331	Engineering Computer applications											
E314	Computer Architecture											
E362	Electric machines & power systems											
E332	Communication systems I											
E399	Training Project I											
E421	Based systems Microprocessors I											
E422	Based systems Microprocessors II											
E401	Electronic circuits design											
E431	Computer organization											
E412	Information systems											
E402	Large scale integrated systems											

Code	Subject	D – "General and transferable skills"											
Code			2	3	4	5	9	7	8	6			
E432	Electronic measurements												
E442	Communication systems II												
E441	Antennas and Waves I												
E400	Summer training												
E501	Digital signal processing												
E511	Microwave circuits and devices												
E522	Radio & TV engineer												
E519	Antennas and Waves II												
E562	Communication system III												
E524	Advanced communication systems												
E582	Radar systems and Remote Sensing												
E552	Elective course I (Power Electronics)												
E572	Elective course II (Optoelectronics)												
E599	Training project II												

Appendix 2 Courses Specifications

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1	A060	Civil Engineering Technology
2	B101	English Language I
3	B102	English Language II
4	B111	Mathematics I
5	B112	Mathematics II
6	B121	Mechanics I
7	B122	Mechanics II
8	B141	Chemistry
9	B131	Physics I
10	B132	Physics II
11	B142	Descriptive Geometry
12	B221	Physics III
13	B222	Physics IV
14	B200	English Language III
15	B202	History of Science & Technology
16	B211	Mathematics III
17	B212	Mathematics IV
18	B300	English Language IV
19	B311	Mathematics V
20	B411	Mathematics VI
21	B401	Environmental Science and Technology
22	B412	International Business Management
23	B512	Laws and Regulations for Engineers
24	M150	Engineering Drawing I
25	M151	Engineering Drawing II
26	M160	Production Engineering Workshop I
27	M161	Production Engineering Workshop II
28	M051	Mechanical Engineering Technology
29	M360	Industrial Psychology
30	M561	Engineering Economy
31	E111	Introduction to Computers I
32	E112	Introduction to Computers II
33	E210	Computer Programming I
34	E213	Computer Programming II
35	E201	Electrical Circuits analysis I
36	E202	Electrical Circuits analysis II
37	E220	Instruments and Testing I
38	E221	Instrument and Testing II
39	E240	Data structure
40	E212	Digital logic circuits
41	E301	Microelectronics I
42	E302	Microelectronics II
43	E311	Electromagnetic Field Theory
44	E321	Digital logic circuits design
45	E351	Control engineering I

Table A5-1 Electronic Engineering and Communication technology courses

46	E352	Control Engineering II
47	E330	Engineering Computer applications I
48	E331	Engineering Computer applications II
49	E314	Computer Architecture
50	E362	Electric machines & power systems
51	E332	Communication systems I
52	E399	Training Project I
53	E421	Based systems Microprocessors I
54	E422	Based systems Microprocessors II
55	E401	Electronic circuits design
56	E431	Computer organization
57	E412	Information systems
58	E402	Large scale integrated systems
59	E432	Electronic measurements
60	E442	Communication systems II
61	E441	Antennas and Waves I
62	E400	Summer training
63	E501	Digital signal processing
64	E511	Microwave circuits and devices
65	E522	Radio & TV engineer
66	E519	Antennas and Waves II
67	E562	Communication system III
68	E524	Advanced communication systems
69	E582	Radar systems and Remote Sensing
70	E552	Elective course I (Power Electronics)
71	E572	Elective course II (Optoelectronics)
72	E599	Training project II

Modern Academy for Engineering & Technology

Architecture Engineering and Building Technology Department

A060: Civil Engineering Technology

A- Affiliation		
Relevant programs:	Computer Eng	jineering & Information Technology
	Electronic Eng	jineering & communication Technology
	Manufacturing	Engineering & Production Technology
Departments offering the programs:	Computer Eng	jineering & Information Technology
	Electronic Eng	jineering & communication Technology
	Manufacturing	Engineering & Production Technology
Department offering the course:	Architecture En	gineering and Building Technology
Date of specifications approval:	November 201	1
B - Basic Information		
Title: Civil Engineering Technology	Code: A060	Year/level: 2-nd year / 1st Term
Teaching Hours:	Lectures: 2	Tutorial: 2

Practical: --

Total: 4

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- Study the different branches of civil engineering.
- Study civil engineering applications on different constructions.
- Study civil engineering applications on different infrastructures (highways- water supply- drainage).
- To be helpful to the students in their work that is related to civil work.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

- -By the end of the course the student should gain the following knowledge:
- a1- how to calculate quantities of earth excavation and fill. (A1)
- a2- the concept of leveling earth's surface. (A3)
- a3- the usage of maps and the way of drawing it. (A12)
- a4- how to compute quantities of civil construction works. (A1)

B - Intellectual skills

- By the end of the course the student should be able to:
- b1- Analyze similar construction projects. (B2)
- b2- Take the right decision and choose the suitable solution from different alternatives. (B11)

C - Professional and practical skills

- By the end of the course the student should be able to:
- c1- Perform longitudinal and transverse leveling. (C2, C13)
- c2- Compute quantities of civil works. (C2, C13)
- c3- Drawing contour maps. (C2, C13)
- c4- Calculate quantities of earth excavation and fill. (C2, C13)

·

D - General and transferable skills

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

d1- Search for information and engage in life-long self-learning discipline. (D7)

d2- Refer to relevant literatures. (D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A3, A12
В	Intellectual skills	B2, B11
С	Professional and practical skills	C2, C13
D	General and transferable skills	D7, D9

3 – Contents

Tonic	Lecture	Tutorial	Practical
Торіс	hours	hours	hours
Introduction	2		2
 Fundamentals of surveying 	2		2
Measurement of areas from maps and measurement of angles	2		2
Leveling	2		2
Computation of volumes	2		2
Soil mechanics	2		2
Highway and airports engineering	2		2
Railway engineering	2		2
Environmental engineering	2		2
Building construction	2		2
Foundations	2		2
Building materials	2		2
Quantities and specifications	2		2
Isolating layers	2		2
General revision	2		2
Total hours	30		30

4 - Teaching and Learning and Assessment methods:

					Teac	ching	Met	hods	5			Lea Met	rning hods			A	sse	ssme	nt Me	thoo	ł	
Course ILO's		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Brain storming				Researches and Reports	Modeling and Simulation			Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
je & ding	a1	1	1	1			1				1				1		1	1				
wledç ırstan	a2	1			1										1		1	1	1			
Knor Unde	a3	1													1		1	1	1			

	a4	1	1		1										
ectual ills	b1	1		1						1	1		1		
Intelle Sk	b2	1		1	1					1	1	1	1		
kills	c1	1	1	1	1					1	1		1		
lied nal S	c2	1	1	1	1					1	1		1		
App essio	c3	1	1	1	1					1	1		1		
Prof	c4	1	1	1	1					1	1		1		
eral an. ills	d1		1	1				1					1		
Gen Tra Sk	d2		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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6-1 Course notes

Properties and Resistance of Materials, Adham Elalfy, lecture notes 6-2 Required books: ١٩٩٥، المواد الهندسية، دار الكتب، ١٩٩٥

6-3 Recommended books

Non

6-4 Periodicals, Web sites, etc.

www.ACI.com

7- Facilities Required for Teaching and Learning

- Classroom
- Survey lab.

Course coordinator:	Prof. Dr. Adham ElAlfy
Head of the Department:	Prof. Dr. Ayman Noor
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department

B101: English Language I

<u>A- Affiliation</u>	
Relevant program:	Manufacturing Engineering and Production Technology BSc Program Architecture Engineering and Building Technology BSc Program Electronic Engineering and Communications Technology BSc Program
Department offering the program:	Manufacturing Engineering Department Architecture Engineering Department Electronic Engineering Department
Department offering the course: Date of specifications approval:	Basic Sciences Department September, 2015
B - Basic information	

Display to information Title: English Language I Code: B 101 Year/ Level: 1ST. Year, 1ST Semester Teaching hours: Lectures:2 Tutorial: Practical: Pre-requisite: Total: 2

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 everyday 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) how to communicate effectively, even at the very beginning levels. (A9), (A10)
- a3) how to differentiate 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- Communicate effectively and present data and results orally and in written form. (D1), (D2), (D3), (D6)
- d3- communicate effectively in written and oral forms.(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
В	Intellectual skills	B4
С	Professional and practical skills	C11, C12
D	General and transferable skills	D1, D2, D3, D4, D6, D7, D8

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
Engineering, what's it all about?	6		
Alfred Nobel.	6		
Use of Prepositions.	2		
Adjectives: synonyms and anatomies.	2		
Infinitive and Gerund.	2		
Subject verb agreement	4		
General exercises.	4		
Revision	4		
Total hours	30		

4 - Teaching and Learning and Assessment methods:

			hing			Lear Meth	ning 10ds	Assessment Method												
Course ILO's		Lecture	Warming up	Discussions	Tutorials	Problem solving				Researches and Reports	Modeling and Simulation		Written Exam	Class work	Quizzes	Class participation	Assignments			
je & ding	a1	1	1	1						1			1	1	1	1	1			
wledge erstanc		1	1	1						1			1	1	1	1	1			
Know Undei S		1	1	1						1			1	1	1	1	1			

<u>s</u>	b1	1	1	1				1		1	1	1	1	1		
lal Ski	b2	1	1	1				1		1	1	1	1	1		
ellectu	b3	1	1	1				1		1	1		1	1		
Inte	b4	1	1	1				1		1	1	1	1	1		
ional	c1	1	1	1				1		1	1	1	1	1		
ofessi Ills	c2	1	1	1				1		1	1	1	1	1		
ed Pr Ski	c3	1	1	1				1		1	1	1	1	1		
Appli	c4	1	1	1				1		1	1	1	1	1		
s	d1	1	1	1				1		1			1			
ı. Skill	d2		1	1				1					1			
ll Tran	d3	1	1	1				1					1	1		
enera	d4	1	1	1				1								
U U	d5							1					1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: quizzes, assignments and class participation	Bi-Weekly	10
Mid-Term Exam	6-th Week	5
Practical Exam	-	
Written Exam	Sixteenth	35
Total		50

6- List of references:

6-1 Course notes:

Learn, apply and Excel by Prof. Dr. A. H. El. Khoreiby

6-2 Required books

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

6-3 Recommended books:

None

6-4 Periodicals, Web sites, etc.:

- <u>http://www.bbc.co.uk/learningenglish</u>
- <u>http://www.rong-chang.com/</u>
- <u>http://legacy.australianetwork.com/studyenglish/</u>

7- Facilities required for teaching and learning:

Library and Internet

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

Modern Academy for Engineering & Technology Basic Science Department

B 102: English Language II

<u>A- Affiliation:</u>		
Relevant program:	Manufacturing Eng Electronic Enginee Architecture Engin	gineering and Production Technology BSc Program ering and Communication Technology BSc Program eering and Building Technology BSc Program
Department offering the program:	Manufacturing Eng Electronic Enginee Architecture Engin	gineering Department ering Department eering Department
Department offering the course: Date of specifications approval:	Basic Sciences De September, 2015	epartment
B - Basic information Title: English Language II	Code: B 102	Year/ Level: 1 st . Year, Second Semester

Title: English Language II	Code: B 102	Year/ Level: 1 st . Y	Year, Second Semest
Teaching hours:	Lectures:2	Tutorial:	Practical:
	Pre-requisite:	Total: 2	

<u>C</u> - 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 everyday 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) how to communicate effectively, even at the very beginning levels. (A9), (A10)
- a3) how to differentiate 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- Communicate effectively and present data and results orally and in written form. (D1), (D2), (D3), (D6)
- d3- communicate effectively in written and oral forms.(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
А	Knowledge and understanding	A9, A10
В	Intellectual skills	B4
С	Professional and practical skills	C11, C12
D	General and transferable skills	D1, D2, D3, D4, D6, D7, D8

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
A Symphony in Concrete	8		
The electricity	10		
Subject, verb, object	4		
Verb to be	4		
Revision	4		
Total hours	30		

4 - Teaching and Learning and Assessment methods:

		Teaching Methods											Learning Methods				Assessment Method								
Course ILO's		Lecture	Warming up	Discussions	Tutorials	Problem solving						Researches and Reports	Modeling and Simulation			Written Exam	Class work	Quizzes	Class participation	Assignments					
le & ding	a1	1	1	1								1				1	1	1	1	1					
wledge erstand		1	1	1								1				1	1	1	1	1					
Nnde Unde	a3	1	1	1								1				1	1	1	1	1					

	L. 4	4	4	4				4		4	4	4	4	4		
kills	DI	ľ	1					1		1	1	1	1	1		
lal SI	b2	1	1	1				1		1	1	1	1	1		
illectu	b3	1	1	1				1		1	1		1	1		
Inte	b4	1	1	1				1		1	1	1	1	1		
skills	c1	1	1	1				1		1	1	1	1	1		
lied nal S	c2	1	1	1				1		1	1	1	1	1		
App essio	c3	1	1	1				1		1	1	1	1	1		
Prof	c4	1	1	1				1		1	1	1	1	1		
ills	d1	1	1	1				1		1			1			
ı. Sk	d2		1	1				1					1			
l Traı	d3	1	1	1				1					1	1		
enera	d4	1	1	1				1								
Ge	d5							1					1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: quizzes, assignments and class participation	Bi-Weekly	10
Mid-Term Exam	6-th Week	5
Practical Exam	-	
Written Exam	Sixteenth	35
Total		50

6- List of references:

6-1 Course notes:

Learn, apply and Excel by Prof. Dr. A. H. El. Khoreiby

6-2 Required books

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

6-3 Recommended books:

None

6-4 Periodicals, Web sites, etc.:

- http://www.bbc.co.uk/learningenglish
- <u>http://www.rong-chang.com/</u>
- http://legacy.australianetwork.com/studyenglish/

7- Facilities required for teaching and learning:

Library and Internet

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

Modern Academy for Engineering & Technology Basic Science Department

B111: Mathematics I

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
Departments offering the program:	Mechanical Engineering Department Electrical Engineering Department Architectural Engineering Department
Department offering the course: Date of specifications approval:	Basic Sciences Department September, 2015

B - Basic Information

Title: Mathematics I	Code: B111	Level: First	Semester: First
Total hours: 6 hrs	Lectures: 4 hrs	Tutorial: 2 hrs	Practical:

C - Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the main concepts of Differential calculus and modern algebra and their applications.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- Rules of limits and continuity of functions of one variable. (A1)
- a2-Differentiation concepts. (A1)
- a3- Rules of Applications of differential calculus used engineering. (A1, A5)
- a4- Basic concepts of mathematical logic and apply it to applications. (A1, A5)
- a5- Relations and mappings. (A1)
- a6- Properties of Algebraic structure and its applications. (A1)

B - Intellectual skills

By the end 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- Use mathematical logic solve applied Engineering Models. (B1, B2, B7)
- b4- Solve problems on relations and mapping used in different applications. (B1, B3)
- b5- Use Algebraic structure used in different applications. (B1, B3)

C - Professional and practical skills

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

c1- Apply differential calculus in mechanics and electronics.

D - General and transferable skills

By the end 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
Α	Knowledge and understanding	A1, A2, A5
В	Intellectual skills	B1, B2, B3, B7
С	Professional and practical skills	C1, C12
D	General and transferable skills	D3, D7

3 – Contents

Торіс	Lecture hours	Tutorial hours
Calculus		
Function limit continuity	4	2
Derivatives	4	4
Inverse function and trigonometric function	4	2
Exponential and Logarithmic function	4	2
Hyperbolic and inverse hyperbolic functions	4	2
Application of differential calculus	10	3
Modern Algebra		
Sets	4	2
Mathematical logic with applications	4	2
Relation	6	3
Mapping	6	3
Algebraic structure	6	3
Final Revision	4	2
Total hours	60	30

4 - Teaching and Learning and Assessment methods:

		Teaching Methods						Learning Methods			Assessment Method					
Course ILO's		Lecture	Discussions and seminars	Tutorials	Problem solving			Researches and Reports	Modeling and Simulation			Written Exam	Quizzes	Assignments		
e & ding	a1	1	1	1	1			1				1	1	1		
wledg erstan	a2	1		1	1			1				1	1	1		
Knor Unde	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	
<i>(</i>)	b1	1		1	1					1	1	1	
Skills	b2	1					1	1		1			
ctual	b3	1		1	1		1	1		1	1	1	
itelle	b4	1		1	1		1			1	1	1	
L	b5	1		1	1		1			1	1	1	
Applied Professional Skills	c1	1		1	1					1	1	1	
ran.	d1		1		1		1					1	
eral T Skills	d2		1	1	1		1					1	
Gene	d3	1					1					1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Quizzes, 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:

Osama El-Gayar, Differential calculus, Lecture Notes, Modern Academy, 2011 Mohammad Khalifa, Modern Algebra, Lecture Notes, Modern Academy, 2011

6-2 Required books

B. S. Votsa, "Modern Algebra", 2-nd Edition, New Age International Limited Publisher, New Delhi, 2010.

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

6-3 Recommended books

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

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 Science Department

B112: Mathematics-2 (Integral Calculus and Linear Algebra)

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

B - Basic information

Title: Mathematics - 2	Code: B 112	Level: First	Semester: Second
	Lectures: 4	Tutorial: 2	Practical:
			Total: 6

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 theory of linear algebra 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. Solutions of linear systems using different methods. (A1, A3)
- a6. Basic concepts of vectors, vector spaces and vector algebra. (A1, A3)
- a7. Basics of Analytic geometry and basics of complex numbers. (A1, A3)
- a8. Fundamentals of 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)

- b7. Solve linear systems using different methods of linear algebra. (B2, B3, B4)
- b8. Solve problems on vectors, vector spaces and vector algebra. (B2, B3, B4)

c - Professional and practical skills:

- By the end of the course the student should be able to:
- c1- Use integral calculus to solve engineering problems. (C1, C12)
- c2- Use vectors different to solve engineering problems. (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
А	Knowledge and understanding	A1, A3, A5
В	Intellectual skills	B1, B2, B3, B4, B7, B11
С	Professional and practical skills	C1, C12
D	General and transferable skills	D1, D3, D7

	Торіс								
1	Anti-derivative, indefinite integral	3	2						
2	Definite integrals and the fundamental thearem of calculus	3	1						
3	Methods of integration (integration by parts, substitution)	4	2						
4	Integration of trigonometric functions	3	2						
5	Trignometric Substitutions	3	1						
6	Integration of rational functions	4	2						
7	Miscellaneous Substitutions, improper integrals	4	2						
8	Application of definite integral(area, volume, arc length, surface area)	4	2						
9	Sequences, series	4	2						
10	Equations of lines, planes and circles	4	2						
11	Conic sections (parabola, ellipse, hyperbola)	4	2						
12	Complex numbers and polar coordinates	4	2						
13	Matricies with applications	8	4						
14	Vectors and vector spaces	8	4						
	Total hours	60	30						

4 - Teaching and Learning and Assessment methods:

					Tead	ching	Met	hods			Lear Meth	ning 10ds		A	sse	ssme	ent Me	etho	d	
Course ILO's		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving				Researches and Reports	Modeling and Simulation		Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
bu	a1	1		1	1					1			1		1		1			
andii	a2	1	1		1	1							1		1		1			
ersta	a3	1			1	1							1		1	1	1			
Unde	a4	1		1	1	1				1			1		1	1	1			
edge & L	a5	1	1		1	1				1			1		1	1	1			
	a6	1		1	1	1				1			1		1	1	1			
Iwor	a7	1	1		1	1				1			1		1		1			
Ъ	a8	1			1	1				1			1		1		1			
	b1	1			1	1							1		1		1			
	b2	1			1	1							1		1	1	1			
kills	b3	1	1	1	1	1				1			1		1	1	1			
al S	b4	1			1	1							1		1		1			
ectu	b5	1			1	1							1		1	1	1			
ntell	b6	1		1	1	1				1			1			1	1			
_	b7	1	1		1	1				1			1			1	1			
	b8	1		1	1	1				1			1			1	1			
ied sional IIs	c1	1		1	1					1	1	1								
Appl Profes: Skil	c2	1		1	1					1	1	1								
al (ills	d1			1		1				1						1				
ener 1. St	d2		1	1						1						1				
G¢ Trar	d3		1	1						1						1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Quizes, assignments, term papers	Weekly	20
Mid-Term Exam	7-th Week	10
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes:

- M. Khalefa, Integration and Analytic Geometry, Lecture Notes, 2013
- M. Khalefa, Linear Algebra, Lecture Notes, 2013

6-2 Required books

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

- <u>www.sosmath.com</u>
- <u>www.mathworlds.com</u>.

7- Facilities required for teaching and learning:

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

Course coordinator:	Dr. Sameh Shenawy
Head of the Department:	Prof. Dr. Laila Soliman
Date:	September, 2015

Modern Academy for Engineering & Technology Basic Science Department B 121: 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:	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: Med	hanics-1		Code: B 121		Level: Senic	or 2.	Semester: Second		
Hours	Credit/Total	3 hrs	Lectures	2 hrs	Tutorial	2 hrs	Practical	non	

C - Professional information

1 – Course Learning Objectives:

A study of this course will introduce the basic concepts of statics in plane and space: (force resultant equilibrium analysis of structures).

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,A3).
- a2- Knowledge the difference between the moment of force in plane and space(A3,A4).
- a3- Classification the support reaction in plane and in space (A1,A3).
- 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, B11).
- b2- Classify and compare the different between equilibrium of a single rigid body and all forces involved were external to the rigid body(B1,B3).

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,C7).

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, D3).
- d2- Search for information in references and in internet (D2, D9)

	-	
ILO's		Program ILO's
А	Knowledge and understanding	A1, A3, A4
В	Intellectual skills	B1, B2, B3, B4, B11
С	Professional and practical skills	C1, C2, C7
D	General and transferable skills	D1, D2, D3, D8, D9

Course Contribution in the Program ILO's

3 – Contents

Торіс	Lecture hours	Tutorial hours
 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:

		Teaching Methods								Learning Methods Assessement Method									
Course ILO's		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
	a1	1			1	1					1				1		1	1	1
edge	a2	1			1	1									1		1	1	1
Know	a3	1			1	1					1				1		1	1	1
	a4	1			1	1					1				1		1	1	1
ctual	b1	1			1									Ĩ	1		1		1
Intelle	b2	1			1	1									1		1	1	1

lied ills	c1	1	1	1				1	1	1				
App Sk	c2	1	1	1				1	1	1				
eral	d1				1			1					1	
Gen	d2							1					1	

5- Assessment Timing and Grading:

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

6- List of references:

6-1 Course notes: found

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

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.

None

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

Modern Academy for Engineering & Technology Basic Science Department B 122: Mechanics-2

<u>A- Affiliation</u>	
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: B122		Level: First	/Second.	Semester: First / Second	
Hours	Credit/Total	3 hrs	Lectures	2 hrs	Tutorial	2 hrs	

<u>C - Professional information</u>

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, A3).
- 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,A4)
- a4- understanding the dynamics system and the effect of forces on the system in different coordinates (A4).
- a5- classification of two methods of kinetics, namely,the method of work and energy and method of impulse and momentum. (A4)

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,B11)
- b2- classify and compare the different between the average velocity and average speed (B4,B5, B13).

c - Professional and practical skills:

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

- c1- Apply the basic concepts, Select suitable assumptions in order to create a mathematical model for given dynamic problem. (C1, C2, C7)
- c2- Study the effect of model parameters and assumptions on resulting motion. (C1, C2, C7)

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, D9)

d2- search for information in references and in internet (D2, D8).

Course Contribution in the Program ILO's

ILO	's	Program ILO's
Α	Knowledge and understanding	A1 A3, A4
В	Intellectual skills	B1, B2, B3, B4, B11
С	Professional and practical skills	C1, C2, C7
D	General and transferable skills	D1, D2, D3, D8, D9

3 – Contents

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

4 – Teaching, Learning and Assessementmethods:

Teaching Methods				Learning Assessement Method							bd										
Course ILO's		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			
	a1	1			1	1				1				1		1	1	1			
dge	a2	1			1	1								1		1	1	1			
wlei	a3	1			1	1				1				1		1	1	1			
Kno	a4	1			1	1				1				1		1	1	1			
	a5	1			1									1		1	1	1			
ctual	b1	1			1									1		1		1			
Intelle	b2	1			1	1								1		1	1	1			
ied	c1	1			1	1								1		1	1	1			
Appli	c2	1			1									1		1	1	1			
eral	d1			c3		1				1							1				
Gen	d2									1							1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes	Bi-Weekly	20
Mid-Term Exam	6-th Week	10
Written Exam	Sixteenth week	70
Тс	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.
- Basic of mechanical engineering, enginerring mechanics statics and dynamics, statics and dynamics hibbeler 12th edition.

6-3 Recommended books:

None

6-4 Periodicals, Web sites, etc.

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

Modern Academy for Engineering & Technology Basic Science Department B141 : 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:	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: Chemistry	Code: B141	Level: Freshman, First Semeste	er
Total Hours: 4	Lectures: 2	Tutorial/Exercise:-	Practical: 2
	Pre-requisite: non		

C - Professional information

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 of engineering chemistry and its applications in industrial fields.

2 - Intended Learning Outcome

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of: By the end of the course the student should 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
Α	Knowledge and understanding	A1,A3,A4,A5,A6,A8,A11,A12
В	Intellectual skills	B1,B2,B3,B4,B6,B8,B10,B12
С	Professional and practical skills	C1,C2,C3,C5,C8,C12
D	General and transferable skills	D1,D2,D3,D4,D5,D7

Торіс	Lecture hours	Practical hours
Gas laws and gas liquefaction	2	2
 Liquid state, Refrigeration & heat pump. 	2	2
Electrochemistry & Metallic corrosion.	2	2
Solutions & Antifreezes.	2	2
Thermo chemistry & Fuels & solar heat.	2	2
Water Treatment & Desalination.	2	2
Polymers and Industry	4	4
Iubricants and lubrication.	2	2

Soaps and Detergents.	2	2
Fuels and combustion	2	2
Chemistry and Tech. of petroleum	4	4
Cement Industry.	2	2
Revision	2	2
Total hours	30	30

4 - Teaching and Learning and Assessment methods:

				eachir	ng Me	thod	S		L	.earni Metho	ng ds	Assessment Method							
Course ILO's		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	
	a1	1	1	1	1		1				1			1		1	1		
∞ bu	a2	1			1									1		1	1	1	
dge	a3	1			1									1		1	1	1	
iowle derst	a4	1	1	1	1	1	1				1			1		1	1	1	
Un Kn	a5	1					1							1	1	1	1	1	
	a6	1									1			1			1	1	
	b1	1			1									1		1		1	
	b2	1			1	1								1		1	1	1	
sli	b3	1	1	1	1		1				1			1	1		1		
al St	b4	1	1		1		1				1			1	1	1	1	1	
lectua	b5	1																	
Intel	b6	1																	
	b7	1																	
	b8	1									1			1					
	c1	1	1		1	1	1							1	1	1	1	1	
S	c2	1			1									1		1	1	1	
Skill	c3	1		1		1					1	1					1	1	
ional	c4	1			1	1									1		1	1	
ofess	c5						1								1				
d Pro	c6						1								1	1			
pplie	c7														1	1			
A	c8																		
	c9														1	1			

	c10													
al Tran. ills	d1			1	1			1				1		
	d2		1	1				1	1			1		
ski	d3	1	1					1				1	1	
g	d4	1	1	1				1						

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and	Bi-Weekly	10
reports		
Mid-Term Exam	8-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total	100	

6- List of references:

6-1 Course notes:

• Chemistry for engineering & applied sciences.

6-2 Required books:

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

6-4 Recommended books: None

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:	Dr. Shaban Ragab Gouda
Head of the Department:	Prof. Laila Soliman
Date:	September 2015

Modern Academy for Engineering & Technology Basic Science Department B131: Physics I

<u>A- Affiliation</u>	
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 Sciences Department
Date of specifications approval:	September 2015

B - Basic Information

Title : Physics I	Code: B131	Year/level: 1-st year / 1-st Term
Teaching Hours:	Lectures: 4	Tutorial:
	Practical: 2	Total: 6

<u>C - Professional Information</u>

1 – Course Learning Objectives:

This course will enable the student to have a clear presentation of the basic concepts and principles of fundamental topics in classical physics. Concerning properties of matter, heat and waves.

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 by work 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 to measure 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 to verify 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
Α	Knowledge and understanding	A1, A2, A3, A4, A13
В	Intellectual skills	B1, B2, B3, B7, 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

Торіс	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:

				Т	each	ing M	ethod	ls			Learr Meth	ning ods	Assessment Method									
Course ILO's		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					
	a1	1		1	1	1	1			1			1	1	1	1	1					
	a2	1		1	1	1	1			1			1	1	1	1	1					
ge	a3	1		1	1	1	1			1			 1	1	1	1	1					
	a4	1		1	1	1	1			 1			 1	1	1	1	1					
wlec	ao	1		1	1	1	1			1			 1	1	1	1	1					
Śno	ao 07	1		1	1	1	1			1			 1	1	1	1	1					
_	a/ 28	1		1	1	1	1			 1			 1	1	1	1	1					
	20 20	1		1	1	1	1			1			 1	1	1	1	1					
	a0 a10	1		1	1	1	1			 1			 1	1	1	1	1					
	b1	1		1	1	1	1			1			1	1	1	1	1					
	h2	1		1	1	1	1			1				1	1	1	1					
ସ	52 52	1		1	1	1	1			1			 4	1	4	1	1					
Intellectua	03	1		I	I	I				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		
	c1			1	1	1	1			1		1	1	1	1	1		
	c2						1						1			1		
g	c3						1						1					
plie	c4						1						1					
AF	c5						1						1					
	c6						1						1					
	c7						1						1					
	d1	1	1	1			1			1								
	d2		1	1		1				1						1		
eral	d3	1		1		1	1			1					1	1		
Gen	d4					1						1	1	1		1		
0	d5			1		1				1					1			
	d6					1				1		1	1	1	1	1		

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes	Bi-Weekly	10
Mid-Term Exam	6-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course notes:

- PHY 101, Physics I.
- Physics Lab (1) Note.

6-2 Required books

Physics for Scientists and Engineers, Raymond A. Serway, 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
- <u>http://en.wikipedia.org/wiki/Bernoul/principle</u>
- <u>http://www.physicsclassroom.com/calcpad/circgrav/</u>
- <u>http://physicsworld.com/</u>
- http://www.britannica.com/science/wave-motion
- <u>http://physics.info/</u>

7- Facilities required for teaching and learning:

- Library
- Computer, Internet, and Data Show
- Laboratories.

Course coordinator:	Dr. Mohamed Eltawab
Head of the Department:	Prof. Dr. Laila Soliman
Date:	September, 2015
Modern Academy for Engineering & Technology Basic Science Department B132:Physics 2- Electricity, Magnetisms and Optics

A-Affiliation

turing Engineering and Production Technology BSc Program
c Engineering and Communication Technology BSc Program
er Engineering and Information Technology BSc Program
ure Engineering and Building Technology BSc Program
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Title:	Physics 2	Code: B 13	32	Level: Fir	st.	Semester	: Second.
Total Hours:	3 hrs	Lectures	2 hrs	Tutorial	1 hr	Practical	2 hrs

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
А	Knowledge and understanding	A1,A3, A5
В	Intellectual skills	B2, B3, B4, B5
С	Professional and practical skills	C1, C5,C12
D	General and transferable skills	D5, D7

3 – Contents

Tonic	Lecture	Tutorial	Practical
Горіс	hours	hours	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:

			Т	eaching	Method	s		Lear Meth	ning Iods	Assessement Method					
Course IL O's		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	
	a1	1		1	1	1	1	1		1	1	1	1	1	
	a2	1			1	1				1		1	1	1	
dge	a3	1			1	1	1			1	1	1	1	1	
wlei	a4	1			1	1	1			1	1	1	1	1	
Knc	a5	1		1	1	1		1		1			1	1	
	a6	1		1	1	1		1		1			1	1	
	а7	1		1	1	1	1	1		1	1		1	1	
ual	b1	1			1	1				1		1	1	1	
llect	b2	1			1	1				1		1	1	1	
Inte	b3	1		1	1			1					1	1	
	c1	1			1		1	1			1		1	1	
lied	c2	1			1	1	1	1			1		1	1	
App	c3	1			1		1	1			1		1	1	
-	c4	1			1		1	1			1		1	1	
ସ୍ଥ	d1	1		1		1		1					1	1	
ener	d2			1				1					1	1	
Ğ	d3			1				1					1	1	

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes	Bi-Weekly	10
assignments and reports		
Mid-Term Exam	6-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
То	100	

6- List of references:

6-1 Course notes

M. El- Tawab Kamal , Abo- Elyzeed B. Abo- Elyzeed, Marwa Yahia Shoeib and Nagat A. Salam Elmahdy, PHY 102- Physics 2

6-2 Required books:

Halliday, D., Resnick, R., Wallker, J.(1993) Fundamentals of Physics .John Wiley, New York. Serway, R. A. (1990) Physics for Scientists and Engineers with Modern Physics, 3rd ed. Wiely, New Yourk.

6-3 Recommended books

M. El- Tawab Kamal , Abo- Elyzeed B. Abo- Elyzeed, Marwa Yahia Shoeib and Nagat A. Salam Elmahdy, PHY 102- Physics 2

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

Course coordinator:	Dr. M El- Tawab Kamal
Head of the Department:	Professor Dr. Laila Soliman
Date:	September 2015

Modern Academy for Engineering & Technology Basic Science Department B221: Physics III

A-Affiliation

Relevant program:	Computer Eng. & Information Tech.
	Electronic Eng. & communication Tech.
Department offering the program:	Computer Eng. & Information Tech. Dept.
	Electronic Eng. & communication Tech. Dept.
Department offering the course:	Basic Sciences Dept.
Academic year/level:	Second year, first semester
Date of specifications approval:	November 2011

B - Basic information

Title: Physics (3)	Code: B221	Year/level: 2 nd year
Teaching Hours	Lectures:2	Tutorial:2
	Practical:1	Total: 5

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to introduce the basic concepts and theory of modern physics, and methods of analyzing and investigating real systems.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

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

- a1-the theory of relativity (A3, 8)
- a2- the particle-wave dualityand photoelectric effect (A3, A8,A9).
- a3- Compton scattering (A8,A9).
- a4- the application toinfinite potential well, simple harmonic oscillator and the tunnel effect (A1, A2).
- a5- the atomic structure and electronic configuration of elements (A1, A3).
- a6- the energy stats and spectra of molecules and solids (A1, A3).
- a7- The energy bands of solids (A1, A3).
- a8- the theory and structure electrical conduction of metals, insulators and semiconductors. (A1, A3, , A8).

b - Intellectual skills:

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

- b1- do applications on the photoelectric effect and Compton scattering (B4, B6, B7).
- b2-deduce mathematical relations describing the energy of photon and electron (B1, B2, B12).
- b3- deduce relations describing the collision between photon and electron (B4, B5. B7).
- b4- classify and compare the different ways of the conductivity of elements (, B5, B7, B8).

c - Professional and practical skills:

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

- c1- design, operate, test and maintain photocell (C1, C2, C8)
- c2- calculate the energy of electron and photon (C1, C2, C3).

- c3- use the light to introduce electric current (C7).
- c4- design amplifiers and transformers (C1, C2,C4).
- c5- make current and voltage rectification (C1, C11, C12).
- c6- use experimental facilities to assemble and operate electronic circuits (C1:C4, 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- use ICT facilities in presentations (D4).
- d4- search for information's in references and in internet(D7).
- d5- practice self-learning(D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A2, A3, A8, A9
В	Intellectual skills	B1, B2, B4, B5, B6, B7, B8, B12
С	Professional and practical skills	C1, C2,C3, C4, C7, C8, C11, C12
D	General and transferable skills	D1, D3, D4, D7, D9

3 – Contents

Tonic	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
Historical overview of classical mechanics	2	2	
Special theory of Relativity Lorentz trans formation,	1	1	
consequences of STR	7	т Т	
Quantum physics			
Black body Radiation, quantum properties of thermal Radiation,	7	7	
particle-wave duality, photo electric field Compton scattering	1	1	
Quantum mechanics	6	6	
The postulates of quantum mechanics: deBroglie thesis, Bohr-			
Somerfield quantization conditions.			
Heisenberuncertainty principle. Time dependent and independent			
Schrodinger equation, application of Schrodinger equation, infinite			
potential well, simple harmonic oscillator, the tunnel Effect			
 Inductor atomic physics, mechanical 	5	5	
Pauli exclusion principle, Electronic configuration of the elements	5	5	
Inductory solidstate physics, free electron model, Fermi-Dirac	6	6	
probability and density states, band structure of solids.	0	0	
Practical Experiments.			
Total hours	30	30	15

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			
	a1	1		1	1	1	1					1				1	1	1	1	1			
ling	a2	1			1	1										1		1	1	1			
stanc	a3	1			1	1	1									1	1	1	1	1			
Jnder	a4	1			1	1	1									1	1	1	1	1			
e&۱	а5	1		1	1	1						1				1			1	1			
Knowledg	a6	1		1	1	1						1				1			1	1			
	а7	1		1	1	1	1					1				1	1		1	1			
	a8	1		1	1	1	1					1				1	1		1	1			
	b1	1			1	1										1		1	1	1			
s	b2	1			1	1										1		1	1	1			
al Ski	b3	1		1	1							1							1				
lectua	b4	1			1	1										1		1	1	1			
Intel	b5	1			1	1										1		1	1	1			
	b6	1		1	1							1							1				
le	c1	1			1		1					1					1		1	1			
ssiona	c2	1			1	1	1					1					1		1	1			
^p rofes kills	c3	1			1		1					1					1		1	1			
lied F S	c4	1			1		1					1					1		1	1			
App	c5	1			1		1					1					1		1	1			
cills	d1	1		1		1						1							1	1			
an. Sł	d2			1								1							1	1			
al Tr	d3		<u> </u>	1								1							1	1			
Genel	d4			1								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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes:

Lecture notes and handouts.

6-2 Essential books (text books)

David Halliday Robert Resnick, and Jearl Walker "Fundamentals physics Extended with modern physics, fourth edition John Willey and sons Inc. Newyork, 1993.

6-3 Recommended books Raymond:

A.Serway:"Physics for scientists and Engineers with modern physics " Third Edition John Willey and sons Inc. Newyork 1990.

6-4 Periodicals, Web sites, etc.

No periodicals are available

7- Facilities required for teaching and learning:

- Physics 3 Laboratory
- Computer software and movies.
- Computer, and data show

Course coordinator:	Prof. Dr. A. M. Aboutaleb
Head of the Department:	Prof. Dr Hassan Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department

B222: Physics (4)

Relevant program:	Computer Eng. & Information Tech.
	Electronic Eng. & communication Tech.
Department offering the program:	Computer Eng. & Information Tech. Dept.
	Electronic Eng. & communication Tech. Dept.
Department offering the course:	Basic Sciences Dept.
Academic year/level:	Second year, second semester
Date of specifications approval:	November 2011

B - Basic information

A- Affiliation

Title: physics (4)	Code: B222	Year/level: 2 nd year
Teaching Hours:	Lectures:2	Tutorial: 0
	Practical:2	Total:4

<u>C - Professional information</u>

1 – Course Learning Objectives:

The main objective of this course is to introduce the basic concepts and theory of semiconductor materials and devices.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of: a1the properties of semiconductor materials (A3, A8,A9).

- a2- The crystal structureand band structure of semiconductors (A8,A9).
- a3- the difference between intrinsic and doped semiconductor carriars transport (A1, A2).
- a4- the structures, characterstics, principale of operation and applications of PN junction (diode (A1, A3).

a5- the characterstics (forword and reversbias) of zener and tunnel diodes (A1, A3).

- a6- theschottky, Ohmic contact, heterojunction, bipolar junction transistior (BJT), junction field effect transistor (JFET), metal oxide semiconductor transistor (MOSFT) (A1, A3).
- a7- the physical structure, basic configuration and I-V characterstic. (A1,A2,A3).

b - Intellectual skills:

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

- b1- do an applications onintrinsic and doped semiconductor(B4, B6, B7).
- b2-deduce mathematical relations describing the conductivity of deffernt types of semiconductors (B1, B2, B12).
- b3- deduce relations describing the connection between P-type and N-type semiconductors (B4, B5. B7).
- b4- classify and compare between different types of diodes and transistors(, B5, B7, B8).

c - Professional and practical skills:

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

c1- design, operate, test and maintain solarcell (C1, C2, C3)

- c2- calculate the conductivity of deffernt types of semiconductors(C1, C2, C3).
- c3- use the light to introduce electric currunt (C7).
- c4- desine amplifiers and transformers (C1, C2,C4).
- c5- make current and voltage rectification (C1, C11, C12).
- c6- use experimental facilities to assemble and operate electronic circuits (C1:C4, C7).

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- use ICT facilities in presentations (D4).
- d4- search for information's in references and in internet(D7).
- d5- practice self-learning(D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A1, A2, A3, A8, A9
В	Intellectual skills	B1, B2, B4, B5, B6, B7, B8, B12
С	Professional and practical skills	C1, C2,C3, C4, C7, C11, C12
D	General and transferable skills	D1, D3, D4, D7, D9

3 - Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
Semiconductor Materials, Properties	1	0	
Crystals and common Semiconductor crystal structures	2	0	
 Energy band of semiconductors 	3	0	
• Electrons and holes in semiconductors. Fermi Dirac distribution		0	
Function and the densities of states		0	
Carrier Concentration		0	
 Intrinsic Semiconductors and doped semiconductors 	2	0	
Carrier Transport.			
Carrier drift and carrier diffusion	4	0	
Carrier recombination and generation			
Continuity Equation			
P-N Junctions			
Structure and Principle of operation Energy-band Electro static			
analysis of p-n Junction			
The P-n diode current (ideal characteristic)	10	0	
Reverse bias break down, Avalanche break down, Zener	10	0	
breakdown.			
Characteristics of Special purpose diodes, Zener diode, varactor			
LED, photodiode, Laser, diode, Tunnel diode			
 Metal – Semiconductor Junctions structure and principle of 	3	0	
operation, shottky diode- ohmic contracts	,	Ŭ	

Transistor The basic structure and operation of Bipolar Junction ransistors The structure of Field Effect transistors	5	0	
Practical Experiment.		0	
Total hours	30	0	30

4 - Teaching and Learning and Assessment methods:

				Т	eachi	ng Me	ethod	s			Learn Metho	ing ods		A	ssess	sment	Met	hod	
Course ILO's		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		
	a1	1		1	1	1	1			1			1	1	1	1	1		
ling	a2	1			1	1							1		1	1	1		
stanc	a3	1			1	1	1						1	1	1	1	1		
super	a4	1			1	1	1						1	1	1	1	1		
& U	а5	1		1	1	1				1			1			1	1		
dge	a6	1		1	1	1				1			1			1	1		
owle	а7	1		1	1	1	1			1			1	1		1	1		
х И	a8	1		1	1	1	1			1			1	1		1	1		
	a9	1		1	1	1	1			1			1	1		1	1		
<u>s</u>	b1	1			1	1							1		1	1	1		
Skil	b2	1			1	1							1		1	1	1		
ctual	b3	1		1	1					1						1			
telle	b4	1			1	1							1		1	1	1		
드	b5	1			1	1							1		1	1	1		
kills	c1	1			1		1			1				1		1	1		
al S	c2	1			1	1	1			1				1		1	1		
ssion	c3	1			1		1			1				1		1	1		
rofe	c4	1			1		1			1				1		1	1		
ied F	c5	1			1		1			1				1		1	1		
Appli	c6	1			1		1			1				1		1	1		
ll Tran. Ils	d1	1		1		1				1						1	1		
Genera Ski	d2			1						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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes:

Lecture notes and handouts.

6-2 Essential books (text books)

David Halliday Robert Resnick, and Jearl Walker "Fundamentals physics Extended with modern physics, fourth edition John Willey and sons Inc. Newyork, 1993.

6-3 Recommended books Raymond:

A.Serway:"Physics for scientists and Engineers with modern physics "Third Edition John Willey and sons Inc. Newyork 1990.

6-4 Periodicals, Web sites, etc.

No periodicals are available

7- Facilities required for teaching and learning:

- Physics 4 Laboratory
- Computer software and movies.
- Computer, and data show

Course coordinator:	Prof. Dr. A. M. Abou taleb
Head of the Department:	Prof. Dr. Hassan Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B200 English Language III

A- Affiliation

Relevant programs:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Departments offering the programs:	Computer Engineering & Information Technology Dept.
	Electronic Engineering & communication Technology Dept.
	Manufacturing Engineering & Production Technology Dept.
Department offering the course:	Basic Sciences Department
Date of specifications approval:	November 2011

B - Basic Information

Title: English Language III	Code: B200	Year/level: 2-nd year / 1-st Term
Teaching Hours:	Lectures: 2	Tutorial:
	Practical:	Total: 2

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to use different tenses correctly in speaking and writing and have a good amount of vocabulary about engineering.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

- By the end of the course the student should acquire the following knowledge and understanding:
- a1-Different types of tenses. (A9, A10)
- a2- A good amount of vocabulary about engineering. (A9, A10)

B - Intellectual skills

- By the end of the course the student should be able to:
- b1- use the passive voice where it is needed. (B4)
- b2- use the Vocabulary he learns in the lessons in his daily life as well as career. (B4)
- b3- form a comprehensive report on branches of Engineering after collecting material about it. (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

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

- 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- Communicate effectively and present data and results orally and in written form. (D1), (D2), (D3), (D6)
- d3- communicate effectively in written and oral forms.(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
Knowledge and understanding	A9, A10
Intellectual skills	B4
Professional and practical skills	C11, C12
General and transferable skills	D1, D2, D3, D4, D6, D7, D8

3 - Contents

	Торіс	Lecture hours						
٠	Sir Isaac Newton.	8						
•	Making A Talkie Film.	8						
•	Energy Sense Makes Future Sense.	4						
٠	Plural of nouns	4						
•	Regular and irregular verbs	4						
•	Revision	2						
	Total hours							

4 - Teaching and Learning and Assessment methods:

			Teaching Methods											Learning Methods				Assessment Method						
Course ILO's		Lecture	Warming up	Discussions	Tutorials	Problem solving						Researches and Reports		Modeling and Simulation		Written Exam	Class work	Quizzes	Class participation	Assignments				
edge & tanding	a1	1	1	1								1	1			1	1	1	1	1				
Knowle Undersi	a2	1	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		1	1		
onal	c1	1	1	1				1	1		1	1		1	1		
ofessi Ills	c2	1	1	1				1	1		1	1		1	1		
ied Pr Ski	c3	1	1	1				1	1		1	1		1	1		
Appl	c4	1	1	1				1	1		1	1		1	1		
General Tran. Skills	d1	1	1	1				1	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6-1 Course notes:

Learn, Apply and Excel by Prof. Dr. A. H. El. Khoreiby

6-2 Recommended books

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

6-4 Periodicals, Web sites, etc. Non

7- Facilities Required for Teaching and Learning

- Library
- Internet

Course Coordinator:	Prof. Abdel – Hamid El Khoreiby
Head of the Department:	Prof. Hassan Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B202 History of Science & Technology

A- Affiliation

Relevant programs:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Departments offering the programs:	Computer Engineering & Information Technology Dept.
	Electronic Engineering & communication Technology Dept.
	Manufacturing Engineering & Production Technology Dept.
Department offering the course:	Basic Sciences Department
Date of specifications approval:	November 2011

B - Basic Information

Title: History of Science & Technology	Code: B202	Year/level: 2-nd year / 2-nd Term
Teaching Hours:	Lectures: 2	Tutorial:
	Practical:	Total: 2

C - Professional Information

1 – Course Learning Objectives

يعطى المنهج دراسة مختصره عن تاريخ الهندسة والتكنولوجيا في مختلف العصور الفرق بين كل من العلم – الهندسة – التكنولوجيا – نقل التكنولوجيا – نشاطات العمل الهندسي ومسئوليات المهندس- امثله عن تطور اوجه النشاط الهندسي والتكنولوجي وكذا اشهر علماء الهندسة والتكنولوجيا.

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 (A1, A11, A14) لتلك المفاهيم

a2- المعلومات التاريخية عن مهنه الهندسة و التكنولوجيا وكذا العلاقة بين مسمى المعهد أو الكلية و بين ما يتم در استه

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

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

b - Intellectual skills:

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

b1- توظيف النظريات و المعارف و البيانات و الأفكار لابتكار معدات و منظومات متطورة b1b2- أن يكتسب الطالب مهارات توظيف النظريات و المعارف و البيانات و الأفكار لابتكار معدات و منظومات متطورة b2b2- أن يستحدم الطالب المنهج العلمي في التفكير وصولا لتصميم و تركيب الفر وض

(B7) أن يستطيع الطالب التفكير في حل مشكلة ما من خلال تفهمه لموضوعات الهندسة العكسية -33

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

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 b2) أن يستحدم الطالب المنهج العلمي في التفكير وصولا لتصميم و تركيب الفروض-b2 b3- أن يستطيع الطالب التفكير في حل مشكلة ما من خلال تفهمه لموضو عات الهندسة العكسية -b3 b3- ان يستطيع الطالب اتخاذ القرار السليم و اختيار انسب الحلول من خلال در استه لنماذج و امثلة من المشاكل الهندسيه و عرض -b4 b4- ان يستطيع الطالب المنهم الموضوعات الهندسة العكسية العكمية من خلال تفهمه لموضو المعان الهندسة العكسية -b4 b5- ان يستطيع الطالب الماد الفادسية و عرض -b4

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 في الابتكارات الهندسية

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 في استخدام المنظومات الهندسية d2- يندريب الطالب على التفكير و ايجاد التصميمات اللازمة لخلق كل ما هو جديد d3- اكساب الطالب الخبرة في ايجاد حلول عملية تخدم برامج خارج تخصصه d4- الكساب الطالب كيفية وضع المعايير اللازمة لتكوين فريف بحثى متكامل d4- الكساب الطالب كيفية وضع المعايير اللازمة لتكوين فريف بحثى متكامل

Course Contribution in the Program ILO's

	ILO's	Program ILO's						
А	Knowledge and understanding	A1, A5, A8, A9, A11,A14						
В	Intellectual skills	B1, B2, B6, B7						
С	Professional and practical skills	C1, C2						
D	General and transferable skills	D1, D7, D8						

3 - Contents

Торіс		Lecture hours
العلم والهندسة والتكنولوجيا	•	2
الهندسة والبحث العلمي – منظومه البحث العلمي	•	2
عناصر ومتطلبات البحث العلمي	•	2
الهندسة وخريطة البحث العلمي – مراحل البحث العلمي	•	2
تاريخ الهندسة والتكنولوجيا في مختلف العصور	•	4
نقل التكنولو جيا	•	2
نشاطات العمل الهندسي ومسئوليات المهندس	•	2
التعليم الهندسي	•	2
نقابه المهندسين المصرية – جمعيه المهندسين المصرية	•	4
تطور اوجه النشاط الهندسي والتكنولوجي	•	4
اشهر علماء الهندسة والتكنولوجيا	•	2
مراجعه عامة	•	2
Total hours		30

4 - Teaching and Learning and Assessment methods:

			Т	eaching) Method	ds		Lear Meth	ning nods	Assessment Method						
Course IL O's		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		
Ð	a1	1	1	1		1		1					1	1		
edge	a2	1	1	1		1		1						1		
Know	a3	1	1	1		1		1					1	1		
	a4	1	1	1		1		1						1		
I	b1	1						1						1		
ectua	b2	1						1						1		
Itelle	b3	1						1						1		
ų	b4	1						1								
Proffesional	c1	1						1					1			
	d1	1						1								
eral	d2	1						1		Ī						
Gen	d3	1						1		Ī						
	d4	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of References

6-1 Course notes:

اسئله مراجعه وملخصات للماده بمركز التصوير بالكليه

6-2 Required books

Martin, M. W., and Schinzinger, R., Ethics in engineering, third edition, McGraw Hill book company, New York, 1996.

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.--

مواقع الانترنت الخاصة بنقابه المهندسين المصرية

7- Facilities Required for Teaching and Learning

كتب ومجلات ثقافية خاصة بالهندسة والمهندسين

Course Coordinator:FHead of the Department:FDate:F

Prof. Shaban Ragab Gouda Prof. Hassan Awad August 2015

Modern Academy for Engineering & Technology Basic Science Department Course Specification B211 Mathematics III

<u>A- Affiliation</u>	
Relevant programs:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Departments offering the programs:	Computer Engineering & Information Technology Dept.
	Electronic Engineering & communication Technology Dept.
	Manufacturing Engineering & Production Technology Dept.
Department offering the course:	Basic Sciences Department
Date of specifications approval:	November 2011

B - Basic Information

Title: Mathematics III	Code: B211	Year/level: 2-nd year / 1-st Term
Teaching Hours:	Lectures: 4	Tutorial: 2
	Practical:	Total: 6

<u>C - Professional Information</u>

1 – Course Learning Objectives

A study of this course aims to realize the basic concepts in ordinary differential equations (O.D.E) and methods of solution and to realize the basic concepts in functions of two or more independent variables and its partial derivative with applications.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

- By the end of the course the student should know:
- a1- Classification of O.D.Es. (A1, A12)
- a2- Solution of the O.D.E using suitable methods. (A1, A12)
- a3- Modeling physical, Mechanical, Engineering problem to O.D.E. and solve it. (A1, A12)
- a4- Applications of partial derivatives to physical and Engineering problems. (A1, A12)

B - Intellectual skills

- By the end of the course the student should be able to:
- b1- Choose the suitable methods for solving O.D.E. (B1)
- b2- Apply applications of partial derivatives to Engineering problems. (B7)

C - Professional and practical skills

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

c1- apply O.D.E in electrical and mechanical problems. (C1, C13)

D - General and transferable skills

- By the end of the course the student should be able to:
- d1- Communicate effectively. (D3)
- d2- Search for information. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A12
В	Intellectual skills	B1, B7
С	Professional and practical skills	C1, C13
D	General and transferable skills	D3, D7

3 – Contents

Торіс	Lecture hours	Tutorial hours
Classification of Differential equations	4	2
First order Differential Equation	4	2
Separable and homogeneous Differential equations	4	2
Exact and linear Equations	4	2
 Nth order D.E with constant coefficients 	4	2
Variation of parameters-Undetermined coefficients	4	2
Euler's Equation-Reduction of order	4	2
Linear systems of ordinary differential equations	4	2
Partial derivatives- directional derivative	6	2
Total derivatives-directional derivative	6	2
Tangent planes and normal lines	4	2
Maxima and minima of function of two variables	4	2
Lagrange's multipliers	4	2
Series solution of O.D.E.	4	4
Total hours	60	30

4 - Teaching and Learning and Assessment methods:

		Teaching Methods											Learning Methods			Assessment Method							
Course ILO's		Lecture	Discussions and seminars	Tutorials	Problem solving						Researches and Reports	Modeling and Simulation			Written Exam	Quizzes	Assignments						
۰ & ing	a1	1	1	1	1												1						
edge	a2	1		1	1						1				1	1	1						
owle derst	a3	1	1	1	1						1				1	1	1						
Kn Und	a4	1	1	1	1						1				1	1	1						

tual Skills	b1	1	1		1					1	1	1			
Intellec	b2	1		1	1					1	1	1			
Applied Skills	c1	1		1	1					1	1	1			
Tran. Is	d1		1	1				1				1			
Genera Skil	d2	1			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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6-1 Course notes

Differential Equation for Engineers by Dr. M. Khalifa

6-2 Required books

Erwin Kreyszig, "Advanced Engineering Mathematics", 8th Edition, John Willey & Sons, Inc., NY, 1999.

6-3 Recommended books

C. Wylie and L. Barrett, "Advanced Engineering Mathematics", McGraw-Hill, Lonod, 1982.

6-4 Periodicals, Web sites, etc.

7- Facilities Required for Teaching and Learning

• Library and Internet

Course Coordinator:	Prof. Dr. Mohamed Khalifa
Head of the Department:	Prof. Hassan Abdala Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B212 Mathematics IV

A- Affiliation

Relevant programs:	Computer Engineering & Information Technology									
	Electronic Eng	gineering & communication Technology								
	Manufacturing	g Engineering & Production Technology								
Departments offering the programs:	Computer Eng	gineering & Information Technology Dept.								
	Electronic Eng	gineering & communication Technology Dept								
	Manufacturing	g Engineering & Production Technology Dept								
Department offering the course:	Basic Science	es Department								
Date of specifications approval:	November 201	1								
B - Basic Information										
Title: Mathematics IV	Code: B212	Year/level: 2-nd year / 2-nd Term								
Teaching Hours:	Lectures: 4	Tutorial: 2								
	Practical:	Total: 6								

C - Professional Information

1 – Course Learning Objectives

A study of this course aims to realize the basic concepts in Laplace transform and special functions and Fourier series and to use the Laplace transform to solve O.D.E., integral equations to use double and trible integrals to integrate function of severed variables in different coordinates

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

- By the end of the course the student should know:
- a1- Rules of Laplace trans form and its inverse in applications. (A1, A5)
- a2 Definitions of the special functions and its application. (A1, A5)
- a3- Uses of Fourier series and its applications in applied engineering problems. (A1, A5)
- a4- Multiple integration in applications. (A1, A5)
- a5- Uses of vector calculus analysis in applications. (A1, A5)

B - Intellectual skills

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

- b1- Make a logical Analysis to reach to the proper solution for O.D.E in applications (B2, B3)
- b2- Choose the right decision by choosing the best kind of multiple Integration in applications. (B1, B2, B3)
- b3- Use vector analysis to evaluate line integrals and surface integrals for a vector function. (B2, B7)
- b4- Make analysis for electrical problem using Fourier series. (B3, B7)

C - Professional and practical skills

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

- c1- apply Laplace transform in electrical and mechanical problem. (C1, C12)
- c2- apply Fourier series in electrical and mechanical problem. (C1, C12)
- c3- apply multiple Integration in electronics. (C1, C12)
- c4- apply vector analysis to find the work done by the force field in electrical problem. (C1, C12)

D - General and transferable skills

- By the end of the course the student should be able to:
- d1- Communicate effectively. (D3)
- d2- Search for information. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's							
А	Knowledge and understanding	A1, A5							
В	Intellectual skills	B1, B2, B3, B7							
С	Professional and practical skills	C1, C12							
D	General and transferable skills	D3, D7							

3 – Contents

Торіс	Lecture hours	Tutorial hours
The Gamma and Beta function	4	2
Laplace transform	2	2
First shift theorem - Second shift theorem	4	2
Differentiation and integration of Laplace transform	2	2
Laplace transform of derivative and Integral	2	2
Convolution theorem and applications of Laplace transform	4	2
Fourier series and its applications	4	2
Legendre functions and Legendre O.D.E.	4	2
Bessel functions and Bessel O.D.E.	4	2
Double and triple integrals with applications	6	2
Polar, Cylindrical and spherical coordinates in multiple integrals with	6	2
Line integrals and applications and Green's theorem	6	2
 Surface area and surface integrals with applications 	4	2
Divergence Theorem	4	2
Stokes Theorem	4	2
Total hours	60	30

				Te	achir	ng Me	ethod	S			Lear Meth	ning nods	Assessment Method							
Course ILO's		Lecture	Discussions and seminars	Tutorials	Problem solving					Researches and Reports	Modeling and Simulation		Written Exam	Quizzes	Assignments					
5	a1	1	1	1	1										1					
ge & ndinç	a2	1	1	1	1					1			1	1	1					
wled	a3	1	1	1	1					1			1	1	1					
Knov Jnde	a4	1		1	1					1			1	1	1					
	а5	1		1	1								1	1	1					
	b1	1	1		1								1	1	1					
al Skills	b2	1	1	1	1								1	1	1					
Intellectu	b3	1	1	1	1					1			1	1	1					
	b4	1	1	1	1					1			1	1	1					
<u>ب</u>	c1	1	1	1	1					1			1	1	1					
l Pro IIs	c2	1	1	1	1					1			1	1	1					
pliec Ski	c3	1	1	1	1					1			1	1	1					
Ap	c4	1	1	1	1					1			1	1	1					
al Tran. ills	d1		1	1						1					1					
Genera Ski	d2	1			1					1					1					

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

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

6- List of References

6-1 Course notes

Laplace transform and special function Advanced calculus (II) by Dr. Mohamed Khalifa

6-2 Required books

Erwin Kreyszig, "Advanced Engineering Mathematics", 8th Edition, John Willey & Sons, Inc., NY, 1999.

6-3 Recommended books

C. Wylie and L. Barrett, "Advanced Engineering Mathematics", McGraw-Hill, London, 1982.

6-4 Periodicals, Web sites, etc.

www.mathworlds.com

7- Facilities Required for Teaching and Learning

- Library
- Internet

Course Coordinator: Head of the Department: Date: Prof. Dr. Mohamed Khalifa Prof. Hassan Abdala Awad August 2015

Modern Academy for Engineering & Technology Basic Science Department B300: English Language IV

A- AffiliationRelevant programs:Computer Engineering & Information Technology
Electronic Engineering & communication Technology
Manufacturing Engineering & Production Technology Dept.
Electronic Engineering & Information Technology Dept.
Electronic Engineering & communication Technology Dept.
Manufacturing Engineering & communication Technology Dept.
Basic Sciences Department
November 2011

B - Basic Information

Title: English Language IV	Code: B300	Year/level: 3-rd year / 1-st Term
Teaching Hours:	Lectures: 2	Tutorial:
	Practical:	Total: 2

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- Gain knowledge about interview questions & CV writing
- Gain intensive legal vocabulary.
- Use phrasal verbs extensively & realize their various meanings.
- Develop reading comprehension with inference.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- A good amount of vocabulary. (A9, A10)
- a2- Different uses of passive voice. (A9, A10)
- a3- Grammatical links and repeating ideas. (A9, A10)

B - Intellectual skills

- By the end of the course the student should be able to:
- b1- link ideas together cohesively and strongly. (B4)
- b2- use the Vocabulary he learns in the lessons in his daily life as well as career. (A9, A10)
- b3- Try to find clues to mysteries.

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

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

d1- communicate effectively. (D3)

Course Contribution in the Program ILO's

ILO's	Program ILO's
Knowledge and understanding	A9, A10
Intellectual skills	B4
Professional and practical skills	C11, C12
General and transferable skills	D3

3 - Contents

	Торіс	Lecture hours
•	Murder	10
٠	A False Charge.	6
•	Interviewing Preparation.	10
•	Writing a CV/Resume'	4
	Total hours	30

4 - Teaching and Learning and Assessment methods:

				Теа	aching	g Meth	ods	6				Learning Assessment Method									
Course ILO's		Lecture	Warming up	Discussions	Tutorials	Problem solving					Researches and Reports	Madalian and Cimilation	iviogeling and Simulation		Written Exam	Class work	Quizzes	Class participation	Assignments		
Je & ding	a1	1	1	1							1	1			1	1	1	1	1		
wledg erstan	a2	1	1	1							1	1			1	1	1	1	1		
Kno	a3	1	1								1	1			1	1	1	1	1		
Skills	b1	1	1	1							1	1			1	1	1	1	1		
ctual	b2	1	1	1							1	1			1	1	1	1	1		
Intelle	b3	1	1	1							1	1			1	1		1	1		
kills	c1	1	1	1	1					1				1	1	1					
lied S	c2	1	1	1	1					1				1	1	1					
App	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	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6-1 Course notes:

Learn, Apply and Excel by Prof. Dr. A. H. El. Khoreiby

6-2 Recommended books :

Hopkins, Andy : Look ahead , Longman ELT, 1996 Shelton, James: Handbook for technical writing, NTC publishing Group, Illinois, USA, 1998.

6-4 Periodicals, Web sites, etc.

None

7- Facilities Required for Teaching and Learning

- Dictionaries
- Internet

Course Coordinator:	Prof. Abdel – Hamid El Khoreiby
Head of the Department:	Prof. Hassan Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B311: Mathematics V

A- Affiliation	
Relevant program:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Department offering the program:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Department offering the course:	Basic Sciences Department
Date of specifications approval:	November 2011
Department offering the program: Department offering the course: Date of specifications approval:	Electronic Engineering & Information Technology Electronic Engineering & communication Technology Manufacturing Engineering & Production Technology Electronic Engineering & communication Technolog Manufacturing Engineering & Production Technolog Basic Sciences Department November 2011

B - Basic Information

Title: Mathematics V	Code: B311	Year/level: 3-rd year / 1-st Term
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical:	Total: 4

C - Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the theory of complex analysis and the basic tools of partial differential equations.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

- By the end of the course the student should know:
- a1- Applications of the complex integration with the residue theorem. (A1, A2)
- a2- Different applications of differentiation and integration of complex fraction. (A1, A2)
- a3- Solution different kinds of partial differential equations (P.D.E). (A2, A5)

B - Intellectual skills

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

b1- Apply all methods of solutions in circuit theory, electronic, automatic control theory. (B1, B2, B3, B7, B11)

C - Professional and practical skills

c1. Solve partial differential equations describing real systems(C1, C13)

D - General and transferable skills

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

d1- communicate effectively. (D3)

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A2, A5
В	Intellectual skills	B1, B2, B3, B7,B11
С	Professional and practical skills	C1, C13
D	General and transferable skills	D3

Course Contribution in the Program ILO's

3 – Contents

Торіс	Lecture hours	Tutorial hours
• Functions of complex variables (Review of complex numbers)	2	2
Functions of complex variables, complex differentiation	2	2
Complex integration, Cauchy integral formula	2	2
Taylor and Laurent series	2	2
Conformal mapping and special transform.	2	2
Contour integration, Applications	2	2
Complex integration , Residue theorem	2	2
Classification of P.D.E and types of solutions	2	2
Solution of linear P.D.E with constant coffles	2	2
Canonical and standard forms of P.D.E	2	2
Solutions of some boundary value problems	2	2
 Heat flow and steady stale heat distribution 	2	2
Vibration of strings	2	2
Vibration of membrane	2	2
Final Revision	2	2
Total hours	30	30

4 - Teaching and Learning and Assessment methods:

			Teac	ching M	lethods	6	Lea	rning Met	thods	Assessment Method					
Course ILO's		Lecture	Discussions and seminars	Tutorials	Problem solving		Researches and Reports	Modeling and Simulation		Written Exam	Quizzes	Assignments			
le & ding	a1	1	1	1	1		1			1	1	1			
wledg erstan	a2	1		1	1		1			1	1	1			
Kno	a3	1		1	1		1			1	1	1			
Intellectual Skills	b1	1		1	1					1	1	1			

Applied Professional Skills	c1	1		1	1				1	1	1	
General Tran. Skills	d1		1		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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6-1 Course notes:

Complex analysis (lecture notes)

6-2 Required books

Erwin Kreyszig, "Advanced Engineering Mathematics", 8th Edition, John Willey & Sons, Inc., NY, 1999.

6-3 Recommended books

C. Wylie and L. Barrett, "Advanced Engineering Mathematics", McGraw-Hill, Lonod, 1982.

6-4 Periodicals, Web sites, etc.:

www.mathworlds.com

7- Facilities Required for Teaching and Learning

• Library and Internet

Course Coordinator:	Prof. Aly Essawi
Head of the Department:	Prof. Hassan Abdala Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B411 Mathematics VI

A- Affiliation

Relevant programs:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Departments offering the programs:	Computer Engineering & Information Technology Dept.
	Electronic Engineering & communication Technology Dept.
	Manufacturing Engineering & Production Technology Dept.
Department offering the course:	Basic Sciences Department
Date of specifications approval:	November 2011

B - Basic Information

Title: Mathematics VI	Code: B411	Year/level: 4-th year / 1-st Term
Teaching Hours:	Lectures: 3	Tutorial: 2
	Practical:	Total: 5

<u>C - Professional Information</u>

1 – Course Learning Objectives

The main objective of this course is to introduce both numerical methods for solving many mathematical problems and statistical methods to analysis any data.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- Methods of Least square curve fitting
- a2- Methods of numerical interpolation using Newton and Lagrange methods
- a3- Methods of numerical Integration and differentiation.
- a4- Basics of probability and statistics to analyze Engineering data

B - Intellectual skills

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

- b1- Make a logical Analysis to reach to the proper solution
- b2- Choose the right decision by choosing the right method
- b3- Apply probability and statistics to analyze engineering data.
- b4- Recognize the right method which has minimum error and using minimum numerical steps

C - Professional and practical skills

- By the end of the course the student should be able to:
- c1- Identify appropriate economic modles (C1, C13).
- c2- Use appropriate IT packages effectively (C1, C13).

D - General and transferable skills

- By the end of the course the student should be able to:
- d1- Communicate effectively. (D3)
- d2- Communicate using E-mail. (D4)

d3- Search for information from internet. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A1, A3, A5
В	Intellectual skills	B1, B2, B3, B4, B7
С	Professional and practical skills	C1, C13
D	General and transferable skills	D1, D3, D7

3 – Contents:

Торіс	Lecture hours	Tutorial hours
Least square Approximation – lagrange	3	2
Newton Interpolation	3	2
Newton – cotes Integration method.1	3	2
Newton – cotes Integration Method-2	3	2
Romberge-Integration method	3	2
Numerical solution of O.D.E	3	2
Runge- Kutta Methods	3	2
Numerical solution of linear equation.	3	2
Numerical solution of nonlinear merge	3	2
Numerical solution of P.D.E	3	2
The probability space-conditional Probability	3	2
Probability function and distributions	3	2
Discrete and continuous Distribution	3	2
Statistical Estimation- correlation factor	3	2
Total hours	45	30

4 - Teaching and Learning and Assessment methods:

				Teach	ning	Meth	nods	6		Le M	earnin ethod	ig Is		A	sse	ssme	nt Me	etho	d	
Course ILO's		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving				Researches and Reports	Modeling and Simulation		Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
& ng	a1	1		1	1					1			1		1		1			
edge tandi	a2	1	1		1	1							1		1		1			
Jowle	a3	1			1	1							1		1	1	1			
ъЪ	a4	1		1	1	1				1			1		1	1	1			
ectu kills	b1	1			1	1							1		1		1			
Intell al SI	b2	1			1	1							1		1	1	1			

	b3	1	1	1	1	1			1				1			1	1		
	b4	1			1	1							1				1		
d Skills	c1	1		1	1				1	1	1	1		1	1				
Applied	c2	1		1	1				1	1	1	1		1	1				
an.	d1			1		1			1							1			
al Tr	d2		1	1					1							1			
ner: SK	d3		1	1					1							1			
Ge	d4		1	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6-1 Course notes

Numerical Methods for Engineers by Dr Osama Algayar

6-2 Required books:

G. Wheathly, "Applied Numerical Analysis", 7th Edition, Pearson Education Inc., London, 2004.

6-3 Recommended books:

S. C. Chapre and Raymond P. Canale, "Numerical Methods for Engineering", McGraw-Hill, NY, 1985.

6-4 Periodicals, Web sites, etc.

SIAM Review (Numerical Analysis

7- Facilities Required for Teaching and Learning

- Library
- Internet

Course Coordinator:	Prof. Ossama El Gayar
Head of the Department:	Prof. Hassan Abdala Awad
Date:	November 2011

Modern Academy for Engineering & Technology Basic Science Department B401: Environmental science and Technology

A- Affiliation

Relevant program:	Computer Eng. & Information Tech.		
	Electronic Eng. & communication Tech.		
Department offering the program:	Computer Eng. & Information Tech. Dept.		
	Electronic Eng. & communication Tech. Dept.		
Department offering the course:	Basic Sciences Dept.		
Academic year/level:	4 th year comm. & Comp. 1 st semester		
Date of specifications approval:	Oct.2000, Feb.2007, Feb.2009		

B - Basic information

Title: Environmental science and Technology	Code: B401	Year/level: 4th year
Teaching Hours:3	Lectures:3	Tutorial:
	Practical:	Total: 3

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Be familiar with Technology Transfer issues
- Be familiar with the physical technology principles of energy supply systems based on fossil, nuclear and renewable sources of energy.
- Illustrate the sustainability problems associated with energy uses.
- Introduce to the interdisciplinary study of environmental pollutions, their causes, why they are of concern, and how we can control them.
- Recognize and use terms related to the basic physics of sound and understand the principles and concept of noise control.
- Participate effectively in Environment Impact Assessment for development.

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 effective management and transfer of technology.(A9,A10)
- a2- The sustainability problems associated with the use of fossil and nuclear fuels(A9,A10)
- a3- Identification of the renewable sources that offer reduced environmental impact such as solar wind, wave and also bio fuels.(A9,A10)
- a4- the major sources of environmental pollution.(A9,A10)
- a5- The effects of air and water pollution.(A9,A10)
- a6- The practice of noise control.(A9,A10)
- a7- The major approaches to the prevention of pollution from the most common sources.(A9,A10)
- a8- The preliminary Environment Impact Assessment for a development.(A9,A10)
B - Intellectual skills:

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

- b1- Select the proper technology of environmental control in its applications to air, water(B4, B9)
- b2- Analyze and give information on the basic causes of environmental disturbances.(B12)

C - Professional and practical skills:

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

c1- Collect and record data and information about the environmental (air, water...) quality and about nature resources . (C1, C13)

D - General and transferable skills:

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

d1- Communicate effectively. (D1,D3,D7,D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A9, A10
В	Intellectual skills	B4, B9, B12
С	Professional and practical skills	C1, C13
D	General and transferable skills	D1, D3, D7, D9

3 – Contents

Tonio	Lecture	Tutorial
Topic	hours	hours
Population Growth and the Environment	5	-
• Energy	7	-
Technology Transfer	6	-
Air Pollution	8	
Water Pollution	4	-
Noise Pollution	6	-
• Environmental Impact Assessment and the Egypt law No.4 of 1994 on the Environment.	6	-
Final Revision	3	-
Total hours	45	-

4 - Teaching and Learning and Assessment methods:

		Teaching Methods							Learning Methods			Assessment Method			
	Course ILU's	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Renorts	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
edge	a1	1												1	
owle	a2	1	1					1				1		1	
Kņ	a3	1												1	

	a4	1	1			1		1		1	
	a5	1								1	
	a6	1	1			1				1	
	а7	1						1		1	
	a8	1								1	
ual	b1	1		1		1				1	
illect	b2			1		1				1	
Inte	b3			1		1				1	
Applied	c1	1		1		1		1	1		
General Tran.	d1			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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes

Lecture notes and handouts, Revision sheets via photo copy center of the college.

6-2 Required books

Environmental science and Technology" prepared in a book form by the coarse coordinator.

6-3 Recommended books

- Gwendolyn, Hand book of Environment management and technology, Wiley inter science, Canada, (2005)
- قانون البيئةرقم ٤ عام ١٩٩٤ (جمهوريهمصر العربية) •

6-4 Periodicals, Web sites, etc.

- No periodicals are needed
- http://www.epa.gov
- http:www. Eeao. Gov. eg

7- Facilities required for teaching and learning:

- Films about environmental pollution
- Library

Course coordinator:	Prof. Dr. A. M. Abou taleb
Head of the Department:	Prof. Dr. Hassan Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B412: International Business Management

A- Affiliation

Relevant program:	Computer Eng. & Information Tech. Electronic Eng. & communication Tech.
Department offering the program:	Computer Eng. & Information Tech. Dept. Electronic Eng. & communication Tech. Dept.
Department offering the course: Academic year/level:	Basic Sciences Department 4 th year- 2 nd Term
Date of specifications approval:	Computer Eng. & Information Tech. Electronic Eng. & communication Tech. Oct.2000, Feb.2007, Feb.2009

B - Basic information

Title: International Business Management	Code: B412	Year/level: 4th year, 2nd Team
Teaching Hours: 3 hours / week	Lectures: 3	Tutorial:-
	Practical:-	Total: 3hours / week

C - Professional information

1 – Course Learning Objectives:

- A study of this course will enable the student to:
- Explain what a manager is?, Basic management functions and management process
- Describe what an organization is and how that concept of an organization has changed. Managing in a Global Environment.
- Identify the three different attitudes toward global business
- Describe the typical stages by which organization go global

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- the basic Skills, functions, style, and roles of any manager(A4, A5)
- a2- organization of any work in the organization structure.(A7, A8)
- a3- definition of business and Globalization. (A10, A12)
- a4- regional trading alliances. (A10, A12)

B - Intellectual skills:

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

- b1- present himself as an effective manager(B7)
- b2- strive for as he manages his career(B7)
- b3- manage globally(B7)

C - Professional and practical skills:

c1: Student can lead a group of his colleagues during sessions. (C1,C5)

B - 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 internet and books (D7, D8).
- d3- practice self-learining (D2, D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's					
A	Knowledge and understanding	A4, A5, A7, A8, A10, A12					
В	Intellectual skills	B7					
С	Professional and practical skills	C1, C5					
D	General and transferable skills	D1, D2, D3,D7, D8, D9					

3 – Contents

Торіс	Lecture hours	Tutorial hours	Presentation of student Research
 Interdiction to Management and organizations 	7	-	-
 Today Management current trends and issues. 	7	-	-
 Organizational culture and Environment: Constraints. 	7	-	-
 Decision making- the Essence of the manager's job 	5	-	-
 International Business an overview 	13	-	-
Strategic Management	3	-	-
Final Revision	3	-	-
Total hours	45	-	-

4 - Teaching and Learning and Assessment methods:

			-	Teaching	Metho	ods		Learning Methods			Assessment Method				
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1		1								1		1	
ledge	a2	1		1				1						1	
Know	a3	1		1				1				1		1	
	a4	1		1										1	
ual	b1			1									1		
ellectu	b2							1					1		
Int	b3			1				1					1		

Applied	c1	1	1		1		1	1	
General Tran.	d1	1	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Instructor lecture notes presentation

6-2 References –

Thomas s. bat, Management the new competitive Landscape, Six Edition- Mc-Graw hill, USA, 2004 William O. Be, Maeketing Principles And Perspectives, Mc-Graw Hill, Usa, 2004

7- Facilities required for teaching and learning:

- Computer Lab. and internet Connection
- Data show Labtop computer.
- Library

Course coordinator:	Prof. Dr Hassan Awad
Head of the Basic Sciences Department:	Prof. Dr Hassan Awad
Date:	August 2015

Modern Academy for Engineering & Technology Basic Science Department B512: Laws and Regulations for Engineers

A- Affiliation	
Relevant program:	Computer Eng. & Information Tech.
	Electronic Eng. & Communication Tech.
	Manufacturing Eng. & production Tech.
Department offering the program:	Computer Eng. & Information Tech. Dept.
	Electronic Eng. & Communication Tech. Dept.
	Manufacturing Eng. & production Tech. Dept.
Department offering the course	Basic Sciences Dpt.
Date of specifications approval:	Nov. 2011
B - Basic Information	

قوانين وتشريعات في الهندسه:Title	Code:	Year/level: 5th, 2nd sem.
Teaching Hours:	Lectures: 3	Tutorial: -
	Practical: -	Total: 3

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- تعريف المهندس بمسئولياته وحقوقه التي ينظمها القانون
- معرفه الطالب بالقوانين والتشريعات واللوائح التي تحكم عمله الهندسي
 - معرفه المراحل المختلفه التي يمر بها مشروع البناء
 - در اسه المناقصات و العطاءات
 - معرفه تقاليد وممارسه المهنة ومسئوليه المهندس
 - دراسه عقود البناء وقوانين تنظيم البناء

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of: a1- منهجيات حل المشاكل الهندسية ، وجمع البيانات وتفسيرها (A5)

(A6) نظم ضمان الجودة ، ومدونات الممارسات والمعايير ومتطلبات الأمن الصناعي والقضايا البيئية-a2

(A9, A10, A11) أخلاقيات المهنة والآثار المترتبة على الحلول الهندسية على المجتمع والبيئة -a3

(A10) اللغة التقنية وكتابة التقارير الهندسية -a4

b - Intellectual skills:

On successful completion of the course, the student should be able to. b1- ان يفكر بطريقة خلاقة ومبتكرة في حل المشكلات القانونية (B3, B9, B12) b2- ان يدمج ويستبدل ويقيم مختلف الأفكار والأراء من وجه النظر القانونية -b2 b3- تخطيط وإجراء وكتابة تقرير عن مشروع أو تكليف -b3

C: Professional and practical skills:

On successful completion of the course, the student should be able to: د1- 10 أن يعرض ويحل أحد المشاكل القانونية في احد الشركات (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(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				
А	Knowledge and understanding	A5, A6, A9, A10, A11				
В	Intellectual skills	B3, B4, B9, B12				
С	Professional and practical skills	C1, C5				
D	General and transferable skills	D1, D3, D7, D9				

3 - Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
تعاريف ومفاهيم قانونية في مجال عقود البناء	3	-	-
مراحل مشروع البناء	3	-	-
المناقصات والعطاءات	6	-	-
عقود البناء	3	-	-
التزامات المالك والمقاول	3	-	-
مستندات عقد البناء وشروطه	3	-	-
عقود الاتحاد الدولي للمهندسين الاستشارين	3	-	-
شروط عقد مقاولات الاعمال الميكانيكيه والكهربيه واعمال التركيبات.	3	-	-
توجيه وتنظيم اعمال البناء القانون ١٠٦ لسنه ١٩٨٦	6	-	-
التحكيم وتسويه المنازعات بالطرق السلميه	6	-	-
مسئوليه المهندس وتقاليد ممارسه المهنة	3	-	-
اداب ممارسة المهنة	3	-	-
Total hours	45	-	-

4 - Teaching and Learning and Assessment methods:

Course ILO's					Tead	ching	ı Met	hods	;			Lear Meth	ning nods		A	sse	ssem	ent M	leth	bd	
		Lecture	Presentations and Movies	Discussions and seminars	lutorials	Problem solving	Laboratory & Expenments				Researches and Reports	Modeling and Simulation		Written Exam	Practical Exam	Quizes	Term papers	Assignments			
f	a1	1	1	1							1			1		1					
knowledge & nderstandinç	a2	1				1								1		1		1			
	a3	1		1							1			1				1			
	a4	1		1							1			1							
Skills	b1	1												1		1		1			
ectual S	b2	1				1								1		1		1			
Intelle	b3	1	1	1							1			1							
Proffesional	c1	1	1								1					1		1			
an.	d1	1		1		1					1										
neral Tr Skills	d2	1	1	1																	
Gen	d3	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of References:

مذكر ، بعنوان" قوانين وتشريعات هندسيه" 6-1 Course notes

6-2 Required books

قانون وتشريعات و عقود الاتحاد الدولي للمهندسين الاستشارين6-3 Recommended books

دكتور / جمال الدين احمد نصار مهندس / محمد ماجد خلوصى قانون رقم ٨٩ لسنه ١٩٩٨ بشأن المناقصات والمزايدات ولائحته التنفيذيه الصادره بقرار وزيرالماليه رقم ١٣٦٧ لسنه ١٩٩٨ (المعدله) والمنشورات والكتب الدوريه الصادره من وزاره الماليه

6-4 Periodicals, Web sites, etc.

www.alamiria.com

7- Facilities Required for Teaching and Learning None

Course coordinator: Head of the Department: Date: August 2015

ا<u>د</u>(شعبان رجب جوده ا.د/ حسن عبدالله عوض

Modern Academy for Engineering & Technology

Manufacturing Engineering and Production Technology Department M150: Engineering Drawing &Projection I

A- Affiliation

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B - Basic Information

Title: Engineering Graphics I	Code: M150	Year/level: 1-st year / 1-st Term
Teaching Hours:	Lectures:	Tutorial: 4
	Practical:	Total: 4

<u>C - Professional information</u>

1 – Course Learning Objectives

A study of this course will enable the student to visualize and communicate three dimensional objects.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

- By the end of the course the student should gain the following knowledge.
- a1-The principles of geometrical construction in engineering graphics.(A4)
- a2-The basic information and theories in engineering graphics. (A1, A2)
- a3- Methodology of solving problems in orthographic views.(A5)
- a4- Methodology of solving problems in successive views.(A5)
- a5-The basic and theories of developments and intersections. (A1, A5)

B - Intellectual skills

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

b1- Solve and communicate problems in orthographic views. (B3, B2)

- b2- Solve and communicate problems in isometric and oblique drawings.(B2, B3)
- b3- Consider the benefits of solving problems of developments and intersections.(B8, B4)

C - Professional and practical skills

- By the end of the course the student should be able to:
- c1- Produce orthographic views from 3D models.(C3)
- c2- Read and understand orthographic drawing.(C3, C2)
- c3- Prepare and interpret engineering drawing.(C1)

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. (D1, D3)
- d2- Expand their creative talents and to communicate their ideas in a meaningful manner. (D3)
- d3- Search for information and engage in life -long sell learning discipline. (D7)

Course Contribution in the Program ILO's

ILO's	i	Program ILO's
А	Knowledge and understanding	A1, A2, A4, A5
В	Intellectual skills	B2, B3, B4, B8
С	Professional and practical skills	C1, C2, C3
D	General and transferable skills	D1, D3, D7

3 – Contents

Торіс	Lecture hours	Tutorial hours
Drawing instruments, Draw sheets; Scales; Folding		4
Lettering Alphabet of lines		4
Geometric Construction		8
Theory of orthographic projection		4
Projection of point ; line and plane ; true shape		4
Projection of geometric solids		8
Multi view drawing		12
Pictorial drawing (isometric)		8
Pictorial drawing (oblique)		4
Revision		4
Total hours		60

4 - Teaching and Learning and Assessment methods:

		Teaching Methods								Learning Methods Assessn						ment Method		
Course ILO's		Lecture	Presentations & Movies	Discussions &seminars	Tutorials	Problem solving	Laboratory & Experiments	Projects	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments	
	a1	1	1		1								1				1	
lge	a2	1	1		1	1				1			1		1		1	
wled	a3	1	1		1	1				1			1				1	
Knc	a4	1			1	1							1		1		1	
	а5	1			1	1				1			1		1		1	
ual	b1	1	1		1								1				1	
ellect	b2	1			1	1							1				1	
Inte	b3	1			1	1				1			1		1		1	

q	c1	1		1	1		1		1		1
pplie	c2	1		1	1		1		1		1
A	c3	1		1							1
ran.	d1	1		1							1
eral T	d2	1		1	1						1
Gen	d3	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	6-th Week	20
Practical Exam	-	-
Written Exam	Sixteenth week	60
Total		100

6- List of References

6-1 Course notes

Engineering Drawing (1) by : Prof. Mamdouh Saber

6-2 Required books

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

6-3 Recommended books:

None

6-4 Periodicals, Web sites etc ..

<u>http://graphicalcommunication.skola.edu.mt/syllabus/engineering-drawing/</u> <u>www.geniusnepal.com/downloads/drawingtutorial</u> <u>http://drawsketch.about.com/od/technicaldrawing/</u>

7- Facilities Required for Teaching and Learning

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

Course Coordinator:					
Head of the Department:					
Date:					

Prof. Mamdouh Saber Dr. Abdelmagid A. Abdalla September 2015

Modern Academy for Engineering & Technology Manufacturing Engineering and Production Technology Department M151: Engineering Drawing & Projection II

A- Affiliation

Relevant programs:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
	Architectural Engineering & Building Technology
Departments offering the programs:	Electrical Engineering Dept.
	Mechanical Engineering Dept.
	Architectural Engineering Dept.
Department offering the course:	Mechanical Engineering Dept.
Date of specifications approval:	September 2015

B - Basic Information

Title: Engineering Graphics II	Code: M151	Year/level: 1-st year / 2-nd Term
Teaching Hours:	Lectures: 2	Tutorial: 4
	Practical:	Total: 6

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- A study of this course will enable the student to:
- Originate section; know ways of drawing and location of cross section.
- Use the principles of drawing different types of sections for showing internal features.
- Apply the conventional way in sections and dimensions for presentation of figures.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- Section views. (A1, A2, A4)
- a2- Presentation of components in sectional views. (A1, A2)
- a3- Conventional way in sectional views. (A1, A2)
- a4-The correct rules for dimensioning.(A1, A4)

B - Intellectual skills

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

- b1- Draw different problems in sectional views. (B3, B9)
- b2- Select the proper section for each component. (B3, B8)
- b3- Draw dimensions for components from production point of view. (B3, B9)

C – Professional and practical skills

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

c1- Read orthographic drawing with sectional views. (C1, C3, C4)

- c2- Make necessary views using sections and dimensioning. (C1, C3, C4)
- c3- Communicate by_graphic language. (C1, C3, C4)

D – General and transferable skills

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

- d1- Communicate graphically effectively. (D3)
- d2- Refer to relevant literature. (D9)

Course Contribution in the Program ILO's

ILO's		Program ILO's
Α	Knowledge and understanding	A1, A2, A4
В	Intellectual skills	B3, B8, B9
С	Professional and practical skills	C1, C3, C4
D	General and transferable skills	D3, D9

3 – Contents

Торіс	Lecture hours	Tutorial hours
Importance of drawing sections	2	4
Basic types of sections	2	4
 Full sections : longitudinal ,cross – section 	2	4
Off set ; aligned sections	2	4
Half-section ;Partial S.; Revolved	2	4
& Auxiliary sections .	2	4
 Dimensioning – Arrangements of 	2	4
 dimensions – Rules for dimensions 	2	4
 of circles ; radii ; angles ; plain holes 	2	4
Conventional practice in ED	2	4
Drawing of steel sections	2	4
Steel constructions	6	12
Revision	2	4
Total hours	30	60

4 - Teaching and Learning and Assessment methods:

Teaching Methods							Lea	Learning Methods Assessment Methods						Method	4		
Course ILO's		Lecture	Presentations & Movies	Discussions &seminars	Tutorials	Problem solving	Laboratory & Experiments	Projects	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
a	a1	1	1		1								1				1
ledge	a2	1	1		1					1			1				1
wou	a3	1	1		1					1			1		1		1
X	a4	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		1
q	c1	1		1	1		1		1		1
pplie	c2	1	1	1	1		1		1		1
A	c3	1	1	1	1		1		1		1
eral an.	d1	1	1	1	1		1		1		1
Gen Tra	d2	1	1	1	1		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	6-th Week	20
Practical Exam	-	-
Written Exam	Sixteenth week	60
Total		100

6- List of References

6-1 Course notes

Engineering Drawing (2) by : Prof. Mamdouh Saber

6-2 Required books

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

6-3 Recommended books

None

6-4 Periodicals, Web sites etc

http://graphicalcommunication.skola.edu.mt/syllabus/engineering-drawing/ www.geniusnepal.com/downloads/drawingtutorial http://drawsketch.about.com/od/technicaldrawing/

7- Facilities Required for Teaching and Learning

- o Overhead projector and screen
- \circ $\;$ Models and prototype as teaching aids $\;$

Course Coordinator:	Prof. Mamdouh Saber
Head of the Department:	Dr. Abdelmagid A. Abdalla
Date:	September 2015

Modern Academy for Engineering & Technology

Manufacturing Engineering and Production Technology Department M160: Production Engineering -Workshop I

A-Affiliation

Relevant programs:	Computer Engineering & Information Technology BSc. Program
	Manufacturing Engineering & Production Tech. BSc Program
	Architectural Engineering & Building Technology BSc. Program
Departments offering the programs:	Electrical Engineering Dept.
	Mechanical Engineering Dept.
	Architectural Engineering Dept.
Department offering the course:	Mechanical Engineering Dept.
Date of specifications approval:	September 2015

B - Basic Information

Title: Production Engineering I	Code: M160	Year/level: 1-st year / 1-st Term
Teaching Hours:	Lectures: 2	Tutorial:
	Practical: 2	Total: 4

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- Be familiar with the basic production engineering, basics of casting, metal forming & welding
- Understand the essentials of Material properties, selection and testing principle.
- Incorporate his/her concurrent Knowledge related to production engineering in his /her future job.
- Illustrate the potential applications of die casting, rolling, drawing and special welding Processes as MIG, TIG and Co₂ welding in a variety of production engineering applications.
- Participate effectively in communities activities related to production engineering.

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 production methods related to casting , metal forming processes and welding. (A1)
- a2- The pattern design , allowances in casting & solidification .(A4)
- a3- The basics of centrifugal casting process. (A2)

B - Intellectual skills

By the end 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, design of weld. (B3)
- b3- Choose the suitable welding method.(B8)
- b4- Use the principle of production engineering in producing good quality cheap product. (B10, B2)

C - Professional and practical skills

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

- c1- Solve some simple production problems related to material and process selection. (C3)
- c2- Use the studied manufacturing methods in producing prototypes during tutorials. (C7)
- c3- Collect , record and submitting data about production engineering. (C1)

D - General and transferable skills

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

- d1-Collaborate effectively within multidisciplinary team. (D1, D3)
- d2-Communicate effectively. (D3)
- d3- Effectively manage tasks, time, and resources. (D6)

Course Contribution in the Program ILO's

ILO's		Program ILO's
А	Knowledge and understanding	A1, A2, A4
В	Intellectual skills	B2, B3, B8, B10
С	Professional and practical skills	C1, C3, C7
D	General and transferable skills	D1, D3, D6

3 – Contents

Торіс	Lecture hours	Tutorial hours
Role of prod eng., production system objective	2	
Types of industries Engineering materials	2	
Properties of materials , material testing principles	2	
Tensile test , hardness test , standardization	2	6
Impact test , fatigue test , creep test	3	4
Sand casting, melting of metals & furnaces	3	4
Solidification, pattern design	2	2
Pattern allowances, sand molding & gating system .	2	2
Die casting, centrifugal & investment casting	2	2
Hot & cold forming , forging , rolling	2	2
Extrusion , sheet &wire drawing	2	
Types of welding , design of welding	2	2
Oxy- acetylene welding , Electric-arc welding	2	4
Submerged arc welding , MIG ,TIG, resistance welding	2	2
Total hours	30	30

4 - Teaching and Learning and Assessment methods:

			Teaching Methods Learning Methods Assessment Method						Learning Methods			d					
Course II O's		Lecture	Presentations & Movies	Discussions &seminars	Tutorials	Problem solving	Laboratory & Experiments	Projects	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
ge	a1	1	1	1									1	1	1	1	1
owled	a2	1	1	1						1			1	1	1	1	1
Х И	a3	1	1	1						1			1	1	1	1	1
a	b1	1	1	1									1	1	1	1	1
sctu	b2	1	1	1						1			1	1	1	1	1
Itelle	b3	1	1	1									1	1	1	1	1
<u> </u>	b4	1	1	1									1		1		1
ð	c1	1		1									1	1		1	1
pplie	c2	1	1														
A	c3	1	1														
ran.	d1		1	1													
eral]	d2			1											1		
Gene	d3													1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	10
Mid-Term Exam	6-th Week	10
Practical Exam	13 th 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

6-3 Recommended books

Kazanas , H.c. and Baker , G. E., Basic Manufacturing processes, McGraw - Hill, 1981

6-4 Periodicals, Web sites etc

http://www.indiabix.com/mechanical-engineering/production-engineering/ http://www3.nd.edu/~manufact/MET_Powerpoint.html

7- Facilities Required for Teaching and Learning

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Lecture room , laboratory and workshops

Course Coordinator:	Prof. Ahmad Kohail
Head of the Department:	Dr. Abdelmagid A. Abdalla
Date:	September 2015

Modern Academy for Engineering & Technology Manufacturing Engineering and Production Technology Department M161: Production Engineering - Workshop II

A- Affiliation

Relevant programs:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
	Architectural Engineering & Building Technology
Departments offering the programs:	Electrical Engineering Dept.
	Mechanical Engineering Dept.
	Architectural Engineering Dept.
Department offering the course:	Mechanical Engineering Dept.
Date of specifications approval:	September 2015
B - Basic Information	

Title: Production Engineering II Code: M161 Year/level: 1-st year / 2-nd Term Teaching Hours: Lectures: 2 Tutorial: - Practical: 2 Total: 4

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- Be familiar with the basics of machining methods, turning, drilling, milling, shaping & grinding
- understand the essential requirements for tool materials and tool geometry
- Incorporate his/her concurrent knowledge related to machining processes in his/her future job
- Apply his / her knowledge to estimate manufacturing cost & select production method
- Illustrate the potential application of different machining methods in production
- · Participate effectively in communities activities related to parts manufacturing

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- Identification of the basic conventional machining methods, tools, machine tools & function of its parts.(A1)
- a2- The effect of the selection of operation & working conditions on the accuracy.(A4)
- a3- The basic elements of manufacturing cost machining & production time. (A2)
- a4- Definition of the types, properties and use of different kinds of tool materials. (A1)

B - Intellectual skills

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

- b1-Choose the suitable machining method to reach prescribed accuracy. (B2)
- b2- Elaborate the proper technological procedure.(B3)
- b3- Select the machine tool (tools & working conditions). (B2)
- b4-Analyze the elements of cost which enables him/ her to choose the proper level of machine automation. (B10, B2)

C - Professional and practical skills

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

- c1- Use the studied machining methods producing prototypes during practice. (C3)
- c2- Solve simple machining problems related to time study and production costing. (C7)
- c3- Collect and submit data about workshop activities. (C1)

D - General and transferable skills

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

- d1- Effectively manage tasks, time, and resources. (D1, D3)
- d2-Collaborate effectively within multidisciplinary team.(D3, D9)
- d3- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

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

3 – Contents

Tonio	Lecture	Tutorial	Practical
Торіс	hours	hours	hours
Basic machining methods , types of production	2		2
Principle of chip formation in orthogonal cutting	2		2
Mechanical & thermal stresses on tool, favorite properties	2		2
For tool materials , hot hardness			
Common types of tool materials , properties & application	2		2
Geometry of single point tool, angles, types	2		
Turning	4		6
Drilling	2		2
Milling	2		4
Time of machining & time study	2		
Principle of shaping , planning , slotting & broaching	2		4
Grinding operations, grinding which selection & accuracy	2		2
Technological procedure, selection of cutting conditions	2		4
Costing of machined parts , elements of cost	4		
Total hours	30		30

4 - Teaching and Learning and Assessment methods:

	Teaching Methods Learning Methods				ods	Assessment Method											
(Course ILO's	Lecture	Presentations & Movies	Discussions &seminars	Tutorials	Problem solving	Laboratory & Experiments	Projects	Researches and Reports	Modeling and Simulation	Site Visits	Discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments
a)	a1	1	1	1									1	1	1	1	1
ledg	a2	1	1	1						1			1	1	1	1	1
Now	a3	1	1	1						1			1	1	1	1	1
x	a4	1	1	1									1	1	1	1	1
IR	b1	1	1	1									1	1	1	1	1
ectua	b2	1	1	1									1		1		1
Itelle	b3	1		1									1	1		1	1
-	b4	1			1	1		1	1				1	1	1	1	1
p	c1	1	1														
pplie	c2		1	1													
A	c3			1											1		
Fran.	d1	1	1	1									1	1	1	1	1
eral 7	d2	1	1	1						1			1	1	1	1	1
Gen	d3	1	1	1						1			1	1	1	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	6-th Week	10
Practical Exam	13 th 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

6-3 Recommended books

Kazanas HC and Baker GE, Basic Manufacturing processes, McGraw-Hil 1981.

6-4 Periodicals, Web sites etc.:Non

http://www.indiabix.com/mechanical-engineering/production-engineering/ http://www3.nd.edu/~manufact/MET_Powerpoint.html

7- Facilities Required for Teaching and Learning

Lecture room	n, laboratory and workshops
Course Coordinator:	Prof. Ahmad Kohail
Head of the Department:	Dr. Abdelmagid A. Abdalla
Date:	September 2015

Modern Academy for Engineering & Technology Manufacturing Engineering and Production Technology Department M051: Mechanical Eng. Technology

A- Affiliation	
Relevant Program:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
Department offering the program:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
Department offering the course:	Manufacturing Engineering and Production Technology Dept.
Academic year/level:	2 nd year, Electrical Engg, 2 nd Term
Date of specifications approval:	Oct.2000, Feb.2007, Feb.2009

B-Basic information

Title: Mechanical Eng. Technology	Code:	M051	Year/level: 2 ⁿ	^{id} year
Teaching Hours: Total: 4	Lectures	s : 2	Tutorial: 2	Practical: -

C- Professional information

1- Course Learning Objectives:

This course provides the student with knowledge on the importance of thermodynamics, fluid flow, and heat transfer for electrical engineers and the basic concepts & definitions concerning the fundamentals of mechanics and heat. Through the study of course the student will gain the essentials of both branches of fluid mechanics (fluid statics and dynamics), detailed understanding of the thermodynamic fundamentals and its application in practical problems, and the conceptual principles of heat transfer generation and control. In addition, it enables the student to have clear understanding on the principles of different mechanisms for mechanical power transmission

2- Intended Learning Outcomes (ILOS)

A- Knowledge and understanding:

By the end of the course the student should have clear understand on:

- a1- Different systems of dimensions and units.
- a2- Basic physical and mechanical principles and phenomena.
- a3- Theoretical and practical background of fluid mechanics, thermo-dynamics, and heat transfer fields.
- a4- Physics and calculus concepts to analyze a fluid flow, thermo-dynamic, and heat transfer problems.
- a5- Basic principles and application to practical engineering problems.

B- Intellectual skills:

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

- b1- Use of different systems of dimensions and units.
- b2- Apply physics and calculus concepts to fluid flow, thermodynamics and heat transfer problems.
- b3- Analyze simple problems concerning fluid statics, thermodynamics and heat transfer concepts.
- b4- Solve real problems using engineering and science fundamentals.

C- Professional and practical skills:

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

- c1- Integrate knowledge from different courses to solve simple physical problems. (C1, C2)
- c2- Apply basic knowledge in analyzing practical engineering problem. (C1, C2)

c3- Perform an experiment concerning fluid properties and heat transfer measurements (C1, C2)

c4- Perform standard and practical technical reporting (C1, C2)

D- General and transferable skills:

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

d1-Apply knowledge from different resources to solve a problem

d2-Execute experiments concerning physical phenomenon & represent the results in professional manner.

d3- Lay foundation for continued learning advanced courses.

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A1, A2, A3, A4, A8, A10, A11
В	Intellectual skills	B1, B2, B3, B4, B7, B9, B13
С	Professional and practical skills	C1, C2
D	General and transferable skills	D1, D2, D3, D5

3- Contents

Tonio	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
Importance of Thermodynamics, Fluid Flow, Heat Transfer for Electrical Eng.	2	2	-
Fundamentals of Mechanics and Heat	6	6	-
Fluid Flow	6	6	-
Thermodynamics	6	6	-
Heat Transfer	6	6	-
Power Transmission	4	4	-
Total hours	30	30	-

4 - Teaching and Learning and Assessment methods:

		Teaching Methods					Learning Methods			Assessment Method					
	Course ILU'S	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1												1	
dge	a2	1	1					1				1		1	
wlea	a3	1												1	
Knc	a4	1	1					1				1		1	
	a5	1												1	
ual	b1	1		1				1						1	
ellect	b2			1				1						1	
Inte	b3			1				1						1	

	b4		1			1				1	
	c1	1		1	1		1		1		
lied	c2	1		1	1		1		1		
App	c3	1		1	1		1		1		
	c4	1		1	1		1		1		
ran.	d1		1			1					
eneral T	d2		1			1					
പ്പ	d3		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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6.1 Course notes:

Lecture notes and handouts

6.2 Required books

- Moran M.J. & Shapiro H.N., Fund. of Engineering Thermodynamics, 4th Ed., John Wiley & Sons, 1999.

- Fox and Mc Donald, Introduction to Fluid Mechanics, 5th Ed.

6.3 Recommended books

- Eastop and McCorran, Applied Thermodynamics for Engineering Technology, Longman Scientific and Technology

- Cengel Y. A. and Boyes M.A., Thermodynamics: An Engineering Approach, 3rd edition, WCB McGraw-Hill, 1998.

- Holman J.P., Thermodynamics, 4th edition, McGraw-Hill, 1998.

- Munson B. R., Young D. F. and Okiishi T. H., Fundamentals of Fluid Mechanics, John Wiley & Sons, Inc., 4th Ed., 2000.

- White F. M., Fluid Mechanics, 4th Ed., McGraw-Hill, 1999.

6.4 Periodical, Web sites, etc.

None

7- Facilities required for teaching and learning:

Laboratory – Web sites visits.

Course coordinator:	Prof. Dr. Metwally H. Metwally
	Prof. Dr Abdelmagid A. Abdalla
Head of the department:	Prof. Abdel-Nasser Zayed
Date:	August 2015

Modern Academy for Engineering & Technology Manufacturing Engineering and Production Technology Department M360: Industrial Psychology

A- Affiliation

Relevant program:	Computer Engineering & Information Technology
-	Electronic Engineering & communication Technology
Department offering the program:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
Department offering the course:	Manufacturing Engineering & Production Technology Department
Date of specifications approval:	November 2011

B - Basic Information

Title: Industrial Psychology	Code: M360	Year/level: 3-rd year / 1-st Term
Teaching Hours:	Lectures: 2 Practical:	Tutorial: Total: 2

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

Improve the performance of the whole work system as well to reduce the stress imposed on the working human being.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- the role of industrial engineer. (A4, A6)
- a2- he structural system of human work. (A4, A6)
- a3- he physical environmental impacts on human beings which can be assessed quantitatively. (A9, A11)

B - Intellectual skills

- By the end of the course the student should be able to:
- b1- Apply basics of ergonomics to instrument display, machine, control and lay out of work place. (B3)
- b2- Consider effect of all environmental changes on equipment. (B5, B9)
- b3- Diminishing the effects physical environmental impacts on human beings. (B5, B9)

C - Professional and practical skills

- c1- Create new product design adapted to the customer. (C2)
- c2- Make the best use of human abilities . (C1)
- c3- Use the ergonomic factors in domestic and industrial products. (C9)

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)
- d2- Effectively manage tasks, time, and resources. (D6, D9)

	ILO's	Program ILO's
Α	Knowledge and understanding	A4, A6, A9, A11
В	Intellectual skills	B3, B5, B9
С	Professional and practical skills	C1, C2, C9
D	General and transferable skills	D1, D2, D6, D9

Course Contribution in the Program ILO's

3 – Contents

Торіс	Lecture hours	Tutorial hours
Industrial Design – Design concepts	2	
Ergonomics	2	
Application of ergonomics – Instruments – Controls – Work place	2	
Aesthetic and ergonomics consideration	2	
Working conditions and Environment	2	
Heating and Ventilation	2	
Local Ventilation - Industrial Ventilation	2	
Air condition systems – CFC'S - Ozone	2	
depletion and Global Warning	2	
Noise – Exposer to noise – Noise control	2	
technique – Vibration	2	
Lighting – Level of luminance – Factors	2	
affecting the quality of lighting	2	
Human effectiveness	2	
Revision	2	
Total hours	30	

4 - Teaching and Learning and Assessment methods:

	Teaching Methods						Methods Assessment Method								
o'O II osnico		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
ge	a1	1												1	
iowled	a2	1	1					1				1		1	
Kn	a3	1												1	
ellectual	b1	1		1				1						1	
	b2			1				1						1	
Int	b3			1				1						1	

Ģ	c1	1	1							
pplie	c2		1	1						
Ā	c3			1						1
ll Tran.	d1			1		1				
Genera	d2			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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of References

6-1 Course notes:

Lecture notes and handouts prepared by the course coordinator.

6-2 Required books: Non

6-3 Recommended books: Non

6-4 Periodicals, Web sites, etc. : Non

7- Facilities Required for Teaching and Learning: Non

Course Coordinator:	Dr. Mamdouh Saber
Head of the Department:	Prof. Abdel-Nasser Zayed
Date:	August 2015

Modern Academy for Engineering & Technology Manufacturing Engineering and Production Technology Department M561: Engineering Economy

<u>A- Affiliation</u>	
Relevant program:	Computer Engineering & Information Technology
	Electronic Engineering & communication Technology
	Manufacturing Engineering & Production Technology
Department offering the program:	Computer Engineering & Information Technology Dept.
	Electronic Engineering & communication Technology Dept.
	Manufacturing Engineering & Production Technology Dept.
Department offering the course:	Manufacturing Engineering & Production Technology Dept.
Date of specifications approval:	November 2011

B - Basic Information

A COLL 41

Title: Engineering Economy	Code: M561	Year/level: 5th year / 1st Term
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical:	Total: 4

<u>C - Professional Information</u>

1 – Course Learning Objectives

This course provides the student with the essential mathematics of money investment that devoted to the mechanics of time-value calculations and comparisons of alternatives based on their equivalent annual worthy, present worth, and rate of return. In addition, the course focused on the role of accounting and the effects of depreciation and taxes on economic evaluations in extensively treatment.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1- The major capabilities and limitations of cash flow analysis for evaluating proposed capital investments. (A1, A2)
- a2- Mathematics, economics, and engineering principles necessary for analyzing benefit cost problems. (A2, A5)
- a3- The basics to the mechanics of time-value calculations and comparisons of alternatives based on their equivalent annual worth, present worth, and rate of return. (A5, A10)
- a4- The role of accounting besides the effects of both depreciation and taxes as well on economic evaluations. (A5, A10)

B - Intellectual skills

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

- b1- Apply knowledge of mathematics, economics, and engineering principles to identify, formulate, analyze, and solve engineering economic problems. (B1, B2, B3)
- b2- Use basics to the mechanics of time-value calculations and comparisons of alternatives. (B4, B9) based on the equivalent annual & present worth and rate of return. (B12, B13)
- b3- Develop an understanding of managerial accounting and economic principles.
- b4- Carry out role of accounting and the effects of depreciation and taxes on economic evaluations in extensively treatment. (B12, B13)

C - Professional and practical skills

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

c1- Use appropriate techniques, skills, and tools to identify, formulate, analyze, and solve engineering economic problems. (C1)

c2- Communicate results of the modeling process to management and other non-specialist users of engineering analyses. (C7)

c3- Use of benefit-cost analysis for public projects. (C9)

c4- Use modern computer tools, such as spreadsheets, in financial realities from the business world including both opportunities and restrictions- that influence economic decisions. (C5) c5- Writing clearly using graphics effectively for justifying solutions to engineering economics problems. (C6)

D - General and transferable skills

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

d1- Acquire entrepreneurial skills. (D1, D2, D3)

- d2- Working in teams, and communicating engineering results in a professional manner (D8)
- d3- Lay a foundation for continued learning advanced courses.

Course Contribution in the Program ILO's

	ILO's	Program ILO's
A	Knowledge and understanding	A1, A2, A5, A10
В	Intellectual skills	B1, B2, B3, B4, B9, B12, B13
С	Professional and practical skills	C1,C5,C6, C7,C9
D	General and transferable skills	D1, D2, D3, D8

3 – Contents

Tonio	Lecture	Tutorial	Practical
	hours	hours	hours
Cash Flow	2	2	
Simple &Compound Interest-Types of payments	6	6	
Time Value of Money	2	2	
Nominal and Effective Interest	2	2	
Equivalence	4	4	
Engineering Problem Analysis:	6	6	
Depreciation	4	4	
Income Taxes	4	4	
Total hours	30	30	

4 - Teaching and Learning and Assessment methods:

	Teaching Methods							L. M	earnin lethod	g s		Asses	sment l	Method	
	Course ILO's	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1												1	
rledge	a2	1	1					1				1		1	
Know	a3	1												1	
	a4	1												1	
	b1	1		1				1						1	
ctual	b2			1				1						1	
Intelle	b3			1				1						1	
	b4			1				1						1	
	c1	1	1					1				1		1	
	c2	1	1					1				1		1	
pplied	c3	1	1					1				1		1	
A	c4	1	1					1				1		1	
	c5	1	1					1				1		1	
an.	d1			1				1							
teral Tr	d2			1				1							
Ger	d3			1				1							

5- Assessment Timing and Grading:

Assessment Metdhod	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	20
Mid-Term Exam	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References

6.1 Course notes

Lecture notes and handouts.

6.2 Required books

Barish N. B., Economic Analysis for Engineering and Managerial Decision Making, McGraw- Hill, 1982

6.3 Recommended books

Sullivan W. G., Wicks E. M., and Luxhoj J. t., Engineering Economy, 12th ed., Prentice Hall, 2003.

6.4 Periodical, Web sites, etc.

None

7- Facilities Required for Teaching and Learning

Students are required to use own PCs, Educational Software is given

Course Coordinator:Dr. Abdelmagid Abdalla & Dr. Metwally H. MetwallyHead of the Department:Prof. Abdel-Nasser Zayed.Date:August 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E111: Introduction to Computers I

A- Affiliation

Relevant programs: Departments offering the program:	Computer Engineering and Information Technology BSc Programe Electronic Engineering and communication Technology BSc Programe Manufacturing Engineering and Production Technology BSc Programe Architectural Engineering and Building Technology BSc Programe Electronic Engineering Department
Department offering the course:	Electronic Engineering Department
Date of specifications approval:	September 2015

B-Basic information

Code: E111	Year/level: 1st year- 1st semester
Lectures: 2	Tutorials: -
Practical:2	Total: 4
	Code: E111 Lectures: 2 Practical:2

C - Professional information

1. Course Learning Objectives:

A study of this course will enable the student to:

- Appreciate the importance of computer and inf. technology in modern life
- Be familiar with computer applications and their categories
- Distinguish between various categories of computer software
- Identify various computer components
- Gain confidence in using computers to edit and format texts
- Change the defaults settings in computer display and file and folder management

2. Intended Learning Outcomes (ILOS):

A – Knowledge and understanding

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

- a1- Identification of different computer components and different computer, types(A14)
- a2- different operating systems.(A13)
- a3- advantages and disadvantages of computers.(A12, A14)
- a4- Identification of different types of text editors (A7)
- a5- procedures of running and closing programs (A18)
- a6- input and output devices (A13)
- a7- numbering systems (A4)

B – Intellectual skills

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

- b1- Analyze and decide the reasons behind simple computer problems(B2,B3)
- b2- Troubleshoot simple problems encountered during running application programs (B6)
- b3- Differentiate between operating system features (B13)
- b4- Transfer from a numbering system to another (B1,B2)

- b5- Add, Subtract, and Multiplying binary numbers (B1,B2)
- b6- Transfer fractions from binary to decimal and vice versa.(B11, B12)

C – Professional and practical skills

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

- c1- Carry out full tasks using computer programs(C5)
- c2- Navigate from program to another.(C14, C16)
- c3- Handle open windows in multi-window operating environment.(C14)

D – General and transferable skills

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

- d1- Communicate effectively in written form(D1 ,D3)
- d2- Demonstrate efficient IT capabilities.(D4)
- 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	A4, A7 , A12 , A13 , A14 , A18
В	Intellectual skills	B1 , B2 ,B3 , B6, B11, B12, B13
С	Professional and practical skills	C5 , C14 , C16
D	General and transferable skills	D1 , D3 ,D4 ,D7

3- Course Contents:

Tonice	Lecture	Tutorial	Practical
Topics	hours	hours	hours
Historical overview	2	-	
Types of computers	2	-	4
Indices of computer performance	6	-	
Computer components	4	-	4
Storage media	4	-	
Numbering systems	2	-	
Binary arithmetic	4	-	
DOS operating system and commands	4	-	4
Windows Operating System	2		8
Text Editing			10
Total hours	30	-	30

Course ILO's		Teaching Methods						Learning Methods		Assessment Method				
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1	1										1	
	a2	1										1	1	
wledge	a3	1	1										1	
	a4	1											1	
Kno	a5	1					1						1	
	a6	1												
	a7	1		1		1		1				1	1	
	b1	1		1									1	
_	b2	1		1									1	
ctua	b3	1											1	
itelle	b4	1										1	1	
Ч	b5	1										1	1	
	b6	1										1	1	
Applied	c1		1				1				1			1
	c2		1				1							1
	c3		1				1							1
le E	d1		1					1			1			
Genera Tran.	d2		1					1						
	d3		1					1						

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

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

6- List of references:

6-1 Course notes

• Lecture and lab notes

6-2 Essential books (text books)

Gale E., Introduction to Micro-computing, Newell,1991. Peter Norton's. Introduction to computers, Fifth edition, Student Edition, 2002 David Reed . A Balanced Introduction to computer Science, Prentice hall , 2004

6-3 Recommended books

None

6-4 Periodicals, Web sites, etc.:

None

7- Facilities required for teaching and learning:

Computer Lab Data show

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

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E112: Introduction to Computers II

A- Affiliation

Relevant programs:	Computer Engineering and Information Technology BSc Programe Electronic Engineering and communication Technology BSc Programe Manufacturing Engineering and Production Technology BSc Programe Architectural Engineering and Building Technology BSc Programe Computer Engineering and Information Technology BSc Programe
Departments offering the program:	Electrical Engineering Departement
Department offering the course: Date of specifications approval:	Electrical Engineering Departement September 2015

B-Basic information

Title: Introduction To Computers (II)	Code: E112	Year/level: 1st year- 2nd semester
Teaching Hours:	Lectures: 2	Tutorials: -
	Practical: 2	Total: 4

C - Professional information

1. Course Learning Objectives:

A study of this course will enable the student to understand the concepts of information system, files and databases and to understand the concepts of programming and to use spread sheet programs to produce tables and graphs.

2. Intended Learning Outcomes (ILOS):

A – Knowledge and understanding

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

- a1- the differentiate between application and system software (A15)
- a2- the concepts of information technology (A2)
- a3- the different communications channels (A2, A17)
- a4- how to build a good database (A5)
- a5- the different methods and languages to develop a program (A18)
- a6- how to Use Word processors to edit, format and print texts (A7)
- a7- how to Use spread sheets in the form of tables with intensive formula cells (A7)
- a8- Know how to Use simple databases using common Data Base Management System (A5)

B – Intellectual skills

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

- b1- Design format specifications for texts.(B12)
- b2- Construct and implement formulas from given requirements (B11)
- b3- Allocate data tables and relationships between them (B1)
- b4- Design simple program specifications (B1,B2)
- b5- Develop computer programs.
C – Professional and practical skills

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

- c1- Create and run simple database programs (C17)
- c2- Create spread sheets with heavy calculation tasks (C14)
- c3- Write and print formatted texts (C14, C16)
- c4- Write and execute computer programs.(C15)

D – General and transferable skills

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

- d1- Communicate effectively in written form (D1 ,D3)
- d2- Demonstrate efficient IT capabilities.(D4)
- 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	A2, A5, A7, A15, A17, A18
В	Intellectual skills	B1, B2 ,B11 ,B12
С	Professional and practical skills	C14 ,C15 ,C16 ,C17
D	General and transferable skills	D1,D3 ,D4 ,D7

3- Course Contents:

Торіс	Lecture hours	Tutorial hours	Practical hours
Information technology	2		
Communications	2		
Files and databases	2		
Computer languages (HLL, LLL)	6	-	
Compilers	2	-	
Operating systems (types and functions)	4	-	
Application software (Word Processing)	2	-	2
Application software (Spread Sheets)	2	-	10
Application software (Files and Databases)	2	-	6
Introduction to programming	6		12
Total hours	30	-	30

4 - Teaching and Learning and Assessment methods:

			-	Feaching	Metho	ods		L' 2	earnin lethod	g s	As	sessme	ent Meth	od
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1		1									1	
	az	1		1									1	
ge	a3	1											1	
vled	a4	1											1	
Nov	a5	1											1	
×	a6	1											1	
	а7	1											1	
	a8	1											1	
	b1										1	1	1	
tual	b2											1	1	
llect	b3										1	1	1	
Inte	b4					1						1	1	
	b5					1							1	
	c1		1			1								1
lied	c2		1											1
Appl	c3		1											1
-	c4		1											1
ਯ	d1			1				1			1			
ener Fran.	d2			1				1						
Ц Ц	d3			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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes

S. A. Gawish, Introduction to computers (2), Cairo, 2008

A. A. Khedr Introduction to computers (2), practical part, Cairo, 2008

6-2 Essential books (text books)

Gale E., Introduction to Micro-computing, Newell,1991. Peter Norton's. Introduction to computers, Fifth edition, Student Edition, 2002 David Reed . A Balanced Introduction to computer Science, Prentice hall , 2004

6-3 Recommended books

None

6-4 Periodicals, Web sites, etc.: None

7- Facilities required for teaching and learning:

Computer Labs. Data show and Computer programs; Microsoft office

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

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E210: Computer Programming I

A- Affiliation Relevant program: Computer E Electronics.

Department offering the program: Department offering the course: Date of specifications approval: Computer Engineering and Information Technology BSc.Program Electronics. Engineering and Communication Technology BSc.Program Manufacturing Engineering and production Technology BSc.Program Electrical Engineering Department Electrical Engineering Department. September 2015

B - Basic information

Title: Computer Programming (I)	Code: E210	Year/level: 2nd year, 1st
		semester
Teaching Hours:	Lectures: 2	Tutorial: -
	Practical: 2	

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to acquaint students with the methodologies of problem solving and the way of formulating the problem such that it can be expressed as an algorithm and thereby convert it into computer program. Moreover, running, testing, debugging the program and analyzing output are among these objectives.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should be knowledgeable of:

- a1- Program design and documentation tools. (A1, A2, A4)
- a2- Syntax of Pascal as example of high level languages. (A5, A13, A16, A18)
- a3- Various types of errors (syntax, logical, run-time). (A2, A5, A18)
- a4- Arrays as a storage of multiple data elements in primary memory. (A13, A16, A18)
- a5 Syntax of functions and making calls. (A15, A18)

B - Intellectual skills:

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

- b1- Design program and derive its functional specifications. (B1, B2, B3)
- b2- Debug programs. (B2, B6, B16, B17)
- b3- Create fully operational programs from multiple modules. (B8, B13, B14)
- b4- Use documentation tools. (B13, B14)

C- Professional and practical skills:

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

- c1- Develop software using Pascal language. (C6, C15)
- c2- Convert HLL programs into executable code. (C14, C15)
- c3- Document programs. (C18)

D- General and transferable skills:

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

- d1- Communicate effectively in written form. (D1, D3)
- d2- Demonstrate efficient IT capabilities. (D4)
- d3- Search for information and adopt life-long self-learning. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A1, A2, A4, A5, A13, A15, A16, A18
В	Intellectual skills	B1, B2, B3, B6, B8, B13, B14, B16, B17
С	Professional and practical skills	C6, C14, C15, C18
D	General and transferable skills	D1, D3, D4, D7

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
Steps for solving problems by comp. programs	2	-	
Program documentation and flow charts	2	-	
Structured programming	4	-	
program parts	2	-	2
Input / Output	2		4
Data types and declaration	2	-	4
Operators and precedence	2		6
Selection constructs	4	-	3
Loops	4		4
Arrays	3		3
Procedures and Functions	3		4
Total hours	30	-	30

4 - Teaching and Learning and Assessment methods:

			Т	eaching	Meth	ods	L. M	earnin lethod	g s	As	sessme	ent Metl	nod	
Cou	urse O's	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Written Exam	Practical Exam
	a1	1	1	1	1	1					1	1	1	
edge	a2	1	1	1	1	1	1				1	1	1	1
Know	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	
	b1	1	1	1	1	1			1	1	1	
ectual	b2	1	1	1	1	1	1		1	1	1	1
Intelle	b3	1	1	1	1	1	1				1	1
	b4	1	1	1	1	1					1	
a	c1						1					1
pplie	c2						1					1
A	c3						1					1
ran.	d1								1	1		
eral T	d2								 1	1		
Gen	d3								 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	6 th Week	10
Practical Exam	14 th , 15 th Weeks	20
Written Exam	Sixteenth Week	60
Total	100	

6- List of references:

6.1 Course notes

Lecture and Lab Notes

6.2 Required books

Robert Lafore, "Object oriented Programming In C++", SAMS, 2002

6.3 Recommended books:

Non

6.4 Periodicals, Web sites, etc.:

Non

7- Facilities required for teaching and learning:

• Data Show and laptop computer

Course coordinator:	Dr. Adel Khedr
Head of the Department:	Dr. Said Gawish
Date:	September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E213: Computer Programming II

A- Affiliation

Relevant program:

Department offering the program: Department offering the course: Date of specifications approval: Computer Engineering and Information Technology BSc.Program Electronics. Engineering and Communication Technology BSc.Program Manufacturing Engineering and production Technology BSc.Program Electrical Engineering Department. Electrical Engineering Department. September 2015

B - Basic information

Title: Computer Programming (II) Teaching Hours:

Code: E213 Lectures: 2 Practical: 2 Year/level: 2nd year, 2nd Semester Tutorial: -Total: 4

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to acquaint students with the methodologies of problem solving and the way of formulating the problem such that it can be expressed as an algorithm and thereby convert it into computer program. Moreover, running, testing, debugging the program and analyzing output are among these objectives.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of the course the student should be knowledgeable of:

- a1- Program design and documentation tools in C++ development environment. (A1, A2, A4)
- a2- Array variables in C++ programming language. (A13, A16, A18)
- a3- Subprograms in C++. (A15, A18)

B - Intellectual skills:

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

- b1- Formulate problems by building algorithms from given problem data. (B1, B2, B3)
- b2- Design programs specifications from the algorithm. (B1, B2, B3)
- b3- Deduce errors and suggest corrections (B6, B16)
- b4- Debug programs written in C++. (B2, B3, B17)

C- Professional and practical skills:

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

- c1- Develop software using C++ (C6, C15)
- c2- Convert HLL programs into executable code. (C14, C15)
- c3- Document programs. (C18)

D- General and transferable skills:

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

- d1- Communicate effectively in written form. (D1, D3)
- d2- Demonstrate efficient IT capabilities. (D4)
- d3- Search for information and adopt life-long self-learning. (D7)

	ILO's	Program ILO's
A	Knowledge and understanding	A1, A2, A4, A13, A15, A16, A18
В	Intellectual skills	B1, B2, B3, B6, B16, B17
С	Professional and practical skills	C6, C14, C15, C18
D	General and transferable skills	D1, D3, D4, D7

Course Contribution in the Program ILO's

3 – Contents:

Торіс	Lecture hours	Tutorial hours	Practical hours
Function calls and function returns	4	-	6
Pointers in programming	6	-	6
Structures	4	-	4
Classes and objects	6		6
File IO	6	-	4
Windows Programming	4		4
Total hours	30	-	30

4 - Teaching and Learning and Assessment methods:

Teaching Methods						L. M	earnin lethod	g s	sessment Method					
ILOS		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Written Exam	Practical Exam
dge	a1	1	1	1	1	1					1	1	1	
wlea	a2	1	1	1	1	1	1	1	1	1	1	1	1	1
Knc	a3	1	1	1	1	1	1	1	1	1			1	1
	b1	1	1	1	1	1					1	1	1	
ectua	b2	1	1	1	1	1	1	1	1	1	1	1	1	
ntelle	b3	1	1	1	1	1	1	1	1	1			1	
-	b4	1	1	1	1	1		1	1	1			1	
q	c1						١							1
pplie	c2						١							1
A	c3						١							1
a	d1										1	1		
ener Tran.	d2										1	1		
ບ '	d3										1	1		

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	10
Mid-Term Exam	6 th Week	10
Practical Exam	14 th , 15 th Weeks	20
Written Exam	Sixteenth Week	60
Total	100	

5- Assessment Timing and Grading:

6- List of references:

6.1 Course notes:

Lecture and lab notes

6.2 Required books:

Robert Lafore, "Object oriented Programming In C++", SAMS, 2002

6.3 Recommended books:

None

6.4 Periodicals, Web sites, etc.:

None

7- Facilities required for teaching and learning:

• Data Show and laptop computer

Course coordinator:	Dr. Adel Khedr
Head of the Department:	Dr. Said Gawish
Date:	September 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E201: Electrical Circuits Analysis (I)

A- Affiliation

Relevant program:	Electronic Engineering & Communication Technology BSc Program.
	Computer Engineering & Information Technology B.Sc. Program
Department offering the program:	Electronic Engineering & Communication Technology BSc Program.
	Computer Engineering & Information Technology B.Sc. Program
Department offering the course:	Electronic Eng. & Communications Tech. Dep.
Date of specifications approval:	Nov. 2011
B - Basic information	

Title: Electrical Circuits Analysis (I)	Code: E201	Year/level: 2 nd year, 1 st semester.
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical: 1	Total: 5

C - Professional information

1 – Course Learning Objectives:

The main Objective of this Course is to introduce the basic concepts & theories of circuit analysis, Operation amplifiers, Natural response of RL and RC Circuits, Step Response of first order RL and RC circuits, Natural and Step Responses of RLC circuits, and Sinusoidal steady - state power calculations.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- Basic concepts, ideas and laws of electrical circuit analysis. (A1, A2, A3)
- a2- Voltage, current, and power calculations for a simple resistive circuits. (A1, A3, A5)
- a3- Applications of Ohm's and Kirchhoff's Laws. (A1, A3, A5)
- a4- Series, parallel, and delta-star connections principles. (A1, A4, A5)
- a5- Different techniques of circuit analysis. (A1, A5, A15)
- a6- Operational-Amplifier characteristics and applications. (A1, A2, A15)
- a7- Characteristics of a sinusoidal current and voltage. (A1, A6, A8)
- a8- Basic concepts of RL and RC Circuits. (A1, A3, A5)
- a9- Basic concepts of RLC circuits. (A1, A3, A5)

B - Intellectual skills:

- By the end of this course the student should be able to:
- b1- Apply the Ohm's and K's laws. (B1, B2)
- b2- Apply the Powerful techniques of circuit analysis. (B1, B2, B4)
- b3- Use the Operational-Amplifier in different applications. (B5, B6, B7)
- b4- Apply Thevenin's theorem. (B1, B2, B4)
- b5- Apply the maximum power transfer theory. (B1, B2, B4)

C - Professional and practical skills:

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

- c1- Use different types of basic hand tools and different types of switches to construct a circuit. (C3, C5)
- c2- Identify all types of electrical lamps and primary cells (Batteries) that are used in numerous circuits applications. (C1, C3, C5)
- c3- Read and determine the value of the resistance and capacitance using color code. (C1, C5, C10)
- c4- Use different symbols of circuits. (C1, C3, C5)
- c5- Use and read the measured values shown by oscilloscopes, and laws principles. (C1, C6, C10)
- c6- Construct simple circuits applying the learned laws and principles given in lectures. (C9, C10, C11)

D - General and transferable skills:

- By the end of the course the student should be able to:
- d1- Communicate effectively through reports and e- mails. (D1, D2, D3)
- d2- Effectively manage tasks, time, and resources. (D2, D6)
- d3- Search for information and engage in life-long self-learning discipline. (D3, D7, D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A2, A3, A4, A5, A6, A8, A15
В	Intellectual skills	B1, B2, B4, B5, B6, B7
С	Professional and practical skills	C1, C3, C5, C6, C9, C10, C11
D	General and transferable skills	D1, D2, D3, D6, D7, D9

Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
Introduction	2	2	2
Circuit element	4	4	2
Simple resistive circuits	4	4	2
Techniques of Circuit analysis	6	6	3
Step Response of First-Order RL and RC circuit.	6	6	3
Natural and step response of RLC circuits	4	4	2
Sinusoidal steady state analysis.	4	4	2
Total hours	30	30	15

4 - Teaching and Learning and Assessment methods:

Course ILO's			Теа	aching	Meth	ods		Learning Methods			Assessment Method				
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory &Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
	a1	1				1		1			1		1	1	
ling	a2	1				1		1			1		1	1	
lge & Understand	a3	1				1		1			1		1	1	
	a4	1	1			1		1			1	1	1	1	
	a5	1				1		1			1		1	1	
	a6	1	1	1		1		1					1	1	
wlea	a7	1	1	1		1		1				1	1	1	
Kno	a8	1		1		1		1		1			1	1	
	a9	1		1		1		1		1			1	1	
S	b1				1	1		1			1		1	1	
Skill	b2				1	1		1			1		1	1	
stual	b3				1	1		1				1	1	1	
tellec	b4				1	1		1					1	1	
Ē	b5				1	1		1					1	1	
-	c1						1								1
siona	c2						1								1
ofess Ills	c3						1								1
Applied Prc Skil	c4						1								1
	c5						1								1
	c6						1								1
a	d1						1								
enera Tran. Skills	d2						1								
ы н со Со	d3						1								

5- Assessment Timing and Grading:

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

6- List of references:

6-1 Course notes

Electrical Circuits Analysis (theory and Practice).

6-2 Required books

- 1. Boylestad, Introductory Circuit Analysis, Tenth Edition, 2003.
- 2. David E. Jonson, *Electrical Circuit Analysis*, Prentice Hall, USA, 1999.

6-3 Recommended books

- Electric circuit Analysis, David E. Johnson, 1997, Printcehall, USA.
- Introductory Circuit Analysis, 10th Ed, Boylestad, 2003 printcehall, USA.
- Basic Engineering Circuit Analysis, 6th Ed, J.DaidIrwin, 1999, Johnwiely, USA.

6-4 Web Sites

Website Gallery at h t t p: / / www.prenhall.com.

7- Facilities required for teaching and learning: None

Course coordinator:	Prof. Dr. Said Refai
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E202: Electrical Circuits Analysis (II)

A-Affiliation

Relevant program:	Electronic Engineering & Communication Technology BSc Program.
	Computer Engineering & Information Technology B.Sc. Program
Department offering the program:	Electronic Engineering & Communication Technology BSc Program.
	Computer Engineering & Information Technology B.Sc. Program
Department offering the course:	Electronic Eng. & Communications Tech. Dep.
Date of specifications approval:	Nov. 2011
R - Resic information	

B - Basic information

Title: Electrical Circuits Analysis	Code: E202	Year/level: 2 nd year, 2 nd semester.
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical: -	Total: 4

C - Professional information

1 – Course Learning Objectives:

The main Objective of this Course is to introduce the basic concepts & theories of Power calculations in sinusoidal steady state, Balanced three-phase circuits, mutual inductance, Laplace transform and its applications in circuit analysis, Transfer function, Fourier series, Fourier transform and two-port circuits.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- Basic concepts of power calculations in sinusoidal steady state. (A1, A5)
- a2- Basic concepts of the balanced three-phase circuits. (A1, A2, A3)
- a3- Principles of mutual inductance. (A1, A3)
- a4- Principles of series and parallel resonance. (A1, A2)
- a5- Laplace transforms theory. (A4, A5)
- a6- Transfer function. (A3, A5, A6)
- a7-Fourier series and Fourier transform theories. (A3, A5, A6)
- a8- Principles of the two-port circuits (A2, A6)

B Intellectual skills:

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

- b1- Use the principles of the balanced three-phase circuits. (B1,B2)
- b2- Apply the principles of series and parallel resonance. (B3, B4)
- b3- Apply the Laplace transformation technique to circuit analysis. (B5, B6, B7)
- b4- Use The transfer function. (B1, B4)
- b5- Apply the Fourier series and Fourier transform theories. (B1, B4)
- b6- Apply the principles of two-port circuits in circuit's analysis. (B1, B4)

C - Professional and practical skills:

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

- c1- Estimate the cost of the electricity bill. (C1, C2)
- c2- Improve the power factor for companies and industrial factors. (C1, C2)
- c3- Implement the achieved knowledge to recognize 3-phase balanced circuits and its analysis. (C1, C2)
- c4- Analyze the given realized circuits excited by other than simusoidal sources. (C1, C2)
- c5- Design the frequency- selective circuit. (C1, C2)
- c6- Implement the techniques of two- port terminated network and anlyze it to obtain its charachteristics. (C1, C2)

D - General and transferable skills:

- By the end of the course the student should be able to:
- d1- Communicate effectively through reports and e- mails. (D1, D2, D3)
- d2- Effectively manage tasks, time, and resources. (D2, D7)
- d3- Search for information and engage in life-long self-learning discipline. (D7, D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's						
Α	Knowledge and understanding	A1, A2, A3, A4, A5, A6						
В	Intellectual skills	B1, B2, B3, B4, B5, B6, B7						
С	Professional and practical skills	C1, C2						
D	General and transferable skills	D1, D2, D3, D7, D9						

3 – Contents

Tonic	Lecture	Tutorial	Practical
горс	hours	hours	hours
Power calculations in sinusoidal steady state	2	4	-
Balanced three-phase circuits	4	2	-
Mutual inductance	4	2	-
Series and parallel resonance	2	4	-
Laplace transformation	6	6	-
Transfer function	2	2	-
Fourier series - Fourier transform	4	4	-
Two- port circuits	6	6	-
Total hours	30	30	-

4 - Teaching and Learning and Assessment methods:

			Т	eachi	ng Me	thods		Learn	ing M	ethods	Assessment Method					
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam	
	a1	1				1		1			1		1	1		
ding	a2	1				1		1			1		1	1		
stanc	a3	1	1			1		1			1		1	1		
Inder	a4	1				1		1				1	1	1		
۹ کا ا	a5	1				1		1					1	1		
/ledg	a6	1	1	1		1		1		1		1	1	1		
Know	a7	1		1		1		1		1			1	1		
	a8	1		1		1		1		1			1	1		
	b1				1	1		1			1		1	1		
kills	b2				1	1		1			1	1	1	1		
al S	b3				1	1		1				-	1	1		
ectu	b4				1	1		1				-	1	1		
itelle	b5				1	1		1					1	1		
<u> </u>	b6				1	1		1					1	1		
la	c1	1		1		1		1		1			1	1	1	
ione	c2	1		1		1		1		1			1	1	1	
fess	c3	1		1		1		1		1			1	1	1	
Pro	c4	1		1		1		1		1			1	1	1	
lied	c5	1		1		1		1		1			1	1	1	
App Skil	c6	1		1		1		1		1			1	1	1	
a a	d1									1						
ener Tran. Skills	d2			1	1											
ы́г о	d3								1							

5- Assessment Timing and Grading:

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

6- List of references:

6-1 Course notes

Electrical Circuits Analysis-2 (theoretical part).

6-2 Required books

James W. Nilsson, and Susan A. Richel, "Electrical Circuits", Pearson Education Inc., 8th Edition, 2008.

6-3 Recommended books

- Electric circuit Analysis, David E. Johnson, 1997, Printcehall, USA.
- Introductory Circuit Analysis, lothEd, Boylestad, 2003printcehall, USA.
- Basic Engineering Circuit Analysis, 6th Ed, J.DaidIrwin, 1999, Johnwiely, USA.

6-4 Web Sites

Website Gallery at h t t p: //www.prenhall.com.

7- Facilities required for teaching and learning: None

Course coordinator:	Prof. Dr. Said Refai
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E220 : Instrumentation and Testing I

A-Affiliation

Electronics Engineering & Communications Technology BSc Program Computer Engineering & Information Technology BSc Program
Electronics Engineering & Communications Technology Dpt.
Computer Engineering & Information Technology BSc Program
Electronics Engineering and Communications Technology Dpt.
Nov. 2011

B - Basic Information

Title	:	Instrumentation and testing(1)	Code: E220	Year/level:2 nd E.E./ 1 st S.
Teaching Hours	:		Lectures: 2	Tutorial : -
			Practical: 2	Total : 4

C- Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the basic concepts and theory of design of the different electrical measuring instruments such as: Voltmeters, ammeters, wattmeter, Ohmmeter, galvanometers....etc. Also it enables the student to calibrate these measuring instruments.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

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

- a1- Concepts of different system of units. (A1)
- a2- Principles of operation of the different electrical measuring instruments. (A14, A15)
- a3- Functional circuit diagram of the different electrical measuring instruments. (A4)
- a4- Analysis of measurement errors. (A4, A15)
- a5- Advantages and disadvantages of each measuring instruments. (A4, A15)
- a6- Procedure of calibration of measuring instruments. (A14, A15)

B - Intellectual Skills

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

- b1- Transform any system of units to another more convenient one. (B3,B5,B7)
- b2- Deduce the torque equations of measuring instruments. (B1,B3)
- b3- Select the more appropriate measuring circuit diagram. (B5,B13)
- b4-Choose the more suitable instruments for a specific measurement. (B6,B10,B14)

b5-Analyze the error of measurement. (B5, B9, B11)

C - Professional and Practical Skills

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

c1- Construct the most suitable measuring circuit diagram from the measuring errors point of view. (C3,C16,C17)

- c2- Identify the most convenient measuring instruments for a given measured quantity. (C3,C16,C17)
- c3- Calculate the resulting connection and instrumental errors. (C2,C5,C18)
- c4- Avoid over loading of the used measuring instruments. (C15,C20)

D - General and Transferable Skills

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

- d1- Ability to prepare presentations and Seminars. (D1,D3, D6)
- d2- Search for information from references, journals and internet. (D8,D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's						
А	Knowledge and understanding	A1, A4, A14,&A15						
В	Intellectual skills	B1,B3,B5,B6,B7,B9,B10,B11,B13,&B14						
С	Professional and practical skills	C2,C3,C5,C15,C16,C17,C18,&C20						
D	General and transferable skills	D1,D3,D6,D8,&D9						

3 – Contents

	Tonic	Lecture	Tutorial	Practical
	горс	hours	hours	hours
•	Units, Dimensions, and Standards.	2	-	2
٠	Types and Analysis of Errors in Measurements.	2	-	2
٠	Fundamentals of Analogue Instruments.	2	-	2
•	Deflection Type Permanent Magnet Moving Coil, and Electro- dynamic Instruments.	2	-	2
٠	General Torque Equations and Galvanometers	2	-	2
٠	DC Multi-Range Voltmeters.	2	-	2
٠	DC Multi-Range Ammeters.	2	-	2
٠	AC Rectifier Type Voltmeters.	2	-	2
•	AC Rectifier Type Ammeters.	2	-	2
٠	Series and Multi-Range Ohmmeters.	2	-	2
٠	DC and AC Electro-dynamic Voltmeters, and Ammeters.	2	-	2
٠	DC and AC Electro-dynamic Voltmeters, and Ammeters.	2	-	2
٠	DC and AC Electro-dynamic Watt-meters.	2		2
٠	Calibration Methods of DC and AC Instruments.	2	-	2
•	Calibration Methods of DC and AC Instruments.	2	-	2
	Total Hours	30	-	30

4 - Teaching and Learning and Assessment methods:

		Tea	aching	Meth	ods	Learning Methods					Assessment Method							
Course ILO's		Lecture	Tutorials	Problem solving	Laboratory & Experiments		Researches and Reports	Self leaming				Written Exam	Practical Exam	Quizzes	Mid-Term Exam	Assignments		
	a1	1	1	1			1	1				1		1	1	1		
s ng	a2	1	1	1				1				1		1	1	1		
edge tand	a3	1	1	1	1		1					1	1	1	1	1		
iowle ders	a4	1	1	1	1		1					1	1	1				
ъЪ	а5	1	1	1	1		1					1	1	1				
	a6	1	1	1	1		1					1	1	1				
	b1	1			1		1					1	1					
Skills	b2	1	1	1			1	1				1		1	1	1		
ctual	b3	1	1	1			1					1		1	1	1		
ntelle	b4	1	1	1	1			1				1	1	1	1	1		
_	b5	1	1	1	1		1	1				1	1	1	1	1		
skills	c1	1	1	1	1		1					1	1	1	1			
rof. S	c2	1	1	1	1			1				1	1	1	1			
ed F	c3	1	1	1	1		1						1	1	1			
Appli	c4	1	1	1	1		1						1	1	1			
ans.	d1	1			1		1	1										
eral Tr Skills	d2	1	1	1	1		1	1					1	1		1		
Gene	d3	1	1	1	1		1	1					1	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	6-th Week	10
Practical Exam	12 th	20
Written Exam	Sixteenth week	60
Total	100	

6- List of References

6-1 Course notes:

SHOUMAN E.I. SHOUMAN, Electrical Instrumentation & Measurements: Part I, Cairo, 2008

6-2 Required books:

David A Bell, Electronic Instrumentation and Measurements, Prentice Hall PTR Canada, 2005.

6-3 Recommended books:

Albert D. Hefrick, and William D. Cooper, Modern Electronic Instrumentation and Measurement Techniques, Prentice- Hall International, Inc., London UK, 1990.

7- Facilities Required for Teaching and Learning

Electrical and Electronic lab. SHOUMAN E.I. SHOUMAN, Experiments on Electrical instruments and measurements: Part I, Cairo, 2008.

Course coordinator	:	Prof. Dr. SHOUMAN E.I. SHOUMAN.
Head of the Department	:	Prof. Dr. Mokhtar Abd El- Haleem
Date	:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E221 : Instrumentation and Testing II

A- Affiliation

Relevant program:	Electronics Engineering and Communications Technology BSc. Program Computer Engineering & Information Technology BSc. Program
Department offering the	Electronics Engineering and Communications Technology Department
program:	Computer Engineering & Information Technology Dpt.
Department offering the course:	Electronics Engineering and Communications Technology Department.
Date of specifications approval:	Nov. 2011

B - Basic information

Title	:	Instrumentation and Testing (2)	Code: E221	Year/level: 2 nd E.E./ 2 st S.
Teaching Hours	:		Lectures: 2 Practical: -	Tutorial:2 Total :4

C - Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the basic concepts, theory, error analysis of the different method of measurements of the different electrical quantities such as: Resistors and storage elements and non-electrical quantities such as: pressure, temperature, light intensity,....etc. It also presents how these different electrical and non-electrical quantities can be acquired and stored on a computer memory for further measurements and processing.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

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

a1- The different methods used for measuring DC and AC power dissipation. (A14, A15)

a2- The different methods used for measuring accurate values of the very low, very high, and moderate value resistors. (A1)

a3- The different methods used for measuring accurate values capacitors and inductors using AC bridges. (A4, A15)

a4- Impedance measurements that based on resonance method. (A4)

a5- Measuring the different non-electrical quantities such as: temperature, displacement, pressure, velocityetc. (A14, A15)

a6- The principle of operation of the different transducers in order to be able to select the proper one for measuring a specific non-electrical quantity. (A14, A15)

a7- The construction and operation of the data acquisition systems in order to be able to record any electrical or non-electrical quantity on a computer for further processing or manipulation. (A14, A15)

a8- The construction and operation of the DACs, and ADCs. (A1)

B- Intellectual skills:

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

- b1- Choose the suitable method to measure a specific measurment. (B3,B5,B7)
- b2- Analyze the resulting error of the measurement. (B5, B9, B11)
- b3- Select the most convenient transducer to measure a specific non-electrical quality. (B5,B13)
- b4- Analyze and realize a data acquisition system to record either electrical or non-electrical quantity on a computer. (B6,B10,B14)

C - Professional and practical skills:

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

c1- Construct the most convenient measuring circuit diagrams to measure AC,DC power dissipation, high value and low value resistors, capacitors and coils. (C3,C16,C17)

c2- Identify the most suitable measuring instrument for measuring a given quantity. (C3,C16,C17)

c3- Design a suitable DC or AC bridge to measure a given resistor or storage element. (C2,C5,C18)

c4- Use the resonance method to measure a given impedance method. (C2,C5,C18)

c5- Analyze the measurement errors. (C15,C20)

D - General and transferable skills:

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

- d1- Prepare presentations and seminars. (D1,D3, D6)
- d2- Search for information from references, journals and internet. (D8, D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A4, A14,&A15
В	Intellectual skills	B3,B5,B6,B7,B9,B10,B11,B13,&B14
С	Professional and practical skills	C2,C3,C5,C15,C16,C17,C18,&C20
D	General and transferable skills	D1,D3,D6,D8,&D9

3 – Contents

	Торіс	Lecture hours	Tutorial hours	Practical hours
•	DC Power and Accurate Resistance Measurements.	2	-	2
•	AC Power and Very Low Resistance Measurements.	2	-	2
•	Very High Resistance Measurements.	2	-	2
•	Capacitance, Inductance Equivalent Circuits, and AC Bridges.	2	-	2
•	Capacitance and Inductance Measurements Using AC Bridges.	2	-	2
•	AC Bridges Accuracy and Sensitivity.	2	-	2
•	Impedance Measurements Based On Resonance.	2	-	2
•	Non-Electrical Quantities Measurements.	2	-	2
•	R, L, C, and LVDT Transducers.	2	-	2
	Displacement, Temperature, and Photoelectric Transducers.	2	-	2
•	Semiconductor Photodiode and Phototransistors Transducers.	2	-	2
•	Data Acquisition Systems.	2	-	2

•	Data Acquisition Systems.	2	-	2
•	D/A Converters.	2	-	2
٠	A/D Converters.	2	-	2
	Total Hours	30	-	30

4 - Teaching and Learning and Assessment methods:

			Tea	ching	Metho	ods	Le	earnin	g Me	thods	S	Assessment Method						
Course ILO's		Lecture	Tutorials	Problem solving	Laboratory &Experiments		Researches and Reports	Self learning				Written Exam	Practical Exam	Quizzes	Mid-Term Exam	Assignments		
b	a1	1	1	1			1	1				1		1	1	1		
andii	a2	1	1	1				1				1		1	1	1		
erste	a3	1	1	1	1		1					1	1	1	1	1		
Unde	a4	1	1	1	1		1					1	1	1				
و & ا	a5	1	1	1	1		1					1	1	1				
edge	a6	1	1	1	1		1					1	1	1				
Mor	a7	1	1	1	1		1					1	1	1				
Z	a8	1	1	1	1		1					1	1	1				
le le	b1	1			1		1					1	1					
ectua	b2	1	1	1			1	1				1		1	1	1		
Ski	b3	1	1	1			1					1		1	1	1		
<u> </u>	b4	1	1	1	1			1				1	1	1	1	1		
kills	c1	1	1	1	1		1					1	1	1	1			
of. S	c2	1	1	1	1			1				1	1	1	1			
Pre	c3	1	1	1	1		1						1	1	1			
lied	c4	1	1	1	1		1						1	1	1			
App	c5	1	1	1	1		1						1	1	1			
ieral ns. ills	d1	1			1		1	1										
Gen Tra Ski	d2	1	1	1	1		1	1					1	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	6-th Week	10
Practical Exam	15 th week	20
Written Exam	Sixteenth week	60
Total	100	

6- List of references:

6-1 Course notes

SHOUMAN E.I. SHOUMAN, Electrical Instrumentation & Measurements: Part II, Cairo, 2008

6-2 Required books

- 1- David A Bell, Electronic Instrumentation and Measurements, Prentice Hall PTR Canada, 2005.
- 2- Larry D. Jones, and A. Foster Chin, "Electronic Instruments and Measurements, Prentice- Hall International, Inc., London UK, 1991.

6-3 Recommended books

Robert A. Witte, Electronic Test Instruments; Analog and Digital Measurements Prentice Hall PTR USA, 2002.

7- Facilities required for teaching and learning:

Electrical and Electronic lab.

-Shouman E.I. Shouman, Experiments on Electrical instruments and measurements: Part II, Cairo, 2008.

Course coordinator	:	Prof. Dr. SHOUMAN E.I. SHOUMAN.
Head of the Department	:	Prof. Dr. Mokhtar Abd El- Haleem
Date	:	August 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E240: Data Structures

A- Affiliation

Relevant program:Electronic Engineering and Communication Technology BSc Program.
Computer Engineering and Information Technology BSc Program.
Electronic Engineering and Communication Technology BSc Program.
Computer Engineering and Information Technology BSc Program.
September 2015.

B - Basic information

Title: Data Structures	Code: E 240		Year/level:2 nd /1 st	
Teaching Hours:	Lectures:	3	Tutorial:	-
	Practical	-	Total:	3

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the different data structures, their storage in computer memory and their implementation. They should be able to excute different algorithms like delectation of data searching and sorting.

2 - Intended Learning Outcomes (ILOS)

a - Knowledge and understanding:

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

- a1- Storage of data in counter memory like numbers in the fixed and floating point, one and two-dimemsional arrays, matrices, records, and spare matrices (A1, A3,A18).
- a2- Push and pop operations associated with a stack and memory addressing (A1, A3, A5, A9,A18).
- a3- Insertion and deletion from a circular queue (A3, A9,A18).
- a4- Representation of header, header-free, and two-way linked lists in memory (A2, A4, A9,A18).
- a5- Traversing, searching, insertion, and deletion algorithms for linked lists (A3, A5, A12,A18).
- a6- Linked, T.B.S and string array representation of binary tree in computer memory (A2, A4, A9,A18).
- a7- Traversal algorithms, using preorder, inorder and postorder traversals (A3, A5, A12, A18).
- a8- Path length and Huffman's algorithm (A2, A3, A16,A18).
- a9- Direct and binary searching algorithms, and associated binary search tree (B.S.T) with searching, deletion, and insertion into B.S.T (A2, A3, A5, A12,A18).
- a10- Sorting algorithms using selection, exchange, insertion, and deducing the algorithms complexity (A2, A4, A5,A18).
- a11-Bubble, quick, and heap sort algorithms (A2, A4, A9, A18).

b - Intellectual skills:

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

b1- Judge the types of data if it is adjacent continuous blocks like arrays, matrices, and other data which can have separater addresses such that the probability of memory overflow approaches zero (B1, B4, and B8).

- b2- Deduce the proper data structures algorithms for problems arising in the engineering fields (B2, B4, B12, and B14).
- b3- Optimize data manipulation to minimize the program running time implementing the Huffman's algorithm (B1, B2, B4, B8, and B14).
- b4- Construct a special data base for storage of data on the basis of the B.S.T insertion, and deletion algorithms (B2, B3, B8, B12, B17, and B18).

c - Professional and practical skills:

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

- c1- Use the data structure as program tools (C12).
- c2- Join the allocated topics with topics of the compiler subject to achieve an optimum compiler design (C12). Use the given topics to measure program efficiency (C12).

d - General and transferable skills:

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

- d1- Communicate effectively through reports and e-mails (D3, D6, and D7).
- d2- Demonstrate efficient IT capabilities (D4, D6).
- d3- Search forinformation and engage in life-long self-learning discipline (D1, D2, and D7).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A2, A3, A4, A5, A9, A12, A16,A18
В	Intellectual skills	B1, B2, B4, B8, B12, B14, B17, B18
С	Professional and practical skills	C12
D	General and transferable skills	D1, D2, D3, D4, D6, D7

3 – Contents

Tania	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
> Introduction			
 Basic Definitions and basic operation. 	л		
 Data representation and storage, fixed point and floating point formats. 	4		-
 Applications of data structure. 			
➤ Arrays			
 Storage of one dimensional arrays in memory. 			
• Storage of two-dimensional arrays using row major and column major			
ordering.	6		
Pointer arrays.	0		-
 Parallel array storage of records. 			
 Operations on matrices and associated algorithms. 			
 Storage of sparse matrices. 			
➤ Linear lists			
 Definitions and properties. 			
 Stacks, definition, push, pop operation. 	6		-
Queues, definition, insertion, and deletion from circular queues.			
 De-queues, definition, and basic operations. 			
Linked lists	6		-

Basic structures of header-free and header linked lists.		
Representation in memory.		
• Travering and searching linked lists for sorted and unsorted linked lists.		
 Insertion and defination algorithms. 		
Two-way lists.		
> Trees		
Basic definitions and structure.		
Reoresentation of binary trees in memory.		
Linked representation.		
String array representation.		
Terminating binary sequence (TBS) representation.	10	-
Transformation of a general tree into binary tree.		
• Transvering tree and tramsversal algorithms using stacks (Preorder, in		
order, and post order threading)		
Threads and in order threating.		
 Path length and huffman's tree achieving using Huffman's algorithms. 		
> Searching		
 Introduction and searching types. 		
Scanning.		
 Direct scanning and controlled scanning. 		
 Binary search algorithms. 	6	_
Binary search trees.	0	-
Definition.		
Searching and insertion into B.S.T.		
• Deletion from a B.S.T.		
Building a B.S.T		
> Sorting		
Introduction.		
 Sorting algorithms using selection, exchange, insertion techniques. 		
Complexity of algorithms.	6	-
 Bubble sort algorithms as an example for exchange technique. 		
Binary sort (quick sort) algorithm.		
Heap sort algorithms.		
Total hours	45	-

4 - Teaching and Learning and Assessement methods:	:
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			Теа	aching	Meth	ods		Lear Meti	ning nods	Assessement Method							
Course ILO's	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				
	1								1		1		1				
	a2	1								1		1		1			
ding	a3	1								1		1		1			
stan	a4	1		1				1		1							
Idens	a5	1	1							1		1		1			
, Unc	a6	1						1		1							
ige {	a7	1	1	1						1		1		1			
wled	a8	1		1						1				1			
Knov	a9	1						1		1		1		1			
	a10	1	1							1							
	a11	1		1				1		1				1			
æ	b1	1						1		1							
ectue Ills	b2		1					1		1				1			
itelle Ski	b3		1	1				1				1		1			
<u> </u>	b4		1	1				1				1					
d onal	c1			1						1				1			
pplie essic Skills	c2		1	1				1									
Prof €	c3		1	1				1				_		1			
'al Kills	d1			1				1				1					
ener n. Sł	d2			1				1						1			
Ge Trai	d3			1								1		1			

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: seminars, quizes	Bi-Weekly	20%
Mid-Term Exam	6-th Week	10%
Practical Exam	Fifteenth week	-
Written Exam	Sixteenth week	70%
То	tal	100%

6- List of references:

6-1 Course notes:

Data structures theory & Algorithms, Modern Academy Press, 2002.

6-2 Required books

- Mohi Eldin Rateb, Data structures theory & Algorithms, Modern Academy Press, 2002.
- Micheal Main and Water Savitch, Data Structure and other Objects, Benjamine/Cummings, CA, 1995.

- Nell, Susan Lily, Data Structure using Pascal, Prentice Hall, Inc., 1981.
- Adam Drozdek, Data Structure and Algorithms in C++, Cengage Learning , 4th edition, 2012.

6-3 Recommended books:

- Ellis Horowitz, Sartaj Sohni, Fundamnetals of Data Structires, Computer Science Press, Inc., 1982.
- Glenn W. Rowe, Introduction to Data Structures and Algorithms with C++, Prentice Hall, 1991.

6-4 Periodicals, Web sites, etc.

http://www.prenhall.com/mano

- Facilities required for teaching and learning: None.

Course coordinator: Head of the Department: Date:

Prof. Dr. MOHI-ELDIN RATEB Prof. Dr. SAID GAWISH September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E212: Digital Logic Circuits

A-Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program. Computer Engineering and Information Technology BSc Program.
Department offering the	Electronic Engineering and Communication Technology BSc Program.
program:	Computer Engineering and Information Technology BSc Program.
Department offering the	Computer Engineering and Information Technology BSc Program.
course:	
Academic year/level:	2 nd /2 nd
Date of specifications	Nov. 2011
approval:	

B - Basic Information

Title: Digital Logis Circuits	Code: E 212	Year/level	2 nd /2 nd	
Teaching Hours:	Lectures:	4	Tutorial:	-
	Practical	1	Total:	5

C - Professional Information

1 – Course Learning Objectives

The basic objective of this course is to give the students the main concepts of digital circuits construction and the different approaches to achieve the highest speed and the lowest cost of these circuits

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

- By the end of the course the student should gain the following knowledge:
- a-1 The Laws of Boolean algebra to simplify a complicated logic expressions. (A1, A2)
- a-2 Construction of the truth table for a special given problem. (A2, A5)
- a-3 Expressing a logic function in the S.O.P and P.O.S algebraic forms and the Karnaugh map representation. (A2, A5)
- a-4 Minimization of logic functions using K.M and Quine- Mc-Clusky's tabular method and realization using NAND and NOR gates only. (A2, A3)
- a-5 Combinational modules used in digital systems like adders, de-multiplexers, multiplexers, decoder, encoders, parity checker and comparator circuits. (A2, A3)
- a-6 Representation of simple sequential circuits using state diagram and state table. (A2, A5)
- a-7 Sequential circuit elementary Flip-Flop circuits. (A2, A5)
- a-8 Overcoming racing in synchronous sequential circuits using M.S or edge-triggered Flip-Flops. (A2, A3)
- a-9 Sequential logic modules like registers, shift registers and counters. (A2, A3, A14)
- a-10 Memory modules like combinational R.O.M and RAM sequential. Modules. (A2, A3, A14)

b - Intellectual skills:

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

- b1- Deduce a logic function for solving a given simple problem (B1, B2).
- b2- Achieve a logic model which introduces a solution of a high-scale problem using combinational modules (B2, B3, and B4).
- b3- Analyze the realization approaches using gate and modular designs and determine the measures for selection of any of them (B2, B3, and B4).
- b4- Investigate the benefits of using a special Flip-Flop type for realizing a sequential circuit or using the asynchronous or the synchronous approach (B4, B8, and B12).
- b5- Suggest a solution for an allocated sequential problem and report the merits of this solution (either higher speed of lower cost) (B4, B8, and B14).

c - Professional and practical skills:

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

- c1- Construct of a logic circuit using available logic gates satisfying minimum cost (C1, C2, and C3).
- c2- Use the practical lab. Knowledge to construct the layout for a solution using modular design (C2, C3, and C6).
- c3- Investigate the output performance for input sequence (C1, C2).
- c4- Design a binary counter counting in an arbitrary input random sequence using any type of Flip-Flops (C3, C5).
- c5- Design the associated circuits for fault detection in counter operation and presetting to a given initial state (C1, C3, and C5).

d - General and transferable skills:

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

- d1- Use internet, references and journals for searching information (D3, D7, and D9).
- d2- Write a technical report for a given task and prepare its presentation (D3, D4, D6, and D7).
- d3- Join teams (D1, D2, and D5).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A2, A3, A5, A14
В	Intellectual skills	B1, B2, B3, B4, B8, B12, B14
С	Professional and practical skills	C1, C2, C3, C5, C6
D	General and transferable skills	D3, D4, D5, D6, D7, D9

3 – Contents:

Week	Tonio	Lecture	Tutorial	Practical
No.	Торіс	Hours	Hours	Hours
	Introduction	4		
1	Basic Definitions.		-	1
	Laws of Boolean Algebra.			
	Logic Functions Representation & Realization	2		
2	Methods of representation of logic functions truth table, S.O.P and			1
2	P.O.S)		-	Ι
	Realization of logic functions using AND-OR-NOT, NAND only and	2		

	NOR only gate systems.			
	Matching logic functions with gate systems	2		
3	Logic function minimization	2		1
	Using Basic laws of Boolean Algebra.			
А	Using Karnaugh map minimization.	2	_	1
-	Using Quine -Mc Clusky's Method.	2		I
	Minimization of multiple-output Logic Functions	2		
5	Combinational logic modules	2	-	1
	Half and full adders, Parallel adder connection, look ahead carry.			
	Decoders and de-multiplexers	2		
6	Encoders.	2	-	1
	Data selectors (multiplexers).			
7	Parity checkers.	2		1
1	Read-only memories	2		I
	Binary comparators.	2		
8	Sequential logic circuit elements	2		1
	State diagram and stat table representation of sequential circuits.			
0	Asynchronous and synchronous sequential elements.	2		1
9	S-R Flip-flop,J-K flip-flop	2	-	I
10	D-Flip-flop and T flip-flop	2		1
10	Racing in sequential circuits	2	-	I
	Master –slave and Edge –triggered Flip-flops.	2		
11	Sequential Logic circuit modules Introduction.	2		1
40	Desisters and shift registers	4		4
12	Registers and shift registers.	4		1
13	Asynchronous and synchronous counters.	4	-	1
14	Counters using shift –registers (Johnson and ring counters)	4		1
15	Random access memories(basic cell,addressing and read-write	4		1
	operations)			
	Total Hours	60	-	15

4 - Teaching and Learning and Assessment methods:

		Teaching Methods										Learning Methods				Assessment Method							
Course ILO's		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			
.× D	a1	1	1	1			1					1				1		1		1			
ge δ ndin	a2	1					1									1		1	1	1			
vled	a3	1					1									1		1		1			
know nder	a4															1		1					
<u> </u>	a5	1			1		1									1	1	1		1			

	a6	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	1		
	a10	1	1	1	1	1	1			1	1		1	1		1	1		
ills	b1	1			1								1		1		1		
న	b2	1	1										1		1		1		
tua	b3	1		1	1		1			1			1	1			1		
ellec	b4	1			1		1			1			1	1	1		1		
Inte	b5	1	1		1	1	1						1	1	1		1		
nal	c1	1			1	1	1						1		1				
essio	c2	1	1										1		1				
Profe	c3	1		1		1				1	1								
lied	c4	1	1		1	1													
App	c5	1	1		1		1												
al (ills	d1			1		1				1									
ener 1. St	d2		1	1						1	1								
G. Trar	d3	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of References

6-1 Course notes

- Digital logic circuit (Theoretical + Practical)

6-2 Required books

-Mohi Eldin Rateb, "Digital Logic Circuits ", Modern Academy Press., 2002.

- Mano,M.M&Kime,C.R,"Logic and Computer Design Fundamentals 2nd ed., Englewood cliffs, NJ: Prentice tlall,2000.

- Nelson, V.P, Nagel, H.T., Carroll, B.D. and Irwin, J.D." Digital Logic Circuit Analysis and Design ", NJ: Prentice Hall, 1995.

6-3 Recommended books

- Warkely,J.F, "Digital Design: Principles and Practices"2nd ed. Engel wood cliffs, NJ: Prentice Hall,2000. Mano,M.M." Digital Design" 2nd ed.Englewood cliffs,NJ: Prentice Hall,1991

6-4 Periodicals, Web sites, etc.

Website Gallery at http://www.prenhall.com/mano

7- Facilities Required for Teaching and Learning: None

Course coordinator:	Prof. Dr. MOHI-EIDIN RATEB
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E301:Micro Electronics I

A-Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program.
	Computer Engineering and Information Technology BSc Program.
Department offering the program:	Electronic Engineering and Communication Technology BSc
	Program.
	Computer Engineering and Information Technology BSc Program.
Department offering the course:	Electronic Engineering & Communication Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic Information

Title: Micro Electronics (1)	Code: E301	Year/level: Third, 1 st
		semester
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical:	Total: 4

C - Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the basic concepts and theory of Micro Electronics circuit and devices and implementation of these circuits.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

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

- a1- Identify Linear and non Linear circuits. (A13)
- a2- Design different configuration of op-amp circuits. (A4)
- a3- Understands the different diode applications. (A3)
- a4- Understands the Basic functions of transistors. (A8)

B - Intellectual Skills

By the end of the course the student shoul

d be able to:

- b1- Design the op-amp circuits. (B7)
- b2- Give the correct decision and test his solutions. (B2)
- b3- Analyze the technical problems and find a suitable solution. (B2)
- b4- Understand the JFET & CMOSFET circuits. (B5).

C - Professional and Practical Skills

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

- c1- Develop a system to get a better efficiency (C2, C3)
- c2- Establish the power supply circuits using diode rectifiers. (C2, C3)
- c3- Use data sheets & read characteristics of different electronic components (C2, C3)

D - General and Transferable Skills

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

d1- Communicate effectively through assignments and e- mails. (D3)

- d2- Lead and motivate individuals. (D5)
- d3- Effectively manage tasks, time, and resources. (D6)
- d4- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's		
Α	Knowledge and understanding	A3, A4 , A8 , A13		
В	Intellectual skills	B2 , B5 , B7		
С	Professional and practical skills	C2, C3		
D	General and transferable skills	D3, D5 , D6 ,D7		

4 - Teaching and Learning and Assessment methods:

		Teaching methods							earnin nethod	ig Is	Assessment method				
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory &Experiments	Brain storming	Self Learning	Researches and Reports	Midterm Quizzes Assignments Written Exam		Practical Exam		
& ing	a1	1	1	1	1			1			1		1	1	
edge tand	a2	1			1						1	1	1	1	
lowle	a3	1			1									1	
L K	a4	1	1		1			1	1			1		1	
I	b1	1						1			1	1	1	1	
ectua	b2	1			1			1			1	1	1	1	
sk	b3	1			1				1					1	
-	b4	1												1	
d sio IIS	c1	1			1				1					1	
oplie ofess I Skil	c2	1			1				1					1	
A na	c3	1			1				1					1	
an.	d1			1					1				1		
al Tra ills	d2	1				1									
sners Sk	d3	1				1			1				1		
Ğ	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	
6- List of References

6-1 Course Notes

Lecture notes & Handouts.

6-2 Essential Books (Text Books)

Sedra / Smith, "Micro Electronics", 1998, Oxford Univ. press

6-3 Recommended Books

A.Malvino," Electronics Principless", 1999, MacGraw Hill

6-4 Periodicals, Web Sites, etc.

IEEE, www.prenhall.com

7- Facilities Required for Teaching and Learning

White board, Power point, Research paper reporting (References & Internet)

Course Coordinator:	Prof. Dr. H. TawfiK Kamel
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E302: Microelectronic II

A- Affiliation

Relevant program:	Electronic Engineering & Communication Technology
Department offering the program:	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Electronic Engineering & Communication Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic information

Title: MICROELECTRONIC(II) Teaching Hours:2 Code:E302 Lectures:2 Practical:2 Year/level: 3rd YEAR/ 2nd term Tutorial: 2 Total: 4

C - Professional information

1 – Course Learning Objectives:

- A study of this course will enable the student to:
- Understand the transistor biasing
- Analyze the frequency response at low and high frequencies.
- Analyze the feedback topologies.
- Understand the basic theory of oscillation.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1-Analysis the bias of any circuit. (A1, A3, A15)
- a2- Analysis the frequency response of amplifiers (A1, A3, A4, A15)
- a3- The feedback topologies. (A1, A3, A4, A15)
- a4-Basic theory of oscillators and function generators. (A1)

B - Intellectual skills:

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

- **b1-** Design the bias of simple circuits. (B2, B3.)
- b2- Deduce the frequency response at low and high frequencies transistor amplifier. (B2)
- **b3-**Evaluate the performance of power amplifier. (B2,B3,B5)
- b4- Identify/describe the oscillation theory. (B2)

C - Professional and practical skills:

- By the end of the course the student should be able to:
- c1- Measure the transistor characteristics. (C1, C15)
- c2- Measure the response of amplifiers. (C1, C15)
- c3- Measure the output of the signal generators. (C7, C18)

D - General and transferable skills:

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

- d1-Communicate effectively through assignments. (D3)
- d2- Effectively manage tasks, time, and resources. (D6)
- d3- Search for information and engage in life-long self-learning discipline. (D7, D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A1, A3,A4,A15
В	Intellectual skills	B2,B3,B5
С	Professional and practical skills	C1,C7,C15,C18
D	General and transferable skills	D2,D3,D6,D7,D9

3 – Contents

Торіс	Lecture	Tutorial	Practical
Bipolar junction transistor amplifier	10		12
Frequency response	10		10
Feedback	10		8
Signal generator and waveform shaping circuits	4		2
Total hours	32		32

4 - Teaching and Learning methods:

		Teaching methods						Learning methods			Assessment method				
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
න වි	a1	1	1	1		1	1	1	1	1	1		1	1	1
edge tandii	a2	1	1			1	1	1			1	1	1	1	1
nowle	a3	1	1			1	1						1	1	1
2 2	a4	1	1			1			1			1	1	1	
slii	b1				1	1	1	1			1		1	1	
al X	b2				1	1		1					1	1	
illectu	b3				1	1	1	1	1			1	1	1	
Inte	b4				1	1		1					1	1	
d onal	c1						1								1
pplie fessic Skills	c2						1								1
Proi	c3						1								1

al tills	d1			1				
ienera In. Sk	d2			1				
G Tra	d3			1				

5- Students' Assessment Methods:

Mid-term exam to measure:	Contents from a1 to a2 and b1 to b2.
Final exam to measure:	Contents from a1 to a4 and b1 to b4.
Practical exam to measure:	Contents from c1 to c3.

5-2 Time schedule:

Mid-term exam	The 7 th week
Practical exam	The 12 th week
Final exam	The 16 th week

5-3 Grading system

Mid-term exam	20%
Final exam	60%
Practical exam	20%
Total	100%

6- List of references:

6-1 Course notes

MICROELECTRONIC(II) By Dr. Hani Tawfik and M.Atef.

6-2 Required books:

Adel S.sedra "micro-electronic circuits " oxford university press, Inc, 2004

6-3 Recommended books

6-4 Periodicals, Web sites, etc.

7- Facilities required for teaching and learning:

• none

Course coordinator:	Dr. Eman Muhammad
Head of the Department:	Prof. Dr. MokhtarAbd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E311: Electromagnetic Field Theorem

A- Affiliation:

Relevant program: Department offering the program: Department offering the course: Academic year: Date of specifications approval: Electronic Engineering & Communication Technology Electronic Engineering & Communication Technology Dep. Electronic Engineering & Communication Technology Dpt. 3rd year, communication Eng, 1st semester Nov. 2011

B-Basic information

Title:	Electromagnetic Field Theorem	Code: E311	Year: 3 rd year
Teachin	g Hours: 90	Lectures: 4	Tutorial: 2
		Practical: -	Total: 6

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Understand basic types of orthogonal coordinates systems and their interrelations.
- Use the vector analysis and identities in field analysis and computations.
- Understand the basic concept of static electric field, electrostatic potential, static electric force, and electric capacitance.
- Understand the basic concept of static magnetic field, magnetic force, magnetic circuits, and inductance.
- Understand the basic concept of time-varying field and Maxwell's Equations.
- Understand the basic concept of uniform plane wave.
- Use the time-harmonic Maxwell's Equations to describe the wave propagation in different electric materials (free-space, dielectric, and conductor).

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- The concept of electrostatic field. (A1, A21)
- a2- The concept of magneto-static field. (A1,A3,A5)
- a3- Electric field in dielectric and lossy medium (A1,A3,A5)
- a4-The capacitance and inductance of different electric and magnetic circuits. (A1,A3,A5)
- a5- The Time-varying field and Maxwell's Equations. (A1, A3, A5, A21)
- a6-The concept of electromagnetic plane-wave and its propagation. (A1, A3, A5, A21).

B - Intellectual skills:

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

- b1- Solve an electrostatic problem related to a specific application. . (B1, B2)
- b2-Solve a magneto-static problem related to a specific application. (B1, B2)
- b3- Use the Maxwell equation for electromagnetic wave analysis.. (B1, B2)

C - Professional and practical skills:

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

- c1- Solve a simple electromagnetic problem related to a specific application. (C1, C2)
- c2- Represent electromagnetic field in free space. (C1,C2)

D - General and transferable skills:

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

d1- Effectively manage tasks, time, and resources. (D6)

d2- Search for information and engage in life-long self-learning discipline. (D6)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A3, A5, A21
В	Intellectual skills	B1, B2
С	Professional and practical skills	C1, C2
D	General and transferable skills	D6

Tonio	Lecture	Tutorial
Горіс	hours	hours
Coordinates Systems and Vector Analysis:	2	1
Cartesian Coordinates		
Cylindrical Coordinates	2	1
Spherical Coordinates	2	1
Vector Analysis	2	1
Electrostatic Field in Vacuum:	4	2
Coulomb's Law and Electric Field Intensity	4	Ζ
Electric Flux Density & Gauss Law	4	1
Electrostatic Potential	4	1
The Electric Dipole	2	1
Poisson's & Laplace's Equations	2	1
Electrostatic Field in Dielectric Media:	0	1
Polarization	2	I
Boundary Condition	2	1
Capacitance	2	1
Electrostatic Energy	2	1
Methods for the solution of Electrostatic Problems:	Λ	2
Solution of Laplace Equation	4	2
Solution of Poisson's Equation	4	2
Steady Electric Currents:	2	2
Ohm's Law and Joule's Law	2	Ζ
Boundary condition of current density	2	1
Relaxation time	2	-
The steady Magnetic Field:	Л	n
Ampere's law, Biot-Savart law, and magnetic vector potential	4	۷
Boundary conditions of steady magnetic field	2	1
Inductance and Magnetic circuits	2	2

Magnetic Force	2	1
Time Varying Field & Maxwell's equations: Faraday's law and Displacement current	2	1
Maxwell's equations and Plane wave propagation in different media	2	2
Total hours	60	30

				Feaching	Metho	ods		L	earnin lethod	g s	Assessment Method						
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes & Presentations	Assignments	Written Exam	Practical Exam		
	a1	1		1	1	1		1	1	1	1	1	1	1			
-	a2	1		1	1	1		1	1	1	1	1	1	1			
ledge	a3	1		1	1	1		1	1	1	1	1	1	1			
Know	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			
ual	b1	1		1	1	1		1	1	1	1	1	1	1			
ellect	b2	1		1	1	1		1	1	1	1	1	1	1			
Inte	b3	1		1	1	1		1	1	1	1	1	1	1			
lied	c1	1		1	1	1		1	1	1	1	1	1	1			
App	c2	1		1	1	1		1	1	1	1	1	1	1			
ieral an.	d1	1		1	1	1		1	1	1	1	1	1	1			
Gen Trä	d2	1		1	1	1		1	1	1	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	6-th Week	10
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course notes

Electromagnetic Field Theory. By Dr Elwakil

6-2 Main book

David K. Cheng, "Field and Wave Electromagnetics", Addison Wesley Publishing Company, Inc., 2nd Edition 1989.

6-3 Additional book

Nannapneni Narayana Rao, "Element of Engineering Electromagnetics", Prentices-Hall Inc., New Jersey, 4th Edition, 1997.

6-4 Periodicals, Web sites, etc.

https://en.wikipedia.org/wiki/Electromagnetic_field http://www.britannica.com/science/electromagnetism http://nptel.ac.in/courses/108106073/

7- Facilities required for teaching and learning:

- Lectures
- Exercises

Course coordinator: Head of the Department: Date: Dr. Muhammad El Wakeel Prof. Dr. Mokhtar Abd El- Haleem August 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E321: Digital Logic Circuits Design

A- Affiliation

Relevant program:

Department offering the program: Department offering the course: Academic year/level: Date of specifications approval: Electronic Eng. & Communications Tech.

Electronic Eng. &Communications Tech. Electronic Eng.& Communications Tech. 3rd /1st Feb. 2009

B - Basic information

Title: Digital Logic Circuits Design	Code: E 321	Year/level:3rd /1	1 st
Teaching Hours:	Lectures: 2	Tutorial: 2	
	Practical 2	Total: 6	

C - Professional information

1 – Course Learning Objectives:

The main objective of this course is to design different sequential parts with the associated memory sizes up to the level of special-purpose computing system design

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding

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

- a1 Transformation of an allocated sequential problem to a state diagram and state table and discrimination between the Mealy and Moore models. (A2, A4)
- a2 State reduction technique using the implication chart and favour state assignment techniques. (A2, A4)
- a3 Extracting state table for a given sequential circuit. (A2, A4)
- a4 Digital systems realized by combinational and sequential modules. (A2, A4)
- a5 Data path register transfer, arithmetic, logic and shift micro operations. (A2, A4)
- a6 Multiplexer, bus and memory transfers based on tri-state bus implementation. (A2, A4)
- a7 Arithmetic-Logic unit (ALU). (A2, A4)
- a8 Sequencing control using the algorithmic state machine. (A2, A4)
- a9 Realizing a sequencer using either sequence register and decoder or one Flip-Flop per state techniques. (A2, A4)
- a10 Static and dynamic memories construction addressing, and data flow in the Read and Write Operations. (A2, A4)

B - Intellectual skills:

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

- b1 Deduce the proper state diagram and the associated reduced state table for systems having small number of states. (B2, B3)
- b2 Deduce the optimum A.S.M control and associated data path for systems having large number of states. (B2, B3)
- b3 Judge the favorite solution approach for either state diagram or A.S.M solution selection.

(B2, B3)

- b4 Attempt new solution approaches combining both the above methods to obtain a minimum-cost realization. (B2, B3)
- b5 Investigate how performance improvement can be achieved for a real –existing system. (B2, B3)
- b6 Deduce his own measuring procedure to keep his system always in function. (B2, B3)

C - Professional and practical skills:

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

- c1 Design of a sequential circuit with finite number of states using Flip-Flops and logic gates. (C2, C3)
- c2 Build a data path with limited number of registers connected by a tristate bus and designing the associated A.L.U. (C2, C3)

c3 Design the control unit which produces to sequence of control signals fulfilling the required operation sequence according to status signals feed from the data path. (C2, C3)

c4 Expand an already existing memory in capacity and word length with a suggested address and data buses new width. (C2, C3)

D - General and transferable skills:`

Completing this course the student should be able to:

- d1- Communicate effectively through assignments and e- mails. (D3)
- d2- Lead and motivate individuals. (D5)
- d3- Effectively manage tasks, time, and resources. (D6)
- d4- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A2, A4
В	Intellectual skills	B2, B3
С	Professional and practical skills	C2, C3
D	General and transferable skills	D3, D5, D6, D7

3 – Contents

Week No.	Торіс	Lecture Hours	Tutorial Hours	Practical Hours
1	Introduction	2	2	2
	Aims realized through the topics of this subject.			
2	Synthesis of sequential logic circuits	2	2	2
	The Mealy and Moore models.	2	2	2
3	Synthesis procedure of completely specified sequential circuits.			
	Building state diagram (table)	2	2	2
4	Using state reduction techniques (state equivalence) and specially the implication chart method.			
	State assignment techniques.	2	2	2
5	Excitation functions derivation.			
	Controllable counters as an example for a Moore model.			
6	Analysis of sequential logic circuits.	2	2	2
7	Modular Design Approaches using Register Transfers and Data	2	2	2

	paths			
	Digital systems subdivision (Data path and control).			
	Register transfer operations.			
	Arithmetic micro operations.			
	Logic micro operations.	2	2	2
Q	Shift micro operations.			
0	Multiplexer-based micro operations.			
	Tristate bus based transfers.			
	Memory based transfers.	2	2	2
٥	A data path design proposed model.			
9	Design of arithmetic logic unit (ALU).			
	Control word based design.			
	Sequencing Control and Algorithmic State Machines (ASM)	2	2	2
10	The control unit.			
	The ASM chart construction.			
11	An illustrative model (binary multiplier).	2	2	2
	Hardwired control.	2	2	2
12	Realization of the sequencing part of the ASM chart using			
	sequence register and decoder and using one flip-flop per state.			
13	Micro programmed control.	2	2	2
	Memory System Design	2	2	2
	Static RAMs (RAM cell and RAM bit slice)			
11	Coincident selection.			
14	Dynamic RAMs (Basic cell, addressing and refreshing.			
	Memory system hierarchy.			
	Cache memory.			
	Design using ROM-RAM combination.	2	2	2
15	Design involving decoder implementation.			
	Design using memory array configuration.			
	Increasing the size of physical memory space.			

	Teaching Methods								Learning Methods			Assessment Method										
Course ILO's		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			
	a1	1	1	1			1				1				1		1		1			
s & ling	a2	1					1								1		1	1	1			
edge tand	a3	1					1								1		1		1			
owle ders	a4														1		1					
Unc Unc	a5	1			1		1								1	1	1		1			
	a6	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	1		
	a10	1	1	1	1	1	1			1	1		1	1		1	1		
	b1	1			1								1		1		1		
skills	b2	1	1										1		1		1		
al S	b3	1		1	1		1			1			1	1			1		
lectu	b4	1			1		1			1			1	1	1		1		
ntell	b5	1	1		1	1	1						1	1	1		1		
_	b6	1	1		1	1	1						1	1	1		1		
al	c1	1			1	1	1						1		1				
lied sion Ills	c2	1	1										1		1				
App ofes Ski	c3	1		1		1				1	1								
Ę	c4	1	1		1	1													
an.	d1			1		1				1									
al Tra ills	d2		1	1						1	1								
nera	d3	1	1							1									
Ge	d3	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of references:

6-1 Course notes

Digital logic circuit (Theoretical + Practical).

6-2 Required books

Mohi Eldin Rateb, "Digital Logic Circuits Design", Modern Academy Press., 2002.

Mano,M.M&Kime,C.R,"Logic and Computer Design Fundamentals" 2nd ed., Englewood cliffs, NJ: Prentice Hall,2000.

Nelson, V.P, Nagel, H.T., Carroll, B.D. and Irwin, J.D. "Digital Logic Circuit Analysis and Design", NJ: Prentice Hall, 1995.

6-3 Recommended books

Warkely, J.F, "Digital Design: Principles and Practices"2nd ed. Engel wood cliffs, NJ: Prentice Hall,2000. Mano, M.M."Digital Design" 2nd ed.Englewood Cliffs, NJ: Prentice Hall,1991.

6-4 Periodicals, Web sites, etc.

Website Gallery at http://www.prenhall.com/mano

7- Facilities required for teaching and learning: None

Course coordinator:	Prof. Dr. Mohi-Eldin Rateb
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E351: Control Engineering I

A- Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program
	Computer Engineering and Information Technology Department
Department offering the program:	Electronic Engineering and Communication Technology Department
	Computer Engineering and Information Technology Department
Department offering the course:	Electronic Engineering and Communication Technology Department
Date of specifications approval:	September, 2015

B - Basic Information

Title: Control Engineering (I)	Code: E351	Year/level: Third, 1st term
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical: 2	Total: 6

C - Professional Information

1 – Course Learning Objectives

By the end of this course the students should demonstrate the knowledge and understanding of the concepts for modeling, analysis of performance of F.B. linear control systems and design of controllers according to the classical control theory.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

- On successful completion of the course the student should demonstrate the knowledge and understanding of :
- a1-Mathematical modeling of some electrical and mechanical physical systems and calculation of output responces(A1).
- a2- Transfer function model of system and block diagram algebra (A1,A5).
- a3- Time domain analysis of open loop and closed loop control system (A16).
- a4- Construction of State-Space model of linear system and solution of state equation (A1,A5).
- a5- Function of P, PI, PD and PID controllers for improving the F.B. system performance (A4,A16).
- a6-Analizing the effect of roots of the characteristic equation (poles of the system) on the system transient response parameters (A1,A16).
- a7-Steady state error analysis and evaluation of accuracy of control system in presense of disturbance input (A16).

B - Intellectual Skills

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

- b1- Deduce the mathematical models, state models and transfer functions for some typical electrical and mechanical systems (B1).
- b2-Calculate the output responces and investigate the transient response parameters of control systems (B2,B3).
- b3-Analize the accuracy of F.B. system and investigate the steady state error of system in presense of disturbance inputs (B2,B3).
- b4- Investigate how to improve the transient response and accuracy of F.B. system by design of an appropriate controller (B3,B7).

C - Professional and Practical Skills:

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

- c1- Construct, test, and investigate the performance characteristics of open and closed loop control systems (C1, C5, C12).
- c2- Design of proper controller for a given control system (C1, C2, C3, C13).
- c3- Use experimental facilities to investigate the system performance for different control actions (C5, C12, C15).
- c4- Use experimental facilities to assemble , operate and measure charactrastics of servo loop control system (C5, C12, C15).

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 (D7).
- d2-Work in a team and cooperate with other students (D1, D3).
- d3-Present data and results orally and in written form (D3, D9).
- d4- Practice self learning (D7, D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
А	Knowledge and understanding	A1, A4, A5, A16
В	Professional and practical skills	B1, B2, B3, B7
С	Intellectual skills	C1, C2, C3, C5, C12, C13, C15
D	General and transferable skills	D1, D3, D7, D9

3 - Contents

	Tonio	Lecture	Tutorial	Practical
	Торіс	hours	hours	hours
٠	Introduction to control systems(closed loop versus open loop control)	2	2	2
•	Mathematical background and solving of linear time-invariant differential equations	4	4	2
•	Mathematical modeling of dynamic systems			
1.	Transfer function & impulse response			
2.	Block diagram system & block algebra.			
3.	Mason's gain formula for determination of system transfer function.			
4.	Closed loop system subjected to disturbance & error transfer function.	12	10	12
5.	State-space representation of dynamic systems &Transfer matrix and solution of state equation.			
6.	Modeling & transfer functions of some typical electrical and mechanical systems.			
•	Transient and steady-state response analyses:-			
1.	First-order & second-order open and closed loop step response.	6	6	6
2.	Effect of roots of the characteristic equation (poles of the system) on the	0	0	0
	system transient response parameters.			
•	Basic control actions of control systems			
1.	P, PI, PD, PID controller.	6	8	8
2.	Effects of integral and derivative control actions on system performance.			
	Total	30	30	30

		Teaching Methods						Learning Methods			Assessment Method			
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1		1	1	1		1			1	1	1	
	a2	1			1		1	1	1		1	1	1	1
adge	a3	1			1	1	1	1	1		1	1	1	1
Knowle	a4	1			1	1			1		1	1	1	
	а5	1		1	1	1	1	1	1		1	1	1	1
	a6	1			1	1		1	1		1	1	1	
	а7	1			1	1	1	1	1		1	1	1	1
a	b1	1			1	1		1	1		1	1	1	
sctu	b2	1			1	1		1			1	1	1	
Itelle	b3	1			1	1	1	1	1		1	1	1	1
<u> </u>	b4	1			1	1		1			1	1	1	1
	c1	1		1	1	1	1	1	1		1	1	1	1
lied	c2	1			1	1	1	1	1		1	1	1	1
App	c3	1			1	1	1	1	1		1	1	1	1
	c4	1			1	1	1	1	1		1	1	1	1
an.	d1				1	1		1						
al Tr	d2				1		1	1						
nerá	d3				1		1	1				1		1
Ger	d4	1			1			1				1	1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	15
Mid-Term Exam	6-th Week	15
Practical Exam	Fifteenth week	30
Written Exam	Sixteenth week	90
Total		150

6- List of References

6-1 Course Notes

Tantawy, M .(2009) Control Engineering – I (Lecture). Cairo: MAM Press.

Tantawy, M .(2009) Control Engineering – I (Lab). Cairo: MAM Press.

6-2 Essential Books (Text Books)

Ogata, K.(2010) Modern controls engineering. Prentice Hall.

6-3 Recommended Books

KUO,B.L.(2010) Automatic control systems. Prentice Hall. Dorf,R.&Bishop,R.(1995) Modern Control systems.A.Wesley.

6-4 Periodicals, Web Sites, etc.

- http://www.control.1th.se/Education/DoctorateProgram/linear-systems.html
- <u>http://engineersevanigm.blogspot.com/2013/09/automatic-control-by-benjamin-c-kuo-ebook-free-pdf-download-read-online.html</u>
- <u>http://ocw.mit.edu/courses/aeronautics-and-astronautics/16-06-principles-of-automatic-control-fall-2012/lecture-notes/</u>

7- Facilities Required for Teaching and Learning:

- Lectures
- Automatic Control Lab.

Course Coordinator:	Ass.Prof. Dr. Magdy O. Tantawy
Head of the Department:	Dr. MokhtarAbd El- Haleem
Date:	September 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E352: Control Engineering - 2

A- Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program
	Computer Engineering and Information Technology Department
Department offering the program:	Electronic Engineering and Communication Technology Department
	Computer Engineering and Information Technology Department
Department offering the course:	Electronic Engineering and Communication Technology Department
Date of specifications approval:	September, 2015
B - Basic Information	

Title: Control Engineering (2)	Code: E352	Year/level: Third, 2nd term
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical: 1	Total:5

C - Professional Information

1 – Course Learning Objectives

By the end of this course the students should demonstrate the knowledge and understanding of the concepts for stability of linear control systems and frequency domain analysis and design of compensators according to the classical control theory.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

- On successful completion of the course the student should demonstrate the knowledge and understanding of : a1-theoretical background needed to analyze and evaluate the stability of linear control system (A1, A16).
- a2-procedure of constructing the root-loci for poles of control system (A1,A5).

a3-control system analysis and design via the root-locus method (A4, A16).

a4- frequency domain analysis (response to sinusoidal inputs) and design of linear control system (A1,A5, A16).

a5-compensators to improve the performance of linear control system (A4,A16).

B - Intellectual Skills

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

b1-evaluate the linear feedback systems accuracy and stability (B1, B7).

b2-investigate the control systems performance using root-locus method (B1,B2).

b3-determine the frequency response plots(magnitude and phase) of system sinusoidal transfer function (B1).

b4- Investigate how to evaluate and compensate control system performance using frequency domain methods (B1,B3, B7).

C - Professional and Practical Skills:

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

c1-design of proper controller for a given feedback system (C1, C2, C3).

- c2-carryout practical testing of the performance of servo system with different types of controllers (C5, C12, C15).
- c3- use experimental facilities to assemble , operate and investigate the performance of servo loop control system (C5, C12, C15).

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 (D7).
- d2- work in a team and cooperate with other students (D1, D3).
- d3- present data and results orally and in written form (D3, D9).
- d4- practice self learning (D7, D9).

Course Contribution in the Program ILO's

ILO's		Program ILO's
A	Knowledge and understanding	A1, A4, A5, A16
В	Professional and practical skills	B1, B2, B3, B7
С	Intellectual skills	C1, C2, C3, C5, C12, C15
D	General and transferable skills	D1, D3, D7, D9

3 – Contents:

	Tonio	Lecture	Tutorial	Practical
	Topic	hours	hours	hours
•	Stability analysis of linear control system:			
	1. The concept of stability &Routh-Hurwitz criterion.	4	4	2
	2. Application of Routh criterion to system analysis & stability of	-	т	2
	systems in state space.			
•	Root Locus method:			
	1. Root-locus plots concept	6	6	3
	2. General rules for constructing root locus	0		
	3. Root-Locus plots with MATLAB			
•	Frequency response analysis:			
	 System steady-state response for sinusoidal inputs 			
	2. Frequency response from pole-zero plots	8	6	3
	3. Bode diagrams (log magnitude and phase verses ω)	0	0	5
	Relationship between system type and log-magnitude curve			
	5. Magnitude-versus-phase plots (Polar plots)			
•	Stability in the Frequency domain:			
	1. Contours in the S-plane &Nyquist criterion.	4	6	3
	2. Stability analysis & relative stability.			

•	Con	trol system design and compensation techniques:			
	1.	Preliminary design considerations & compensators for improving			
		system performance.	Q	Q	Л
	2.	Lead compensation.	0	0	4
	3.	Lag compensation.			
	4.	Lag-Lead compensation.			
		Total	30	30	15

			-	Feaching	Metho	ods		L	earnin 1ethod	g s	Assessment Method				
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Quizzes & Presentations	Assignments	Written Exam	Practical Exam	
	a1	1			1	1		1			1	1	1		
ge	a2	1			1	1		1			1	1	1		
owlec	a3	1			1	1		1	1		1	1	1		
Kne	a4	1			1	1		1			1	1	1		
	а5	1		1	1	1		1			1	1	1		
_	b1	1			1	1		1			1	1	1		
ectua	b2	1			1	1		1	1		1	1	1		
Itelle	b3	1			1	1		1			1	1	1		
-	b4	1			1	1		1			1	1	1		
р	c1	1		1	1	1		1	1		1	1	1		
pplie	c2	1			1	1	1	1	1		1	1	1	1	
Ā	c3	1			1	1	1	1	1		1	1	1	1	
an.	d1				1	1		1							
al Tre	d2				1		1	1							
suers	d3				1		1	1				1		1	
പ്	d4	1			1			1				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	6-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total	100	

6- List of References

6-1 Course Notes

Tantawy, M .(2009) Control Engineering – 2 (Lecture). Cairo: MAM Press. Tantawy, M .(2009) Control Engineering – 2 (Lab). Cairo: MAM Press.

6-2 Essential Books (Text Books)

Ogata, K.(2010) Modern controls engineering. Prentice Hall.

6-3 Recommended Books

KUO,B.L.(2010) Automatic control systems. Prentice Hall. Dorf,R. &Bishop,R.(1995) Modern Control systems.A.Wesley.

6-4 Periodicals, Web Sites, etc.

- http://www.control.1th.se/Education/DoctorateProgram/linear-systems.html
- http://engineersevanigm.blogspot.com/2013/09/automatic-control-by-benjamin-c-kuo-ebook-free-pdfdownload-read-online.html
- <u>http://ocw.mit.edu/courses/aeronautics-and-astronautics/16-06-principles-of-automatic-control-fall-</u> 2012/lecture-notes/

7- Facilities Required for Teaching and Learning:

- Lectures
- Automatic Control Lab.

Course Coordinator:	Ass.Prof. Dr. Magdy O. Tantawy
Head of the Department:	Dr. MokhtarAbd El- Haleem
Date:	September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E330 Engineering Computer Applications (1)

A – Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program.
	Computer Engineering and Information Technology BSc Program.
Department offering the program:	Electrical Engineering Department
Department offering the course:	Electrical Engineering Department
Academic year/level:	Third Year / 1 st term
Date of specifications approval:	September 2015

B - Basic information

Title: Engineering Computer Applications I	Code: E330	Year/level: Third/First
Teaching Hours:	Lectures: 1	Tutorial: -
	Practical: 3	Total: 4

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the features, basic concepts and different operations of MATLAB. They should be able to develop and enhance modules and programs using MATLAB software package.

2 - Intended Learning Outcomes (ILOS)

A – Knowledge and understanding:

On successful completion of the course, the student should demonstrate knowledge and understanding of: a1- MATLAB fundamentals(A1,A2).

- a2- Mathematical, logical, Array Operations, Vectors and Matrix Operations in MATLAB (A1,A8).
- a3- MATLAB plotting and Graphing capabilities(A5,A16).
- a4- MATLAB programming features (using script M-files and function files) (A2,A5,A12).

a5- MATLAB applications in the field of circuit theory (DC analysis, transient analysis, and AC Analysis and network functions of an electrical circuit) (A12,A13)

- a6- MATLAB applications in the field of semiconductor physics and Operational Amplifier (A12,A13)
- a7- Basics of MATLAB SIMULINK (A8).

B – Intellectual Skills:

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

- b1-Investigate on a MATLAB program in similar way to other computer programming (B1,B2,B3).
- b2- Utilize different graphics in two and three dimensions (B5,B7,B14).
- b3- analyze DC and AC circuits, and design the appropriate MATLAB program to solve (B13).

b4- Investigate a physical problem, deduce its mathematical model, then perform the MATLAB program to solve (B13,B14).

b5-Manipulate SIMULINK model for different problems (B17,B18).

C - Professional and practical skills:

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

c1- Use of different matrix and array operations for both real and complex numbers(C1,C2)

- c2- Produce graphics in two and three dimension (C5,C14)
- c3- Develop MATLAB programs to simulate different systems (C6,C7,C14).

c4-Solve different operational problems related to the electrical, electronic, and control systems and their basic elements (C1, C5, C6, C7, C15).

c5- Design and implement SIMULINK model for different problems (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, 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
А	Knowledge and understanding	A1, A2, A5, A12, A13, A16
В	Intellectual skills	B1, B2, B3, B5, B7, B13, B14, B17,B18
С	Professional and practical skills	C1, C2,C3,C4,C5, C6, C7,C14,C15
D	General and transferable skills	D1, D3, D4, D5,D7, D9

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
 Introduction to MATLAB 	1		3
Matlab Fundamentals	1		3
Matrix Operations, Array Operations Vectors	1		3
Data Analysis	1		3
Plotting Commands	1		3
Control FlowM – Files	1		3
 Control Statements 	1		3
> DC Analysis	1		3
 Transient Analysis 	1		3
 AC Analysis and network functions 	1		3
Advanced Programming in MATLAB in	2		4
Computer Application using MATLAB-	1		4
Introduction to Simulink	1		4
> Seminar	1		3
Total hours	15		45

		Teaching Methods						Learning Methods				Assessment Method									
Course ILO's		Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments			Researches and Reports	Modeling and Simulation	Site visits	discovering	Written Exam	Practical Exam	Quizzes	Term papers	Assignments			
D	a1	1	1	1			1			1				1		1		1			
andir	a2	1					1					1		1		1	1	1			
derst	a3	1					1							1		1		1			
& Un	a4	1	1	1	1	1	1			1		1		1		1	1	1			
dge 8	a5	1			1		1					1		1	1	1		1			
owlei	a6	1			1		1			1		1		1			1	1			
Ки	a7	1	1	1	1	1	1			1	1			1	1		1	1			
	b1	1			1									1		1		1			
Skills	b2	1	1											1		1		1			
ctual	b3	1		1	1		1			1		1		1	1			1			
Itelleo	b4	1			1		1			1				1	1	1		1			
<u> </u>	b5	1	1		1	1	1					1		1	1	1		1			
Jal	c1	1			1	1	1					1		1		1					
SSIO	c2	1	1											1		1					
Profe Skills	c3	1		1		1				1	1										
olied	c4	1	1		1	1															
App	c5	1	1		1		1														
പ	d1			1		1				1											
ı. Ski	d2		1	1						1	1										
Trar	d3	1	1							1											
neral	d4	1	1	1						1											
Ge	d5			1						1	1										
								 	 		-					-				-	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semister Work: seminars, quizzes	Bi-Weekly	10
Mid-Term Exam	6-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
To	100	

6- List of references:

6-1 Course notes:

Lecture notes and handouts

6-2 Required books

- D. Hanselman and B. Littlefield, Mastering MATLAB7, Prentice Hall, 2005
- David C. Kuncicky ,"Matlab Programming ",Pearson Prentice Hall ,2004.
- Amos Giltat," Matlab An Introduction with Applications", John Wiley.2004

6-3 Recommended books:

- Thomas K., Jewelly, Computer Applications for Engineers, Prentice Hall, 1990.
- Jaan Kiusalaas, Numerical Methods in Engineering with MATLAB, Cambridge University Press, 2010.

6-4 Periodicals, Web sites, etc.:

- <u>http://www.mathwork.com/</u>.
- <u>http://www.GenLib.org/</u>.
- <u>http://www.talkthecold.com/bizgoogle/</u>.
- <u>http://www.SCI-hub.org/</u>.
- <u>http://www.scrius.com/</u>.
- <u>http://www.Merlot.org/</u>.
- <u>http://www.Vlab.co.in/</u>.
- <u>http://www.W3schools.com/</u>

7- Facilities required for teaching and learning:

- Computer Lab.
- Data show
- Computer software package.

Course coordinator:	Dr. AbdElmoneim Fouda
Head of the Department:	Prof. Dr. Said Gawisha
Date:	September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E331: Engineering Computer Application II

A- Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program.
Department offering the program:	Electronic Engineering and Communication Technology BSc Program. Computer Engineering and Information Technology BSc Program.
Department offering the course: Academic year/level: Date of specifications approval	Computer Engineering and Information Technology BSc Program. Thirdyear / 2 nd term September 2015

B - Basic information

Title: Engineering con	Code: E331	
Teaching Hours:	Lectures: 2	
	Practical: 2	

Year/level: Third/2nd Tutorial: -Total: 4

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of establishing simulation and measuring the performance of different electrical, electronic and digital circuits using PSPICE software package. performing different types of analysis for such circuits, manipulating different plots for measuring circuit response involving functions of frequency and time.

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 knowledge about PSPICE software package (A1, A3).
- a2- The Basic format and structure of PSPICE files (A2,A12)
- a3- Circuit simulations via SPICE commands using drag /drop principles (A4,A5).
- a4- DC circuit, Transient circuit, and AC circuit analysis using SPICE package (A15)

a5- Different models of some active elements (diodes, transistors, and operational amplifiers) Some advanced command of SPICE (A13)

B – Intellectual Skills:

- On successful completion of the course, the student should be able to:
- b1- Deduce the circuit description using PSPICE (B1,B2).
- b2- Perform and run simulation of electrical and electronic circuits(B5,B8)
- b3- Perform different types of circuit analysis including (bias point DC analysis AC analysis and transient analysis). (B6,B7)
- b4- Develop models for different semi-conductor devices (diode transistors –operational amplifiers) in addition to using the built–in model in PSPICE library (B3,B4)
- b5- Plot and print the circuit response involving function of frequency and time (B5,B9)

C - Professional and practical skills:

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

c1- provide the analysis and performance measurements of the circuit behaviors without having the circuit implementation in the lap(C1,C2,C3).

- c2- Perform schematics that allow the circuit designer to place the various components of a circuit
- on drawing board prior carrying out the analysis in PSPICE.(C4,C5,C6)
- c3- Implement circuit prototype(C13,C14,C15).

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,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
А	Knowledge and understanding	A1,A2,A3,A4,A5,A12,A13,A15
В	Intellectual skills	B1,B2,B3,B4,B5,B6,B7,B8,B9
С	Professional and practical skills	C1,C2,C3,C4,C5,C6,C13,C14,C15
D	General and transferable skills	D1,D3,D4,D5,D7,D9

3 – Contents

Tonio	Lecture	Tutorial	Practical
Topic	hours	hours	hours
Introduction to PSPICE software package:		-	
The Basic format and structure of PSPICE files.	2	-	2
Circuit simulations via SPICE commands using both text			
command and drag /drop principles.	2		2
performing DC circuit analysis using SPICE package			
the simulation of DC circuits with passive elements			
specifically resistance component and its model	1		
modeling of DC sources and DC output variables			1
Operating point, transfere function, and DC sweep	3		3
analysis			
Performing Transient circuit analysis.			
Simulation of transients in the circuits with linear elements	2		2
including capacitors and inductors.	2		
Modeling of transient sources and transient output			
variables.	1		
Different statements for transient analysis.	3		1
Voltage and current controlled switches	•		3
Performing AC circuit analysis:			
Modeling of AC sources and AC output variables	2		2
Different statements for AC analysis.	2		2

Model parameters for nonlinear magnetic elements	1		1
Multiple analysis	1		1
Different models of some active elements:			
Diodes Models and transistors Models.	3	-	3
Operational Amplifiers Circuits	3	-	3
Some advanced command and analysis using SPICE		-	
Foureir analysis			
Noise analysis and Digital circuits simulation	2		2
Total hours	30	-	30

		Teaching Methods				L N	earnin 1ethod	g s		Asses	sment l	Vethod			
-	Course ILO's	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1	1				1							1	1
dge	a2	1	1				1		1			1		1	1
Me	a3	1	1				1			1				1	1
Xno	a4	1	1				1			1				1	1
	а5	1	1				1			1		1		1	1
	b1	1					1							1	1
ual	b2	1					1					1		1	1
llect	b3	1					1			1		1		1	1
Inte	b4	1					1			1				1	1
	b5	1					1			1				1	1
ğ	c1	1					1					1			1
plie	c2						1								1
A	c3						1					1			1
<i>_</i> :	d1			1		1		1							
Trar	d2		1	1				1	1						
_ 	d3	1	1					1							
ene	d4	1	1	1				1							
G	d5			1				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	6-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 and handouts

6.2- Essential books

J.keown, "Microsim Pspice and Circuit Analysis", prentice Hall, 1998. .

6.3- Recommended books

- M.H. Rashid, "Spice for Circuits and Electronics Using Pspice", Prentice hall, 1995 .

6-4 Periodicals, Web sites, etc.:

- http://www.GenLib.org/ .
- <u>http://www.talkthecold.com/bizgoogle/</u>.
- http://www.SCI-hub.org/ .
- <u>http://www.scrius.com/</u>.
- <u>http://www.Merlot.org/</u>.
- <u>http://www.Vlab.co.in/</u>.
- http://www.W3schools.com/

7- Facilities required for teaching and learning:

- Laboratory
- Workshop

Course coordinator: Head of the Department: Date Dr. Abdelmoneim fouda Prof. Dr.said Gawish September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E314: Computer Architecture

A-Affiliation

Relevant program:	Electronic Engineering and Communication Technology BSc Program.
Department offering the program:	Computer Engineering and Information Technology BSc Program. Electronic Engineering and Communication Technology BSc Program.
	Computer Engineering and Information Technology BSc Program.
Department offering the course:	Computer Engineering and Information Technology BSc Program.
Date of specifications approval:	September 2015

B – Basic information

Title : Computer Architecture	Code: E 314	Year / level: 3rd ye	ear(comm.)	
Teaching Hours:	Lecture: 2 hrs	Tutorial: 2 hrs	Practical: - hrs	Total: 4 hrs

C - Professional information

1- Course learning objectives:

The main objective of this course is to make the students familiar with the Basic concepts of machine- level architecture, programming instruction formats and addressing modes as well as understanding the micro operations, memory organization and I/O units, arithmetic and logic unit operations (Addition, multipliers and division). Also be aware of vectored interrupt, direct memory access, Serial and parallel transfer.

2- Intended Learning Outcomes (ILOS)

A – Knowledge and understanding:

By the end of this course the student should have the following Knowledge:

- a1- Understand the Basic concepts of machine- level architecture (A1, A3)
- a2- Identify programming instruction formats (A10)
- a3- Identify the methods of addressing (A8)
- a4- Understand micro operations (A5)
- a5- Identify memory organization and I/O unit (A4)
- a6- Understand computer software and micro program (A10)
- a7- Clarify central processing unit architecture and functions (A4)
- a8- Understand arithmetic and logic unit operations (Addition, multipliers and division). (A13)
- a9- Identify the vectored interrupt, direct memory access. (A18)

B – Intellectual skills:

- By the end of the course the student should be able to:
- b1-- Analyze different programming instruction formats. (B1, B2)
- b2- Analyze the central processing unit architecture and functions. (B1, B2)
- b3- Write different computer instruction formats. (B7)
- b4- Differentiate between different types of addressing modes. (B4)
- b5- Analyze arithmetic and logic unit operations, and also, micro operations. (B11)

C – Professional and practical skills:

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

- c1- recognize and identify the structure of computer architecture (C2, C3)
- c2- Evaluate the performance of A.L.U and control unit (C2, C3)
- c3- Use a wide range of analytical tools, techniques, and software packages pertaining for programming the basic computer (C2, C3)
- c4- Utilize computational facilities and techniques, to design different architectures of memories experiments. Then collect, analyze and interpret results (C2, C3).

D – General and transferable skills:

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

- d1- Cooperate with other students to design and realize practically: different bus system, arithmetic and logic micro operation systems. (D2, D3)
- d2- Explain the design techniques for Architecture circuit diagram. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1,A3,A4,A5,A8,A10,A13,A18
В	Intellectual skills	B1,B2,B4,B7,B11
С	Professional and practical skills	C2, C3
D	General and transferable skills	D2,D3,D7

3 – Contents

Tonico	Lecture	Tutorial	Practical
Topics	hours	hours	hours
-Register transfer language	2	2	
- Bus & memory transfer	2	2	
- Arithmetic Micro operation, Logic Micro operation	2	2	
- Shift micro operation, Arithmetic logic shift unit	2	2	
- Instruction Codes, Computer registers, Instruction cycles	2	2	
- Memory reference instruction, Input-Output units	2	2	
- Control Memory, Address Sequencing	2	2	
- Micro program Example, Design of Control Unit	2	2	
- General register organization, Stack Organization	2	2	
- Addressing modes, Program control	3	3	
- Reduced Instruction Set Computer RISC & CISC interrupt	2	2	
- Construction of The ALU	3	3	
- Integer Representation	2	2	
- Basic Operations	2	2	
Total	30	30	

		Teaching Methods							Learning Methods			Assessment Method			
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	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	
dge	a4	1		1	1	1		1		1	1	1	1	1	
wlei	а5	1		1	1	1		1		1	1	1	1	1	
Kno	a6	1			1	1					1	1	1	1	
	a7	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	
	b1	1			1	1				1	1	1	1	1	
ual	b2	1		1	1	1		1			1	1	1	1	
llect	b3	1		1	1	1				1	1	1	1	1	
Inte	b4	1		1	1	1		1			1	1	1	1	
	b5	1			1	1					1	1	1	1	
	c1	1		1	1	1					1	1	1	1	
lied	c2	1		1	1	1					1	1	1	1	
Appl	c3	1		1	1	1		1		1	1	1	1	1	
-	c4	1			1	1		1		1	1	1	1	1	
al Tran.	d1	1				1				1	1	1	1	1	
Genera	d2	1								1	1	1	1	1	

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	BY Weekly	20
Mid-Term Exam	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes

Modern Academy Lecture note

6-2 Required books:

M. Morris Mano. "Computer System Architecture ', Prentice Hall , Inc. , 1993

6-3 Recommended books:

Computer Organization and Architecture , designing for preference", Prentice hall , 1996 .

7- Facilities required for teaching and learning:

- White board
- Data show

Course coordinator :	Dr. Ssbry M. abdul-Moetty
Head of the Department:	Prof. Dr. Said Gawesh
Date :	September 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E362 : Electrical Machines & Power

A- Affiliation

Relevant program:	Computer Engineering & Information Technology Dpt.
	Electronic Engineering & Communication Technology Dpt.
Department offering the program:	Computer Engineering & Information Technology Dpt.
	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Electronic Engineering & Communication Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic information

Title: Electrical Engineering	Code: E362	Year/level: 3rd (Comm. Comp.)
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical: 1	Total:5

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to be familiar With all kinds of machines and transformers and the applications the theory of their operations.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- The construction of machines (transformers motors generators) (A14, A15)
- a2- All kinds of machines and transformers. (A14, A15)
- a3- Theory of operation of all kinds of machines. (A5, A8)
- a4- Losses of each kind of machines. (A5, A8)
- a5- The maintenance and protection & machines. (A6, A7, A13)
- a6- The applications of kinds of machines. (A3, A11)

B - Intellectual skills:

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

- b1- Find the equivalent circuits of transformer and machines. (B11)
- b2- Allocate any fault and know its reason. (B6, B9)
- b3- Calculate the suitable machine parameters necessary for specific load. (B2)
- b4- Choose the suitable operating torque-speed point for best machine performance. (B3)
- b5- Calculate transformer and machines efficiency. (B2)
- b6- Control the speed and torque of DC and AC motors. (B1, B2)
- b7- Design a simple transformer. (B3)

C - Professional and practical skills:

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

- c1- Operate all kinds of machines (C1, C4, C5)
- c2- Test all machines and transformers (C4, C5, C8)
- c3- Measure the efficiency of any machine or transformer (C1, C5)
- c4 Assemble and disassemble machine parts. (C2, C5)

D - General and transferable skills:

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

- d1- Communicate effectively through assignments. (D3)
- d2- Work in stressful environment and within constraints. (D2)
- d3- Effectively manage tasks, time, and resources. (D6)
- d4- Search for information and engage in life-long self-learning discipline. (D7, D8)

Course Contribution in the Program ILO's

	ILO's	Program ILO's		
А	Knowledge and understanding	A1, A3, A4,A5, A6, A7, A8, A11, A13, A14, A15, A16		
В	Intellectual skills	B1, B2, B3, B6, B9, B11		
С	Professional and practical skills	C1, C2, C4, C5, C8		
D	General and transferable skills	D2, D3, D6, D7, D8		

3 – Contents

Tonio	Lecture	Tutorial	Practical	
Торіс	hours	hours	hours	
Circuit analysis of transformers	4	2	-	
Transformer construction	2	-	2	
 Equivalent circuit of a transformer 	2	4	-	
Transformer test	2	2	2	
Construction of dc machines	2	-	-	
Classification of dc machines	2	2	2	
Circuit equations of dc machines	2	4	-	
DC machine efficiency	2	2	2	
Construction of induction motors	2	-	-	
Torque-speed characteristics	2	4	2	
Efficiency of induction motors	2	4	3	
Circuit equations of synchronous machines	2	2	-	
Construction of synch machines	2	2	-	
Operation of synch machines	2	2	2	
Total hours	30	30	15	

	Teaching Methods Lea Met		ning nods	Assessment Method										
Course ILO's		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
	a1	1					1			1	1	1	1	1
& ing	a2	1	1				1	1		1		1	1	1
edge tandi	a3	1			1	1				1			1	1
Knowle Underst	a4	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
kills	b1	1			1					1	1	1	1	1
	b2	1					1			1	1	1	1	1
lal S	b3	1			1					1			1	1
llectu	b4				1		1			1			1	1
Inte	b5	1			1		1			1		1	1	1
	b6	1			1		1			1		1	1	1
Applied Professional Skills	c1						1				1			
	c2						1					1	1	1
	c3						1							
	c4						1				1			
al Tran. ills	d1				1									
	d2						1				1			
enera Sk	d3				1									
Ge	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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course notes

- S.A. Gawish, Electrical Machines & Power, Cairo, 2008
- S.A. Gawish, Electrical Machines & Power, Practical Part, Cairo, 2008

6-2 Essential books (text books)

A.E. Fitzgerald, "Electrical Machines & Power", 1997

6-3 Recommended books

S.D. Umans, "Electrical Machines", 1995

6-4 Periodicals, Web sites, etc.

Educational CD

7- Facilities required for teaching and learning:

Electrical Machines Lab. Data show

Course coordinator:	Prof. Dr. Said A. Gawish
Head of the Department:	Prof. Dr. Said A. Gawish
Date:	August 2015
Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E332: Communications System I

A- Affiliations

Relevant program: Department offeringthe program: Department offeringthe course: Date of specifications approval:

Electronic Engineering & Communications Technology. Electronic Engineering & Communications Technology Dpt. Electronic Engineering & Communications Technology Dpt. Nov. 2011

B - Basic information

Title: Communication system (I) **Code:** E332 **Teaching Hours:** Lectures: 2

Year/level: Third Practical: 1

Tutorial: 2 Total: 5

C - Professional information

1- Course Learning Objectives:

- To introduce the basic principles of communication systems.
- To make some important operations on the signal.
- To understand the concept of frequency domain analysis through Fourier conversions.
- To explain the effect of channel on the signal transmission and reception.
- To introduce the basic principles of channel equalization in the communication systems.
- To explain various types of continuous wave analog modulation techniques.

2- Intended Learning Outcomes (ILOS):

A- Knowledge and Understanding:

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

- a1- What is meant by communication systems. (A18, A24)
- a2- Many examples for communication systems (the old and latest ones). (A18, A24)
- a3- Classification of each of: systems, channels, and signals by different methods. (A18, A24)
- a4- How to convert the signal from time domain to frequency domain and vise versa through Fourier conversions. (A2, A17, A18)
- a5- The concept of amplitude modulation showing advantages and drawbacks of that technique. (A24, A27)
- a6- Many ways of amplitude demodulation. (A24, A27)
- a7- The concept of angle modulation (frequency modulation and phase modulation) showing both modulation and demodulation techniques. (A24, A27)
- a8- Various type of continuous wave analog modulation (AM FM PM) according to systems resources and requirements. (A24, A27)

B - Intellectual skills:

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

- b1- Apply some important operation on the signal such as: energy and power calculation time shifting and time scaling. (B7, B15)
- b2- Model and analyze different continuous wave modulation techniques (AM, FM, and PM). (B7, B15)
- b3- Decide how to choose among various types of C.W. modulation techniques according to system parameters such as transmitter power, nature of the channel and channel bandwidth. (B7, B15)
- b4- Design circuits for AM or FM or PM demodulation with optimum performance that matches system requirements. (B7, B15)

C - Professional and practical skills:

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

- c1- Connect circuits for AM modulator / demodulator then observe and record the output waveform of each stage in the circuit. (C19, C20)
- c2- Connect circuits for other types of AM modulator / demodulator such as DSB- SC and SSB then observe and record the output waveform of each stage in the circuit. (C19, C20)
- c3- Connect circuits for FM modulator / demodulator then observe and record the output waveform of each stage in the circuit. (C19, C20)
- c4- Connect circuits for different kinds of filters such as BPF and LPF then observe and record the output waveform at many frequency values. (C19, C20)

D - General and transferable skills:

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

- d1- Communicate effectively through assignments. (D3)
- d2- Effectively manage tasks, time, and resources. (D3, D6)
- d3- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A18, A24, A27
В	Intellectual skills	B7, B15.
С	Professional and practical skills	C19, C20.
D	General and transferable skills	D3, D5, D6, D7.

3- Contents

Торіс	Lecture	Tutorial	Practical hours
	hours	hours	
1- Introduction to basic principles of communication systems.	2	2	0
2- Methods for representing system, signals, and channel.	2	0	0
3- Some important operation performed on the signal (energy and	4	6	6
power calculation – time shifting and time scaling).			
4- Introduction to the concept of Fourier series showing various	2	4	0
forms of Fourier series representations.			
5- Definition of Fourier transform and its properties.	4	6	0
6- Channel distortion and channel equalization.	4	2	0
7- Continuous wave amplitude modulation and its types: AM –	6	4	6

(DSB-SC) and SSB - carrier acquisition, super-heterodyne receiver, AM receive - TV modulation and demodulation.			
8- Concepts of angle modulation.	2	4	0
9- Frequency and phase modulation / demodulation.	4	2	3
Total hours	30	30	15

4 - Teaching and Learning and Assessment methods:

			Теа	aching	meth	ods		L m	earnin nethod	ig Is		Asses	sment n	Avitten Examination of the second sec	
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
bu	a1	1		1	1					1	1			1	
andi	a2	1	1	1	1	1		1	1		1	1	1	1	
ersta	a3	1	1	1	1	1		1			1		1	1	
e & Unde	a4	1		1		1			1	1	1	1		1	
	a5	1	1		1	1		1	1				1	1	
edg	a6	1	1		1			1				1	1	1	
Iwot	a7	1	1	1	1	1		1	1				1	1	
Ъ	a8	1	1	1	1 1										
	b1	1			1	1		1			1	1	1	1	
lect. ills	b2	1	1	1	1	1		1				1	1	1	
Intel Sk	b3				1	1		1				1	1	1	
	b4				1	1		1				1	Assignment 1 1 1 <		
ıal	c1						1								1
olied sior ills	c2						1								1
App ofes Sk	c3						1								1
P	c4						1								1
्र व	d1			1	1				1						
ener Fran Skills	d2			1	1				1	1					
٩ - ۵	d3			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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of references:

6-1 Course Notes:

- 1- Communications I (Theoretical part)
- 2- Communications I (Practical part)

6-2 Required References:

- 1- B. Lathi Modern Digital and Analog communication systems oxford press 1998.
- 2- Electronic Communication systems: kendey, Davis Mc Graw-Hill Book

6-3 Recommended References:

S. Haykin, Communication systems, 4th edition J. W. 2001.

6-4 Recommended Web site:

https://en.wikipedia.org/wiki/Communications_system

7- Facilities required for teaching and learning:

- Lectures room equipped with OHP and data show facility.
- Computer lab installed by Matlab software.

Course coordinator:	Prof. Dr. Adel El- Sherif
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E399: 3rd Year Project

A- Affiliation

Relevant program:	Electronic Engineering and Telecommunication Technology.
Department Offering	Electronic Engineering and Telecommunication Technology
Department OfferingThe Course:	Electronic Engineering and Telecommunication Technology
Date of Specification Approval:	Nov. 2011

B-Basic Information

Title: 3 rd Year Project	Code: E399		Year/Level:	Third
Teaching Hours:	Lectures:	1	Tutorials: -	
	Practical:	3	Total: 4	

C- Professional Information

1- Course Learning Objectives

Developments of the following skills:

- Stating the requirements for developing useful electronic circuits.
- Analysis of electronic design requirements.
- Projecting possible solutions and anticipated applications.
- Practical design implementation.
- Appreciating project economy.
- Making needed measurements.
- Writing complete report and conclusions.

2. Intended Learning Outcomes (ILOS)

A – Knowledge and understanding

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

- a1- Planning skills. (A2, A3)
- a2- Organizational skills (A4, A5)
- a3- Improvement of personal leadership skills. (A5, A10)
- a4- Economics with existing market products. (A5, A15)
- a5- The requirements to produce quality production. (A15, A16)

B – Intellectual skills

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

- b1- Develop imaginative and design abilities. (B2, B13)
- b2- Conceptualize ideas. (B2, B13)
- b3- Convert concepts to real entities. (B2, B13)
- b4- Integrate the results of design concepts (B2, B13)
- b5- efficient design of selective stage in communication system. (B2, B13)

C – Professional and practical skills

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

- c1- Appreciate elements of electronic and circuit design. (C4, C14)
- c2- Practice the setup of circuitry. (C4, C5, C15)
- c3- Test and correcting the circuit operation. (C17)

D – General and transferable skills

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

- d1- Communicate effectively through e- mails. (D1)
- d2- Effectively manage tasks, time, and resources. (D1)
- d3- Search for information and engage in life-long self-learning discipline. (D1)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A2, A3, A4, A5, A10, A15, A16
В	Intellectual skills	B2, B13.
С	Professional and practical skills	C4, C5, C14, C15, C17.
D	General and transferable skills	D1.

1- Contents

Торіс	Lecture Hours	Tutorial hours	Practice hours
Project Background	6		
Project Activities	4		
Practical implementation			20
Production of the final model			20
Testing and correcting output			20
Preparation of the presentation	4		
Total hours	14		60

4 - Teaching and Learning and Assessment methods:

			7	Feaching	Metho	ods		Learning Methods			Assessment Method				
Onineo II O's	000130110.0	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Assignments	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1			1				1							1
lge	a2			1				1							1
owled	a3			1				1							1
Knc	a4			1				1							1
	a5			1				1							1

	b1		1			1				
ual	b2		1			1				
ellect	b3		1			1				
Inte	b4		1			1				
- 	b5		1			1				
	c1				1					1
pplie	c2				1					1
Ā	c3				1					1
a	d1		1		1	1				1
enera Tran.	d2		1		1	1				
ტ '	d3		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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total		100

6- List of References:

6-1 Course notes

Printouts and board explanations

6-2 Required References:

Howard M. Berlin, "Experiments in Electronic Devices", Merrill Publishing Company, 1988.

6-3 recommended books

Thomas L. Floyd, "Electronic Devices", Merrill Publishing Company, 1988.

6-4 Periodical, Web sites, etc.

IEEE publications and Websites.

7- Facilities Required for Teaching and Learning:

- Project laboratories, 1 and 2.
- Workshop for mechanical arrangements.

Course Coordinator:	Prof. Dr. Ir.Mostafa Afifi
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E401 ELECTRONIC CIRCUITS DESIGN

A- Affiliation

Relevant program: Department offering the program: Department offering the course: Academic year/level: Date of specifications approval: Electronics Engineering And Communications Dpt. Electronics And Communications Dpt. Electronics And Communications Dpt. 4th year communication/1st term Nov. 2011

B - Basic information

Title: Electronic Circuits Design	Code
Teaching Hours:3	Lect

Code: E401Year/level: 4th year comm../1st termLectures:3Tutorial:2Practical:2Total: 7

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

Design the classes of power amplifiers, the oscillator circuits, small signal radio frequency amplifiers, ADC & DAC and frequency synthesizers .

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- Design of the power amplifier circuits. (A4,A14)
- a2- Design of the oscillator circuits. (A1, A4,A14)
- a3- Design of the RFA amplifier circuits. (A1, A4, A5, A14)
- a4- Design of ADC & DAC. (A1,A4,A5,A14)
- a5- Design of frequency synthesizers. (A2,A4,A8,A14)

B - Intellectual skills:

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

- b1-Discuss and design power amplifier circuits. (B2,B5,B19)
- b2- Analyze and design the oscillator circuits. (B2, B5,B19)
- b3- Discuss the design of RFA amplifiers. (B2, B3, B5)
- b4- Discuss of ADC & DAC (B5)
- b5- Design and analysis of frequency synthesizers.

C - Professional and practical skills:

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

- c1-Measure the output and efficiency of PA (C12,C15,C20)
- c2- Measure the output frequency of Oscillators (C12,C15, C20)
- c3- Measure the output of RFA (C2, C3, C12, C14, C15, C18, C20)
- c4- Measure the output of ADC & DAC (C12, C15,C20)
- c5- Measure the output frequency of synthesizer. (C2, C3, C12, C14, C15, C18, C20)

D - General and transferable skills:

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

- d1- Communicate effectively through assignments and e- mails. (D3, D6)
- d2- Effectively manage tasks, time, and resources. (D1, D2, D3)
- d3- Search for information and engage in life-long self-learning discipline. (D7, D8)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A1, A2, A4,A5,A8, A14, A15
В	Intellectual skills	B2, B3, B5, B6, B19
С	Professional and practical skills	C2, C3, C12, C14, C15, C18, C20
D	General and transferable skills	D1, D2, D3, D5, D6, D7, D8

3 – Contents

Tonio	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
Linear Power Amplifier			
Class A Amplification	2	2	2
Class B Amplification	2	2	2
Class C Amplification	2	2	2
Class D Amplification	2	2	
Class E Amplification	2	2	
Class F Amplification	2	2	
Class S Amplification	2	2	
Sine Wave Oscillators			
The Criteria of Oscillation			
Negative Resistance Oscillators			
Feedback Oscillators			
Oscillator Design Techniques	15	6	4
Colpitts Oscillator Analysis and Design			
Other Oscillator Circuits			
Maximum Efficiency Oscillator			
Crystal Controlled Oscillator			
ADC	4	2	2
DAC	4	2	2
Frequency synthesizers	8	6	1
Total hours	45	30	15

		Teaching Methods				Learning Methods			Assessment Method						
Coursea II O's	0001301100	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self-Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
	a1	1	1	1	1	1	1	1	1	1		1	1	1	1
dge	a2	1	1	1	1	1	1	1	1	1		1	1	1	1
owled	a3	1	1	1	1	1	1	1	1	1		1	1	1	1
Kno	a4	1	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
	b1	1		1			1	1	1	1			1	1	1
al	b2	1		1			1	1		1			1	1	1
llect	b3	1		1			1	1		1			1	1	1
Inte	b4	1		1			1	1		1			1	1	1
	b4	1		1			1	1		1			1	1	1
	c1		1	1		1	1	1				1			1
a	c2		1	1		1	1	1				1			1
pplie	c3		1	1		1	1	1				1			1
Ą	c4		1	1		1	1	1				1			1
	c5		1	1		1	1	1				1			1
F	d1	1		1				1	1	1			1	1	1
ener: ran.	d2	1		1				1	1	1			1	1	1
ъ́г	d3	1		1				1	1	1			1	1	1

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)	
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	20	
Mid-Term Exam	6-th Week	10	
Practical Exam	12 th Week	30	
Written Exam	Sixteenth week	90	
Total	150		

6- List of references:

6-1 Course notes:

"Electronic Circuit Design" - Theoretical Note

6-2 Required References:

Sedra " Electronic circuits design ", edition 2 1994.

6-3 Recommended References:

David J. Comer, "Fundamental of Electronic Circuit Design", 2003.

6-4 Periodicals, Web sites, etc.

www.allaboutcircuits.com

7- Facilities required for teaching and learning:

- Electronic lap.
- Data show, white board

Course coordinator:	Dr. Kamel abd EL-Fattah Mohamed Soliman
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E431: Computer Organization

A- Affiliation

Relevant program:	Computer Engineering & Information Technology Dpt.
	Electronic Engineering & Communication Technology Dpt.
Department offering the program:	Computer Engineering & Information Technology Dpt.
	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Computer Engineering & Information Technology Dpt
Date of specifications approval:	Nov. 2011
D. Desis information	

B - Basic information

Title: Computer Organiization	Code:E 431	Year/level:4th Communicati	on/1 st semester
Teaching Hours:	Lectures: 3	Tutorial: 3	Practical:- Total 6

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the basic computer architecture and structure, the basic computer addressing modes and instruction formats, the basic design issues/ parameters required for hardwired control of a simple and basic computer, the basic concepts of micro program approach. They should be able to investigate the different aspects of parallel computing and vector processing.

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 attributes of computer architecture and organization (A1 , A2)
- a2- The basic computer structure and addressing modes (A1, A2 ,A3)
- a3- The stored program concept and different instruction formats of the basic computer (A2, A3,A9)
- a4- The concept of register transfer language (A2,A3)
- a5- The instruction cycle and timing issues related to hardwired control (A9, A13)
- a6- The input-output operations and interrupt mechanism in basic computer (A2,A3,A9,A13)
- a7 The basic concepts of Micro-Programmed Control and Micro-instruction formats (A9, A13, A16)
- a8- The different types of parallel processing systems (A3, A13)
- a9- Vector processor and arrays-principles. (A2, A3, A9,A16)

B - Intellectual skills:

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

- b1-Investigate on the different approaches of computer instruction formats (B4).
- b2- Design a basic computer according to some given characteristics (B1,B2)
- b3- Analyze different aspects of basic computer control system (B1, B2, B4, B12)
- b4- Manipulate different timing control signals in instruction cycle for basic computer design (B1, B2,B3,B4, B12, B14).
- b5- Investigate on the different techniques for parallel computing and vector processing (B4)

c - Professional and practical skills:

- By the end of the course student should be able to:
- c1 Design a simple computer instruction set. (C2, C3)
- c2 Use the Computer Design techniques for computer Structure. (C2, C3)
- c2 Collect and record information about recently computer design techniques (C2, C3)

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 project (D1, 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
А	Knowledge and understanding	A1, A2,,A3, A 9, A13, A16
В	Intellectual skills	B1,B2, B3,B4,B12,B14
С	Professional and practical skills	C2, C3
D	General and transferable skills	D1, D3, D4, D5,D7, D9

3 – Contents

Торіс		Tutorial	Practical
		hours	hours
Computer Structure and function	3	3	
Review of sequential circuits (decoders, MUXs, Registers,)	3	3	
Bus structure and memory transfer	3	3	
 Basic computer organization 	4	4	
Instruction cycle	4	4	
 Design of basic computer (control of registers and memory) 	4	4	
 Design of basic computer (Accumulator logic) 	3	3	
 Micro-programmed Control (basic concepts, control memory) 	3	3	
 Micro-programmed Control (MicroProgramming) 	2	2	
 Micro-programmed Control (Design of control unit) 	5	5	
 Parallel organization (Multiple Pocessor organization) 	4	4	
 Parallel organization (Multiple Pocessor design and vector processing) 	4	4	
Total hours	45	45	-

4- Teaching and Learning and Assessment methods:

Course ILOs	Lecture	Presentations and Movies	Discussions and seminars	Tutorials	Problem solving	Laboratory & Experiments			Researches and Reports	Modeling and Simulation		Written Exam	Class Project	Quizzes	Term papers	Assignments			1
	a1	1	1	1						1			1		1		1		
Ð	a2	1											1		1		1		
andir	a3	1											1		1		1		
derst	a4		1										1		1				
Nu v	а5	1		1	1					1	1		1		1		1		
dge 2	a6	1		1	1					1			1	1	1				
owle	a7	1		1	1	1				1	1		1	1	1	1			
Ϋ́ Ϋ́	a8	1		1	1	1							1				1		
	a9	1	1	1	1								1				1		
	b1	1			1	1							1						
Skills	b2	1	1										1	1		1	1		
stual	b3	1		1	1	1				1			1						
tellec	b4	1			1					1			1						
<u> </u>	b5	1	1		1	1							1			1	1		
ilied sional ills	c1	1	1										1	1		1	1		
App Profes Sk	c2	1	1										1	1		1	1		
<u>s</u>	d1	1	1	1		1				1									
ı. Ski	d2	1	1	1		1				1	1								
Trar	d3		1	1						1									
neral	d4		1	1						1			-			1			
පී	d5		1	1						1	1					1			

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments , class project and reports	Bi-Weekly	30
Mid-Term Exam	7th Week	20
Written Exam	Sixteenth week	100
Total		150

6- List of references:

6-1 Course notes:

Lecture notes and handouts

6-2 Required books

M. Morris Mano, Computer System Architecture, Prentice Hall, Inc., 1993.

6-3 Recommended books

- William Stallings Computer Organization and Architecture, designing for preference, Prentice hall, 1996.
- Donald Hearn and others, Parallel computer architecture, 1999.
- Subrata Ghoshal, Computer Architecture and Organization: From 8085 to core2Duo & beyond, Pearson Education India, 2011.

6-4 Periodicals, Web sites, etc.:

None

7- Facilities required for teaching and learning:

• Computer, Data show and Computer package.

Course coordinator:	Dr. Khaled Morsy
Head of the Department:	Dr. Said Gawisha
Date:	September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E412: Information Systems

A- Affiliation

Relevant program:	Computer Engineering & Information Technology Dpt.
	Electronic Engineering & Communication Technology Dpt.
Department offering the program:	Computer Engineering & Information Technology Dpt.
	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Computer Engineering & Information Technology Dpt
Date of specifications approval:	Nov. 2015

B – Basic information

Title: Information Systems	Code: E 412	Year / level: 4th year (Comm & Comp)
Teaching Hours:	Lecture: 4	Tutorial: 2
	Practical:	Total: 6

C - Professional information

1- Course learning objectives:

The main objective is to familiarize students with the benefits and types of information systems, as well as their components and business applications of information systems.

2- Intended Learning Outcomes (ILO'S)

A - Knowledge and understanding:

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

a1-Basic concept of information systems - types .. Architecture (A1,A2,A3,).

- a2- Importance of IS for business (A7, A8,A18,A20)
- a3- Components of information systems (A2,A4,,A9).
- a4- Different types of Information Systems such as MIS, DSS, Expert Systems (A8,A9).
- a5- Information system development life cycle. (A8,A12).
- a6- Transaction processing system TPS (A8,A19,A20).
- a7- Basic concepts of internet-based applications in IS (A9,A2,A19).

B - Intellectual skills:

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

- b1-Investigate on the different approaches in Information Systems (B1,B2,B3,B19).
- b2- Create a systematic approaches of IS analysis and design (B12,B19)
- b3- Analyze different Aspects of system's feasibility study (B12, B14, B18, B20)
- b4- Manipulate different procedures of system development life cycle SDLC (B2,B3,B4,B19).
- b5- Investigate on the different techniques for Internet-based Information systems (B1, B12)

c - Professional and practical skills:

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

- c1- Apply knowledge of science, and IT to deal with Information Systems (C13)
- c2- Apply the life cycle and system approach techniques to analyse and design IS (C13)
- c3- Use of analytical tools, techniques, and software packages for analysis and design of a real- world information system (C13)
- c4- Use computational facilities and techniques for implementing real-world information system for some enterprise or organization (C13).

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 project (D1, D3,D7).
- d2- Communicate effectively and present data and results orally and in written form(D3,D4,D6).
- 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(D5, D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A1, A2,A3,A7,,A8, A 9, A12, A18,A19,A20
В	Intellectual skills	B1,B2, B3,B4,B12,B14 ,B18.B19
С	Professional and practical skills	C13
D	General and transferable skills	D1, D3, D4, D5, D6, D7, D9

3 – Contents

Tania	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
 Information systems concepts 	4	2	
System Approach of solving Business problems	4	2	
System development Life Cycle:	4		
System Analysis and design	4	2	
Data Flow Diagrams	4	2	
 Databases systems 	4	2	
Information System for Business Operations	4		
Marketing Information Systems	4	1	
Manufacturing Information Systems	4	1	
Human Resources Management Systems	4	1	
Accounting Information Systems	4	1	
Management Information Systems	4	2	
Decisions support systems	2	2	
Artificial Intelligence and Expert Systems	2	2	
Internet-Based Information Systems	2	4	
Case Study	6	6	
Total hours	60	30	

4 - Teaching and Learning and Assessment methods:

		Teaching Methods								Lear Meth	ning nods	Assessment Method									
Course ILO's		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			
	a1	1	1	1							1			1		1		1			
~	a2	1												1		1	1	1			
ge { ndin	a3	1												1		1		1			
vled rstai	a4	1	1	1	1	1					1			1		1	1	1			
nov	a5	1		1	1						1	1		1		1	1	1			
×Ξ	a6	1		1	1						1			1		1		1			
	а7	1	1	1	1	1					1	1		1		1	1	1			
lls	b1	1			1									1				1			
N	b2	1	1											1				1			
stua	b3	1		1	1						1			1				1			
ellec	b4	1			1						1			1				1			
Inte	b5	1	1		1	1								1				1			
nal	c1	1			1						1			1				1			
ofessic Is	c2	1			1						1			1				1			
ed Prc Ski	c3	1			1						1			 1				1			
Appli	c4	1			1						1			1				1			
	d1	1	1	1		1					1						1				
eral ills	d2	1	1	1		1					1	1					1				
eral∉ . Sk	d3		1	1							1						1				
3en(Tran	d4		1	1							1						1				
	d5		1	1							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	7-th Week	20
Project (analysis, design and implementation of a real-world Information System)	Due : 12th	10
	week	
Written Exam	Sixteenth week	100
Total		150

6- List of references:

6-1 Course notes:

None

6-2 Required books

James A.O' Brine, "Introduction to Information Systems" 7th ed. Irwin, 1994.

6-3 Recommended books:

- Kendall& Kendall, Introduction to Information Technology, Pearson Education Inc., 2005.
- James A.O' Brine, Management Information System, International fourth edition, Mc Graw Hill, 1999.
- Dryden Press, Information Systems and the Internet, fourth edition ,1990
- Ralph Stairand George Reynolds, Fundamentals of Information Systems, Cengage Learning, 2013.

6-4 Periodicals, Web sites, etc.

http://www.britannica.com/topic/information-system

7- Facilities required for teaching and learning:

• Computer, Data show and Computer programs

Course coordinator:	Dr. Khaled Morsy
Head of the Department:	Dr. Said Gawish
Date:	September 2015

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E421: Microprocessor Based-Systems I

A- Affiliation

Computer Engineering and Information Technology BSc Program
Electronic Engineering and Communication Technology BSc Program
Computer Engineering and Information Technology Department
Electronic Engineering and Communication Technology Department
Computer Engineering and Information Technology Department
September 2015

B - Basic information

Title: Microprocessor Based-Systems I	Code: E421	Level: 4th year
Total Hours:	Lectures: 3 hrs	Tutorial/Exercise:2 hrs
	Practical: 1 hrs	Total: 6 hrs

C - Professional information

1 – Course Learning Objectives:

By the end of this course, the students should demonstrate the knowledge and understanding the architecture of microprocessor. In addition to recognize their addressing modes, binary decoding, assembly language programming. Besides understanding the basic concepts of interfacing between the processors and their memories, input/output units. They should be able to design digital systems based on the microprocessor.

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 architecture of microprocessor (A9, A15, A18).
- a2- The assembly instructions for the Intel microprocessor (A5, A14).
- a3- The memory architecture for the microprocessor (A4, A14).
- a4- Physical, logical and effective addresses for Intel microprocessor (A4, A5, A9).
- a5- Instruction pipeline technique for the microprocessor (A4, A14, A16).
- a6- The addressing modes for the microprocessor (A4, A14).
- a7- The Instruction formats for microprocessor (A4, A14).
- a8- The memory interfacing with microprocessor (A4, A9, A14).
- a9- The interfacing of different digital components with the microprocessor (A4, A14).

B - Intellectual skills:

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

- b1- Recognize between the architecture of different microprocessors (B2, B6, B9).
- b2- Write assembly programs for the Intel microprocessor 8086 (B3, B4, B13).
- b3- Analyze the characteristics of the Intel microprocessors (B1, B2, B11).
- b4- Investigate the effect of different addressing modes for microprocessor 8086 (B5, B6).
- b5- Solve engineering design based on the microprocessor 8086 (B12, B17).
- b6- Recognize the connections between the microprocessor 8086 and 80286 (B11, B16).

C - Professional and practical skills:

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

- c1- Write assembly code for Intel microprocessor 8086 (C6, C14, C15).
- c2- Check and Debug syntax errors in the assembly code (C12, C14, C15).
- c3- Use software assembler to convert the assembly code to machine code (C5, C14, C15).
- c4- Design systems for 8086 depend on software simulator program (C6, C14, C15).
- c5- Use the hardware kit to check the validation for their designs (C5, C14, C15).

D - General and transferable skills:

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

- d1- Work in a team for researching about microprocessor applications (D5, D7).
- d2- Communicate effectively and present data and results in hard and soft copies (D3).
- d3- Search for information in libraries and internet (D5, D7).
- d4-Practice self-learning and preparing written reports (D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A4, A5, A9, A14, A15, A16, A18
В	Intellectual skills	B1, B2, B3, B4, B5, B6, B9, B11, B12, B13, B16, B17
С	Professional and practical skills	C5, C6, C12, C14, C15
D	General and transferable skills	D3, D5, D7, D9

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
The architecture of Intel microprocessor 8086.	3	2	1
 Assembly instructions for 8086. 	12	8	5
The memory segmentation and effective addresses for 8086.	6	4	1
The instruction formats for 8086.	3	2	2
The addressing modes for 8086	4	3	2
The serial and parallel communications with 8086.	5	3	1
The interface with external memories and PPI.	6	4	1
The interface with input units (such as sensors, keypadetc).	3	2	1
The interface with output units (such as motors, monitorsetc)	3	2	1
Total hours	45	30	15

4 - Teaching and Learning and Assessment methods:

		Teaching Methods								L	earnin lethod	g s		Assessment Method							
Course ILO's		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			
D	a1	1	1	1	1						1	1		1	1			1			
ndir	a2	1	1		1		1					1		1	1	1		1			
rsta	a3	1	1		1									1	1		1	1			
nde	a4	1	1	1	1		1							1			1	1			
2	а5	1	1		1									1		1		1			
ge	a6	1	1		1	1								1			1	1			
vled	а7	1	1		1	1	1					1		1		1	1	1			
Nov	a8	1	1		1						1			1	1		1	1			
×	a9	1	1	1	1	1	1				1	1		1	1			1			
S	b1	1	1	1	1						1	1		1	1			1			
Skill	b2	1	1		1		1					1		1	1	1		1			
al (b3	1	1		1									1	1		1	1			
ecti	b4	1	1		1		1							1			1	1			
ntell	b5	1	1		1									1		1		1			
_	b6	1	1		1	1								1			1	1			
ills	c1	1	1			1	1				1	1			1						
ج کر	c2						1				1	1			1						-
plie	c3	1				1	1				1	1			1						
Ap essi	c4	1				1	1				1	1			1						
Jof	c5						1					1			1						
	d1	1		1	1	1	•				1	1			•		1				
s Tra	d2	1				1				_	1						1				
Skill	d3										1						1				
) enc	d0 d4					1					1						1				
U	чт					1											I				

5- Assessment Timing and Grading:

Assessment Method	Timing	Degrees
Semester Work: seminars, quizzes	By Weekly	15
Mid-Term Exam	6-th Week	15
Practical Exam	Fifteenth week	30
Written Exam	Sixteenth week	90
To	150	

6- List of references:

6-1 Course notes:

Assem B, The Microprocessor Based Systems I, lecture note, 2014

6-2 Required books:

Nilesh B. Bahadure, Microprocessors : 8086/8088, 80186/80286, 80386/80486 And The Pentium Family, PHI Learning Pvt. Ltd, 2012

6-3 Recommended books:

- YogendraGandole, A Text Book of Advanced Microprocessors and Microcontroller, Lambert Academic Publishing, 2012.
- Sir Phirozshah, Microprocessors and Interfacing Techniques, Navigator series, 2014

6-4 Periodicals, Web sites, etc.

- <u>http://www.intel.com</u>
- http://www.cpu-world.com
- http://8086-microprocessor-emulator.soft32.com/

7- Facilities required for teaching and learning:

- Hardware emulators and kits.
- Simulator software programs.
- Data show

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

Modern Academy for Engineering & Technology Computer Engineering and Information Technology Department E422: Microprocessor Based-SystemsII

A-Affiliation

Relevant program:	Computer Engineering and Information Technology BSc Program
	Electronic Engineering and Communication Technology BSc Program
Department offering the program:	Computer Engineering and Information Technology Department
	Electronic Engineering and Communication Technology Department
Department offering the course:	Computer Engineering and Information Technology Department
Date of specifications approval:	September 2015

B - Basic information

Fitle: Microprocessor Based-Systemsll	Code: E422	Level: 4th year
Fotal Hours:	Lectures: 2hrs	Tutorial/Exercise:1hrs
	Practical: 1 hrs	Total:3 hrs

C - Professional information

1 – Course Learning Objectives:

By the end of this course, the students should demonstrate the knowledge and understanding the architecture of microcontroller MCS-51 family. In addition to recognize their addressing modes, binary decoding, assembly language programming. Besides, they must understand the internal memories, internal registers, ports, interrupts, timers, and serial port of the Intelmicrocontroller AT89C51. They should be able to design digital systems based on the microcontroller AT89C51.

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 architecture of theIntel microcontroller MCS-51 family (A9, A15, A18).
- a2- The assembly instructions of the microcontroller MCS-51 family (A5, A14).
- a3- The memory architectureofthe microcontroller AT89C51 (A4, A14).
- a4- The timers and counters for the Intel microcontroller AT89C51 (A5, A14, A16).
- a5- The serial port for the Intel microcontroller AT89C51 (A4, A14, A16).
- a6- The addressing modes for the microcontroller AT89C51 (A4, A14).
- a7- The different interrupt of the microcontroller AT89C51 (A4, A14).
- a8- The external memory interfacing with the microcontroller (A4, A9, A14).
- a9- The interfacing of different digital components with the microcontroller AT89C51 (A4, A14).

B - Intellectual skills:

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

- b1- Recognize between the architecture of microprocessors and microcontrollers (B4, B5, B9).
- b2- Write assembly programs for theIntel microcontrollerAT89C51 (B3, B4, B13).
- b3- Analyze the characteristics of the Intel microcontrollers AT89C51 (B1, B2, B5).
- b4- Investigate the effect of different addressing modes for the microcontroller (B5, B6).
- b5- Solve engineering design based on the microcontrollers MCS-51 in mini-project (B12, B17).
- b6- Recognize the connections between the microcontroller and different digital component (B11, B16).

C - Professional and practical skills:

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

- c1- Write assembly code for Intel microcontroller MCS-51(C5, C6, C14).
- c2- Check and Debug syntax errors in the assembly code (C5, C6, C12).
- c3- Use software assembler to convert the assembly code to machine code (C6, C14, C15).
- c4- Design systems (mini-project) for MCS-51 depend on software simulator program (C5, C14, C15).
- c5- Use the hardware kit to check the validation for their designs (C5, C6, C14).

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 in mini-projects (D5, D7).
- d2- Communicate effectively and present data and results in hard and soft copies (D3).
- d3- Search for information in libraries and internet (D5, D7).
- d4- Practice self-learning and preparing written reports (D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A4, A5, A9, A14, A15, A16, A18
В	Intellectual skills	B1, B2, B3, B4, B5, B6, B9, B11, B12, B13, B16, B17
С	Professional and practical skills	C5, C6, C12, C14, C15
D	General and transferable skills	D3, D5, D7, D9

3 – Contents

Topic	Lecture	Tutorial	Practical
Торіс	hours	hours	hours
The architecture of the microcontrollers MCS-51 family.	3	2	
The assembly instructions for MCS-51.	3	1	4
The Addressing modes for MCS-51.	2	1	
The basic electric circuit for MCS-51.	2	1	4
The microcontroller AT89C51's timers and counters.	3	2	2
The interrupts and its priority of the microcontroller AT89C51.	3	2	4
The serial and parallel communications of microcontroller AT89C51.	3	2	4
The interface with external memories.	3	2	4
The interface with input units (such as sensors, keypadetc.).	3	1	2
The interface with output units (such as motors, monitorsetc.)	3	1	2
 Task for a mini-project. 	2		4
Total hours	30	15	30

4 - Teaching and Learning and Assessment methods:

	Teaching Methods			Le M	earning lethods		Assessment Method													
Course ILO's		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		
6	a1	1	1	1	1						1	1		1	1			1		
dinç	a2	1	1		1		1					1		1	1	1		1		
stan	a3	1	1		1									1	1		1	1		
uen	a4	1	1	1	1		1							1			1	1		
k Ur	a5	1	1		1									1		1		1		
ge δ	a6	1	1		1	1								1			1	1		
vled	a7	1	1		1	1	1					1		1		1	1	1		
(nov	a8	1	1		1						1			1	1		1	1		
x	a9	1	1	1	1	1	1				1	1		1	1			1		
	b1	1	1	1	1						1	1		1	1			1		
kills	b2	1	1		1		1					1		1	1	1		1		
al S	b3	1	1		1									1	1		1	1		
ectu	b4	1	1		1		1							1			1	1		
ntell	b5	1	1		1									1		1		1		
_	b6	1	1		1	1								1			1	1		
lal	c1	1	1			1	1				1	1			1					
ssior	c2						1				1	1			1					
^{>} rofe skills	c3	1				1	1				1	1			1					
lied I	c4	1				1	1				1	1			1					
App	c5						1					1			1					
(0	d1	1		1	1	1		_			1	1					1			
eral Skills	d2	1				1					1						1			
Sent an. (d3										1									
Tr:	d4					1					1						1			
						1							1							

5- Assessment Timing and Grading:

Assessment Method	Timing	Degrees
Semester Work: seminars,	By Weekly	10
Mid-Term Exam	6-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Т	100	

6- List of references:

6-1 Course notes:

Assem B, The Microprocessor Based SystemsII, lecture note, 2014

6-2 Required books:

Rolin D. McKinlay, Janice G. Mazidi, Danny Causey and Muhammad Ali Mazidi, The 8051 Microcontroller, Prentice Hall, 2012

6-3 Recommended books:

YogendraGandole, A Text Book of Advanced Microprocessors and Microcontroller, Lambert Academic Publishing, 2012.

6-4 Periodicals, Web sites, etc.

- <u>http://www.intel.com</u>
- http://www.cpu-world.com
- http://www.emu8086.com/
- <u>http://www.8052.com</u>
- <u>http://www.keil.com/</u>
- http://www.mikroe.com/

7- Facilities required for teaching and learning:

- Hardware emulators and kits.
- Simulator software programs.
- Data show

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

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E402: Large Scale Integrated Systems

A- Affiliation

Relevant program:	Electronic Engineering and Communication Technology. BSc Program
Department offering the program:	Electronic Engineering and Communication Technology. Department
Department offering the course:	Electronic Engineering and Communication Technology. Department
Date of specifications approval:	Oct.2000, Feb. 2007, Feb. 2009, Nov. 2011 & Sept. 2015.

B - Basic information

Title: Large Scale Integrated Systems	Code: E 402	Year/level: Fourth,	, 2 nd semester
Total Hours: 7	Lectures: 3	Tutorial: 2	Practical: 2

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the construction and operation of MOS transistors. They should be able to design, calculate, and estimate the performance of CMOS digital circuits. Also, they should be able to define and use the different CMOS processing technoloiges.

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 MOS transistor theory (A12).
- a2- the basic CMOS digital circuit's construction, including their schematics, stick diagrams, physical layout and performance (A8, A12).
- a3- the basic design rules in CMOS technology (A23).
- a4- basics of design and implement of CMOS LSI circuits (A14, A15).
- a5- basics of performance estimation of original circuits and subsystems (A5, A10, A14).

B - Intellectual skills:

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

- b1- apply the various CMOS logic circuit structures (B1).
- b2- investigate the basic CMOS digital circuits including their schematics, stick diagrams, and physical layout (B1).
- b3- apply the different design rules (B3).
- b4- define the potential and limitations of a given technology (B9, B12).

C - Professional and practical skills:

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

- c1- construct some logic circuits using the CMOS transistors (C1, C15).
- c2- use the different CMOS processing technologies (C2).
- c3- estimate the performance of a circuit or system (C18).
- c4- apply the different CMOS technologies to design and implement CMOS LSI circuits (C1, C3, C12).
- c5- use experimental facilities to investigate the system performance (C5, C9, C12).

D - General and transferable skills:

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

- d1- search for information from references and internet (D7).
- d2- communicate effectively and present data and results orally and in written form(D3).
- d3- use ICT facilities in presentations (D4).

Course Contribution in the Program ILO's:

	ILO's	Program ILO's
А	Knowledge and understanding	A5, A8, A10, A12, A14, A15, A23
В	Intellectual skills	B1, B3, B9, B12
С	Professional and practical skills	C1, C2, C3, C5, C9, C12, C15, C18
D	General and transferable skills	D3, D4, D7

3 – Contents

Торіс	Lecture	Tutorial	Practical
•	hours	hours	hours
. Introduction and VLSI terminologies	3	2	2
. Introduction to CMOS circuits	-	6	6
. MOS transistors switches	2	-	-
. CMOS Logic	4	-	-
. Circuit and system representations	2	-	8
. MOS transistor theory	-	8	-
. n and pMOS enhancement transistor	3	-	-
. MOS device design equations	4	-	-
. Small signal AC characteristics	2	-	-
. The complementary CMOS inverter-DC characteristics	4	-	-
. CMOS processing technology	-	6	8
. Basic CMOS technology	3	-	-
. CMOS process enhancements	2	-	-
. Layout design rules	4	-	-
.Circuit characterization and performance estimation	12	8	6
Total hours	45	30	30

4 - Teaching and Learning and Assessement methods:

	Teaching Methods								Learning Assessement Method											
Course ILO's		Lecture	Presentations and Movies	Discussions and	Tutorials	Problem solving	Laboratory & Experiments			Brain storming	Self Learning	Researches and Reports		Midterm	Quizes	Assignments	Written Exam	Practical Exam		
& ing	a1	1	1	1	1									1	1	1	1			
and	a2	1			1		1					1		1	1	1	1			
owle derst	a3	1	1		1		1				1	1			1	1	1	1		
Kn Unc	a4	1		1	1	1	1			1	1	1		1	1	1	1	1		

	а5	1					1			1		1		1	1	1	1		
П	b1	1	1		1	1	1					1	1	1	1	1			
ictue IIs	b2	1	1	1	1		1			1		1	1	1	1		1		
telle Ski	b3	1					1			1		1					1		
L	b4	1		1			1						1		1	1			
ills	c1	1	1	1	1	1	1			1	1		1	1	1	1	1		
f. Sk	c2	1	1			1							1	1	1				
Pro	c3	1		1			1					1		1			1		
olied	c4	1	1		1		1					1			1				
App	c5	1					1										1		
al <ills< td=""><td>d1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td></ills<>	d1										1	1			1				
aner 1. Sf	d2	1									1	1			1		1		
G(Trar	d3		1	1								1			1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: Seminars, Quizes & Reports	Bi-Weekly	10
Mid-Term Exam	6-th Week	10
Practical Exam	Fifteenth week	20
Written Exam	Sixteenth week	60
Total		100

6- List of References

6-1 Course Notes:

- Very Large Scale Integrated Systems "Theoritical part".
- Very Large Scale Integrated Systems "Practical part"

6-2 Required Books:

- Neil H. E. Weste and Kamran Eshraghian, "Principles of CMOS VLSI Design, A system Perspective", 2nd Ed, Addison Wesley 1993.
- Neil H.E. Weste and David Harris, "CMOS-VLSI-Design: A Circuit and systemms perspectives", Ed., Pearson Education Inc, 2005.

6-3 Recommended Books

- Jan M. Rabaey,"Digital Integrated Circuits: A Design Perspective", 2nd Ed, Prentice Hall 2003.
- Randall L. Geiger, Phillip E. Allen and noel R. Strader "VLSI Design techniques for Analog & Dig circuit", McGraw-Hill, Inc, 1990..

6-4 Periodicals, Web Sites, etc.

- <u>http://en.wikipedia.org/wiki/CMOS</u>
- <u>http://users.ece.utexas.edu/~adnan/vlsi-05-backup/lec23Concl.ppt</u> (CMOS VLSI Design)
- <u>http://www.youtube.com/watch?v=Y8FvvzcocT4</u> (VLSI Design)

7- Facilities Required for Teaching and learning

- Lectures room equipped with OHP and data show facility.
- Computer Lab installed by ORCAD and Microwind software.

Course Coordinator:	Dr. Samir Kamal
Head of the Department:	Prof. Dr. Mokhtar Abd El Haleem
Date:	September, 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E432: Electronic Measurements

A-Affiliation

Relevant program:	Electronic Engineering & Communication Technology Dpt.
	Computer Engineering & Information Technology Dpt.
Department offering the program:	Electronic Engineering & Communication Technology Dpt.
	Computer Engineering & Information Technology Dpt
Department offering the course:	Electronic Engineering & Communication Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic Information

Title: Electronic Measurements	Code: E432	Year/level: Fourth, 2nd semester
Teaching Hours:	Lectures: 2	Tutorial: 2
	Practical: 2	Total: 6

C - Professional Information

1 – Course Learning Objectives

A study of this course will enable the student to:

- Understand the measurement techniques using different equipment
- Be familiar with the oscilloscope & use it to measure phase, voltage & frequency
- Understand the principle of operation of digital measuring equipment

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

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

- a1- The different types of oscilloscopes & electronic analog voltmeters. (A5, A15)
- a2- The digital voltmeters circuits. (A5, A15)
- a3- The digital frequency meter circuits. (A16)
- a4- The distortion meter & spectrum analyzer. (A10, A15)

B - Intellectual Skills

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

- b1- Analyze the technical problems and find a suitable solutions (B3)
- b2- Think in a scientific way to reach a certain imagination and new innovation (B3)
- b3- Give the correct decision and test his solutions (B2)
- b4- Create new ideas (B12)

C - Professional and Practical Skills

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

- c1- Design the special measuring circuits. (C20)
- c2- Test electronic circuits using laboratory information. (C12, C15)
- c3- Develop a system to get a better efficiency (C3, C12)

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. (D7)

- d2- Write technical reports and prepare convenient presentations (D4)
- d3- Use the Email for communication (D6)
- d4-Effectively manage tasks, time, and resources. (D6)

Course Contribution in the Program ILO's

	ILO's	Program ILO's					
А	Knowledge and understanding	A5,A10,A15					
В	Intellectual skills	B2, B3 ,B12					
С	Professional and practical skills	C3, C12 , C15, C20					
D	General and transferable skills	D4 ,D6 ,D7					

3 – Contents

Tonio	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
Analog Measuring Equipment	2	2	2
CRT, Deflection Amplifiers, Time base	2	2	2
Display systems& waveform display	2	2	2
Dual Trace Oscilloscopes, supplies, testing	2	2	2
Special types of oscilloscopes	2	2	2
Digital Storage Oscilloscope	2	2	2
Measuring phase difference using oscilloscope	2	2	2
Measuring frequency using Lissajous Figure	2	2	2
Analog Electronic Millie-ammeters	2	2	2
Analog Electronic Voltmeters & ohmmeters	2	2	2
Digital Electronic Voltmeters	2	2	2
Digital Electronic Frequency meters, reciprocal count.	2	2	2
Distortion meters	2	2	2
Frequency meter and Spectrum Analyzer	2	2	2
Signal generators	2	2	2
Total hours	30	30	30

4 - Teaching and Learning and Assessment methods:

			Теа	aching	Meth	ods		L N	earnir 1ethoo	ng Is		Asses	essment Method			
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam	
& Dg	a1	1	1	1	1		1			1	1		1	1	1	
adge andi	a2	1	1	1	1	1	1	1			1	1		1	1	
iowle derst	a3	1	1		1	1	1	1					1	1	1	
Ln.	a4	1	1		1		1		1			1		1	1	

-	b1	1	1	1	1	1	1		1	1	1		1	1	1
ectua	b2	1	1	1	1	1	1	1			1	1		1	1
Ski	b3	1			1		1	1	1				1	1	1
<u> </u>	b4	1			1		1		1			1		1	1
<u>s</u> . d	c1	1		1	1	1	1	1		1	1		1	1	1
pplie ofes onal Skills	c2	1		1	1	1	1	1			1	1		1	1
₹ ² ° °	c3	1			1		1		1				1	1	1
S	d1						1		1						
eral Skill	d2	1		1			1			1	1		1	1	1
Gen ran.	d3	1		1			1				1	1		1	1
F	d4						1		1						

5- Assessment Timing and Grading:

Assessment Method	Timina	Grade (Degrees)			
Assessment Method	, inning	Comp. Dpt.	Comm. Dpt.		
Semester Work: seminars, quizzes	Ri Weekly	10	20		
assignments and reports	DI-WEEKIY	10	20		
Mid-Term Exam	6 th Week	10	10		
Practical Exam	12 th Week	20	30		
Written Exam	16 th Week	60	90		
Total	100	150			

6- List of References

6-1 Course Notes

Electronic Measurements

6-2 Essential Books (Text Books)

Larry D. Jones, A. Foster Chin, "Electronic Instruments & Measurements", 2nd Ed., Prentice-Hall INT. Inc., 1991

6-3 Recommended Books

6-4 Periodicals, Web Sites:

www.LarryDJonesA.com

7- Facilities Required for Teaching and Learning:

- Laboratory
- Lectures

Course Coordinator:	Prof. Dr. Hany Tawfik
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	Nov. 2011

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E442: Communications System II

A- Affiliations

Relevant program:	Electronic Engineering & Communications Technology Dpt.
Department offering the program:	Electronic Engineering & Communications Technology Dpt.
Department offering the course:	Electronic Engineering & Communications Technology. Dpt.
Academic year/level:	4 th year / 1 st semesters
Date of specifications approval:	Nov. 2011

B - Basic information

Title: Communication system (II)	Code:E 442	Year/level:4th
Teaching Hours:	Lectures: 4	Tutorial: 1
	Practical: 2	Total: 7

<u>C</u> - Professional information

1 – Course Learning Objectives:

The main objective of this course is:

To provide a good explaining of types of modulation, with special emphasizing on digital & analog modulation, explaining random noise and sampling.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- Different types of pulse modulations and digital modulations. (A18, A24)
- a2- Construction of different circuits of modulation. (A18, A24)
- a3- Design of different circuits relate to analog & digital communications. (A24, A27)
- a4- Evaluation of noise performance for analog & digital modulations. (A24, A27)
- a5- Different types of sampling. (A18)
- a6- Time division multiplexing. (A18)

B - Intellectual skills:

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

- b1- Model and analyze different pulse & digital modulation. (B15, B19)
- b2- Design circuits for FDM multiplexing/de-multiplexing. (B15, B19)
- b3- Understand the basic design ideas used for the of modern communication systems. (B15, B19)
- b4- Design circuits for TDM multiplexing/de-multiplexing. (B15, B19)

C - Professional and practical skills:

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

- c1- Construct and / or connect circuits for FDM multiplexing / de-multiplexing. (C19, C20)
- c2- Construct and / or connect circuits for different pulse modulation and TDM systems. (C19, C20)
- c3- Construct and / or connect circuits for A/D and D/A converters. (C19, C20)
- c4- Construct and / or connect circuits for different types of digital radio (ASK, FSK, PSK). (C19, C20)
- c5- Estimate the bit error rate performance modulators and demodulators. (C19, C20)

D - General and transferable skills:

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

- d1- Communicate effectively through assignments. (D3)
- d2- Effectively manage tasks, time, and resources. (D3)
- d3- Search for information and engage in life-long self-learning discipline. (D6, D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A18, A24, A27
В	Intellectual skills	B15, B19
С	Professional and practical skills	C19, C20
D	General and transferable skills	D3, D6, D7

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
1-Introduction to pulse & digital communication	4	1	2
2-Typs of pulse modulation	4	1	2
3-Analog pulse modulation	4	1	2
4-Digital pulse modulation	4	1	2
5- Sampling Theory	4	1	2
6-Standard pulse code Mod. & Modified types of digital pulse Modulation	4	1	2
7- Delta Δ –segma differential pulse code modulation	4	1	2
8- Introduction to digital modulation	4	1	2
9- Digital Transmission & Digital Radio communication	4	1	2
10- FSK Mod. &PSK Mod.	4	1	2
11- Multi phase PSK Mod & Carrier Recovery & clock recovery.	4	1	2
12- Random noises	4	1	2
13- Analog & Digital Comm. System behavior in noise	4	1	2
14- Analog & Digital Comm. System	4	1	2
15- Analog & Digital Comm. System behavior in noise	4	1	2
Total hours	60	15	30

4 - Teaching and Learning and Assessment methods:

		Teaching Methods							earnir 1ethoo	ng Is		Assessment Method			
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory &Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
a D	a1	1		1							1			1	
vledge { rstandir	a2	1	1	1	1	1		1			1	1	1	1	
	a3	1	1	1	1	1		1			1		1	1	
nov	a4	1		1					1	1		1	1	1	
хj	a5	1	1	1	1	1		1					1	1	

	a6	1	1	1	1		1				1	1	1	
al	b1	1		1	1		1			1		1		
ectui	b2	1		1	1		1			1	1	1	1	
ltelle Sk	b3	1		1	1		1			1		1	1	
ILI	b4	1		1	1		1				1	1	1	
	c1					1	1							1
ed ona s	c2					1	1							1
oplie essi Skills	c3					1	1							1
Al Prof	c4					1	1							1
H	c5					1	1							1
eneral ^T ran. Skills	d1					1								
	d2					1								1
<u>م</u> ا	d3							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	6-th Week	10
Practical Exam	12 th Week	30
Written Exam	Sixteenth week	90
Total	150	

6- List of references:

6-1 Course notes:

- Communications II Theoretical part
- Communications II Practical part

6-2 Required books:

- B. Lathi, Modern Digital and Analog communication systems oxford press 1998.
- N. Abramson, Information theory & Coding McGraw-Hill 1963.

6-3 Recommended books:

S. Haykin, Communication systems, 4th edition J. W. 2001.

6-4 Recommended Web Site

https://en.wikipedia.org/wiki/Communications system

7- Facilities required for teaching and learning:

• Lectures room equipped with OHP and data show facility.

Course Coordinator:	Prof. Dr. Adel S. El-Sherif
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015
Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E441: Antenna and Waves I

A- Affiliation

Electronic Engineering & Communication Technology
Electronic Engineering & Communication Technology Dpt.
Electronic Engineering & Communication Technology Dpt.
Nov. 2011

B - Basic Information

Title: Antenna and Wave (1)	Code: E441	Year/level: Fourth,1st semester
Teaching Hours:	Lectures: 3	Tutorial: 1
	Practical: 2	Total: 6

C - Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the fundamental concepts of microwave theory and measurements.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

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

- a1- Basic equations of microwave field in case of propagation in free space and dielectric. (A20, A21)
- a2- TE, TM mode analysis in rectangular and circular waveguides. (A20)
- a3- Power calculation in waveguide systems considering conductor and dielectric losses. (A20)
- a4- Smith chart analysis and its application in transmission lines. (A20)
- a5- Matching techniques using impedance transformers (binomial-Tshebyshev). (A20)
- a6- Basic microwave measurements (wavelength, VSWR, power and impedance). (A20)

B - Intellectual Skills

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

- b1- Identify the studied microwave transmission lines and waveguides. (B16)
- b2- Investigate how to improve the voltage standing wave ratio in microwave systems. (B18)
- b3- Deduce attenuation constant fort typical microwave transmission systems. (B15)
- b4- Deduce mathematical models for typical impedance transformers. (B18)

C - Professional and Practical Skills

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

- c1- Construct, test and investigate the performance of typical microwave transmission systems. (C20)
- c2- Design of matching circuit for a given load. (C17)
- c3- Design of waveguide or coaxial line for given frequency and power. (C17)

D - General and Transferable Skills

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

- d1- Search for information from references, journals, and internet. (D6, D9)
- d2- Effectively manage tasks, time, and resources. (D6, D9)

	ILO's	Program ILO's
А	Knowledge and understanding	A20,A21
В	Intellectual skills	B15,B16,B18
С	Professional and practical skills	C17,C20
D	General and transferable skills	D6, D9

Course Contribution in the Program ILO's

3 - Contents:

Topics	Lecture hours	Tutorial hours	Practical hours
1- Plane wave reflection from a media interface (parallel and perpendicular polarization).	7	1	4
 Rectangular and circular waveguides TE, TM modes (analysis – design and applications). 	10	3	6
3- Coaxial line and micro strip line (low – frequency and high – frequency solutions)	8	3	6
4-Attenuation due to conductor and dielectric loss.	5	2	4
5- Field analysis of transmission lines (traveling and standing waves).	5	2	4
6- Smith chart and impedance matching (single stub and double stub tuners).	10	4	6
Total hours	45	15	30

4 - Teaching and Learning and Assessment methods:

		Теа	aching	Meth	ods		L	Learning Assessment Methods					od			
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Modeling	Midterm	Quizzes	Seminars	Reports	Written Exam	Practical Exam
	a1	1			1	1			1		1			1	1	
å ing	a2	1			1	1					1	1			1	
edge	a3	1		1	1	1					1			1	1	
owle derst	a4	1		1	1	1									1	
Kn Unc	a5	1			1	1						1			1	
	a6	1			1	1										1

la	b1	1		1								1	
ectua	b2	1		1									1
ntelle Sk	b3	1		1								1	
	b4	1		1				1		1			
d ion s	c1	1		1	1	1					1		
pplie ofessi I Skill	c2	1		1	1	1							
Prc A al	c3	1		1	1	1					1		
Gen. Tran. Skills	d1						1				1		
	d2						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	6-th Week	10
Practical Exam	-	-
Written Exam	Sixteenth week	70
Total	100	

6- List of References

6-1 Course Notes

- Microwave circuits
- Microwave circuits lab

6-2 Essential Books (Text Books)

• David M. Pozar, "Microwave Engineering", John Wiley & Sons, Inc-New York, 1998

6-3 Recommended Books

• R.E. Collin "Foundation of Microwaves", McGraw-Hill, Inc-New York, 1992

6-4 Periodicals, Web Sites, etc.

- <u>www.focus-microwave.com</u>
- <u>www.microwave101.com</u>

7- Facilities Required for Teaching and Learning

- Smith Charts
- Bessel Function tables
- Microwave lab.

Course Coordinator:	Prof. Dr. Mokhtar Abdel Halim
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E400: Summer Training

A- Affiliation

Relevant program:	Electronic Engineering and Communication Technology
Department offering the program:	Electronic Engineering and Communication Technology
Department offering the course:	Electronic Engineering and Communication Technology
Academic year/level:	4 th Year , Second Term
Date of specifications approval:	November 2011

B - Basic information

Title: Summer Training	Code: E400	Year/level: 4th
Teaching Hours:	Lectures:	Tutorial:
	Practical:	Total:

C - Professional information

1 – Course Learning Objectives:

Developing the practical skills in the field of Electronics , Communications and Practicing of different topics in this field

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

By the end of this course the student should have the following Knowledge:

- a1- Applicability of theoretical knowledge gained during academic sessions. (A8, A10, A12)
- a2- Actual needs of business in the domain Communication technologies. (A10, A17, A23)

B - Intellectual skills:

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

- b1- Develop the personal attitudes to serve the society. (B3, B8)
- b2- Develop personal contacts in field of communication with different companies. (B3, B13)

C - Professional and practical skills:

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

C1- Practicing the actual Topics in the field of electronics and communication. (C8, C9, C11, C12, C15, C17)

D - General and transferable skills:

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

- d1- Presenting personal qualities
- d2- Communicate effectively by different ways. (D3, D4, D6)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A8, A10, A12, A17, A23
В	Intellectual skills	B3, B8, B13
С	Professional and practical skills	C8, C9, C11, C12, C15, C17
D	General and transferable skills	D3, D4, D6

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
Practicing the actual production cycle			48
Total hours			48

4 - Teaching and Learning methods:

4-1 Workshop training

4-2 Site visits

5- Students' Assessment Methods:

5-1 Tools:

Report from the coordinator of the site visited

5-2 Time schedule: After final written exam

6- List of references: None

7- Facilities required for teaching and learning: None

Course coordinator:	Professor Dr. Said Biomy
Head of the Department:	Prof. Mokhtar Abdel Halim
Date:	August 2015

Modern Academy for Engineering & Technology

Electronic Engineering & Communication Technology Department E501: Digital Signal Processing

A-Affiliation

Relevant program:	Electronic Engineering and Communication Technology. BSc Program
Department offering the program:	Electronic Engineering and Communication Technology. Department
Department offering the course:	Electronic Engineering and Communication Technology. Department
Date of specifications approval:	Oct.2000, Feb. 2007, Feb. 2009, Nov. 2011 & Sept. 2015.

B - Basic information

Title: Digital Signal Processing	Code: E 501	Year/level: Fifth, 2 nd , ser	nister
Credit Hours: 6	Lectures: 3	Tutorial:1	Practical: 2

C - Professional information

1 – Course Learning Objectives:

By the end of this course the students should demonstrate the knowledge and understanding of the basic concepts & theory of Signals, Systems, signal Processing and discrete transformations and digital filters. They should be able to design, calculate and analyze the performance of digital systems.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- the principles and concepts of digital signal processing (A8, A24).
- a2- the concept of Analog-to-Digital and Digital-to-Analog Conversion (A2).
- a3- the concept of Discrete Transformations (FS, FT, DFT, FFT and z-Transform) (A5).
- a4- the concept of Digital Filters design (FIR & IIR), (A10).

B - Intellectual skills:

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

- b1- select appropriate transformation (FS, FT, DFT or FFT), (B1).
- b2- solve engineering problems using the concepts of Z-Transform in DS Processing (B7, B14).
- b3- logically analyze the digital systems (B11 & B15).
- b4- join the different topics in this subject to design a good new digital system (B3, B14).

C - Professional and practical skills:

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

- c1- discriminate between different signal types (C2).
- c2- use the gained Lab information in this subject to design numerous of digital signal processing systems, e.g., A/D, D/A converters and DSP processor (C2, C5, C15).
- c3- design different digital filters (FIR&IIR), (C2, C5, C14).
- c4- develop some DSP systems to attain high qualified system (C6).
- c5- prepare and present works both in written & oral form (C12).

D - General and transferable skills:

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

- d1- search for information from references and internet (D7).
- d2- communicate effectively and present data and results orally and in written form(D3).
- d3- use ICT facilities in presentations (D4).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
Α	Knowledge and understanding	A2, A5, A8, A10 & A24
В	Intellectual skills	B1, B3, B7, B11, B14 & B15
С	Professional and practical skills	C2, C5, C6, C12, C14 & C15
D	General and transferable skills	D3, D4 & D7

3 – Contents

Tania	Lecture	Tutorial	Practical
Горіс	hours	hours	hours
Signal, system and signal processing	2	1	2
Classification of signals	2	-	2
The concept of frequency in continuous-time and discrete-time signals	2	-	2
Analog-to-digital and digital-to-analog conversion	2	-	2
Fourier series (FS) and Fourier Transform (FT)	2	1	2
Discrete Fourier Transform (DFT) and its inverse	3	1	4
Computational complexity of the DFT	4	2	2
Autocorrelation, cross-correlation, and convolution	4	2	4
Z- transform and its inverse	6	2	-
Properties of the Z-transform	4	-	-
Application of Z-transform in DSP	4	2	-
Design of the digital filters	-	4	2
Types of the digital filters and choosing between them	2	-	-
FIR filter design	4	-	4
IIF filter design	4	-	4
Total	45	15	30

4 - Teaching and Learning and Assessement methods

			Teaching Methods										Lear Meth	ning 10ds		As	sses	seme	ent M	etho	bd	
Course ILO's		Lecture	Presentations and Movies	Discussions and	Tutorials	Problem solving	Laboratory & Experiments					Brain storming	Self Learning	Researches and Reports	Midterm	Quizes	Assignments	Written Exam	Practical Exam			
: & ing	a1	1			1		1						1	1	1	1	1	1	1			
and	a2	1		1	1		1							1	1	1	1	1	1			
owle lerst	a3	1		1	1	1	1							1	1	1	1	1	1			
Und Und	a4	1	1	1	1	1	1						1	1		1	1	1	1			

a a	b1	1		1	1	1						1	1	1	1	1			
ills sctus	b2	1		1	1	1	1			1	1	1		1	1	1			
Ski	b3	1		1	1	1				1	1			1	1	1	1		
<u> </u>	b4	1					1				1	1		1	1		1		
ills	c1	1			1	1	1				1	1	1	1	1		1		
a d	c2	1		1	1		1			1		1	1	1	1	1			
pplie iona	c3	1	1	1	1	1	1				1	1		1	1	1	1		
Acfess	c4	1		1			1				1	1		1	1				
Pro	c5	1	1	1			1				1	1		1	1				
<u>. a</u>	d1										1	1			1				
ener Fran Skills	d2	1									1	1			1		1		
ů – ů	d3		1	1								1			1				

5- Assessment Timing and Grading:

Asessement Method	Timing	Grade (Degrees)
Semister Work: Seminars, Quizes & Reports	Bi-Weekly	20
Mid-Term Exam	6-th Week	10
Practical Exam	Fifteenth week	30
Written Exam	Sixteenth week	90
Total	150	

6- List of References

6-1 Course Notes:

- Digital Signal Processing "Theoretical part"
- Digital Signal Processing "Practical part"

6-2 Essential Books (Text Books)

- Emmanuel C. Ifeachor and Barriew W. Jervis," Digital signal processing" A practical Approach ", 2nd Ed, prentice-Hall 2002.
- Joun G. proakis and Dimitris G. Manolkis, "Digital signal processing: principles, Algorithms, and Applications", 3rdEd, Macmillman Publishing Compay 1992.

6-3 Recommended Books

- Ashok Ambardar, "Analog and Digital signal processing ",2nd Edition, Brooks/Cole publishing Company,1999
- Sanjit K. Mitra, "Digital Signal Processing: A computer Based Approach", 3rd Ed., McGraw-Hill. International Edition, 2006.

6-4 Periodicals, Web Sites, etc.

- <u>http://www.amazon.com/Digital-Signal-Processing-Practical-Approach/dp/0201596199</u>.
- <u>http://en.wikipedia.org/wiki/Digital_signal_processing</u>.
- <u>http://www.dspguru.com/dsp/links</u>

7- Facilities Required for Teaching and learning

Lectures room equipped with OHP and data show facility. Computer Lab installed by DSP Kits and MATLAB software.

Course coordinator:	Dr. Samir Kamal
Head of the Department:	Prof. Dr. Mokhtar Abd El Haleem
Date:	September, 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E511: Microwave Circuits and Devices

A- Affiliation

Relevant program:	Electronic Engineering & Communication Technology
Department offering the program:	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Electronic Engineering & Communication Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic information

Title: Microwave Circuits and Devices	Code: E511	Year/level: Fifth, 1st semester
Teaching Hours:	Lectures: 3	Tutorial: 1
	Practical: 2	Total: 6

C - Professional Information

1 – Course Learning Objectives

The main objective of this course is to introduce the basic concepts of microwave circuits and systems and to enable the student to solve different microwave circuits.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

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

- a1- Basic equations of microwave resonator filed and quality factors. (A20)
- a2- Voltage and current analysis in microwave circuits. (A15)
- a3- Impedance and scattering matrix of different microwave circuits. (A15)
- a4-Procedure of calculation of microwave power in directional coupler, hybrid junction, isolator, and circulator. (A20)
- a5- Field analysis of two-cavity klystron amplifier. (A20)
- a6- Effect of reflector voltage changes in reflex-klystron. (A20)
- a7- Characteristics of different semiconductor microwave circuits (switch-mixer and negative resistance oscillator). (A15)
- a8- Block diagram of microwave parametric amplifier and analysis of its gain and bandwidth. (A15)

B - Intellectual Skills

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

- b1- Deduce circuit models for different cavity resonators. (B16)
- b2- Investigate the voltage and current waves in microwave circuits. (B16)
- b3- Identify the studied circuits given impedance and scattering parameters. (B16)
- b4- Judge the relative power for different circuits and systems. (B17)
- b5- Deduce mathematical relations for different passive and active microwave devices. (B17)

C - Professional and Practical Skills

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

- c1- Construct, test and investigate the performance of typical microwave circuits. (C15)
- c2- Design of different passive microwave circuits (directional coupler–hybrid junction isolator and circulator). (C15)

- c3- Use the Z, Y and S parameters to calculate power and VSWR for different microwave circuits. (C15)
- c4- Use the suitable microwave components to measure Z, S parameters for any two port network. (C15)

D - General and Transferable Skills

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

- d1- Search for information from references, journals and internet. (D7, D9)
- d2- Write technical reports and presentations. (D7, D9)
- d3- Communicate with different web sites. (D7, D9)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
A	Knowledge and understanding	A15,A20
В	Intellectual skills	B16,B17
С	Professional and practical skills	C15,C17,C20
D	General and transferable skills	D7, D9

3 - Contents

Tonic	Lecture	Tutorial	Practical
Торіс	hours	hours	hours
1- Microwave Resonators	3	1	2
2- Microwave Circuits Voltage and Current	3	1	2
3- Z-matrix and Y-matrix	3	1	2
4- Scattering Matrix	3	1	2
5- Power in Microwave Circuits	3	1	2
6- Passive Microwave Devices	3	1	2
7-Wavegide devices and termination	3	1	2
8- Directional Couplers	3	1	2
9- Isolator and Circulators	3	1	2
10- Hybrid Junctions and Micro strip circuits	3	1	2
11- Microwave Klystrons and Magnetrons	3	1	2
12- Microwave Semiconductors Circuits	3	1	2
13- Negative Resistance Diodes	3	1	2
14- Parametric Amplifiers	3	1	2
15- Microwave Oscillators	3	1	2
Total hours	45	15	30

Course ILO's		Teaching Methods						Learning Methods			Assessment Method				
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
бĹ	a1	1			1		1		1		1			1	1
andir	a2	1			1		1				1			1	1
erste	a3	1			1						1			1	
Jnde	a4	1			1					1		1		1	
e & l	a5	1			1							1		1	
edg	a6	1			1		1						1	1	1
Iwor	a7	1			1								1	1	
Ъ	a8	1			1								1	1	
s	b1	1			1		1				1			1	1
Skil	b2	1			1				1		1			1	
stual	b3	1			1		1				1			1	1
ellec	b4	1			1					1				1	
Int	b5	1		1										1	
lal	c1	1		1										1	
lied sion ills	c2	1		1		1								1	1
Appl ofes: Skij	c3	1		1										1	
Pr	c4	1		1		1								1	1
s - al	d1		1						1					1	
eneı Tran Skill:	d2		1						1					1	
ы с г с	d3		1						1					1	

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

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

6- List of References:

6-1 Course Notes

- Microwave circuits
- Microwave circuits lab

6-2 Essential Books (Text Books)

• David M. Pozar, "Microwave Engineering", John Wiley & Sons, Inc-New York, 1998.

6-3 Recommended Books

• R.E. Collin "Foundation of Microwaves", McGraw-Hill, Inc-New York, 1992.

6-4 Periodicals, Web Sites, etc.

- <u>www.focus-microwave.com</u>
- <u>www.microwave101.com</u>

7- Facilities Required for Teaching and Learning:

- Smith Charts
- Bessel Function tables.

Course Coordinator: Head of the Department: Date: Prof. Dr. Mokhtar Abdel Halim Prof. Dr. Mokhtar Abd El- Haleem August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E522: Radio &TV Engineering Systems

A- Affiliation

Relevant program: Department offering the program: Department offering the course: Academic year/level: Date of specifications approval: Electronics Engineering & Communications Technology Program. Electronics Engineering and Communications Technology Dpt. Electronics Engineering and Communications Technology Dpt. 5th Communications / 1st Semester. Nov. 2011

B - Basic information

Title: Radio &TV Engineering Systems	Code: E522	Year/level: 5th Comm./ 1st Semester.
Teaching Hours :	Lectures: 4	Tutorial: 1
	Practical: 2	Total : 7

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Institution of principles and types of modulation and demodulation.
- Basic of radio transmission and reception.
- Basics of tv color signal transmission and reception.
- Fundamentals of stereo FM transmission and reception.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- Different types of analogue modulators and demodulators. (A18, A24)
- a2- Types of radio receivers and super heterodyne RX's fundamentals. (A27, A29)
- a3- color TV. Camera and color signal construction and reception. (A24, A29)

a4- formation of stereo signal and it's reception by stereo and mono RX's. (A24, A29)

B - Intellectual skills:

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

- b1- Design of different types of modulators and demodulators. (B5, B15)
- b2- Design principles of radio receivers. (B5, B15)
- b3- Carryout signal processing of video and audio signals in both TX & RX. (B5, B15)
- b4 Describe the structure of main parts of TV camera, color matrix, synchronization signal & TV
- receiver structure and TV-tubes. (B5, B15)

C - Professional and practical skills:

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

- c1- Design and build up of radio circuits. (C19)
- c2- Design and estimation of the fundamental parameters of radio. (C15)
- c3- Carryout fault detection of TV- RX's, repair and operation test. (C15)

D - General and transferable skills:

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

- d1- Communicate effectively through assignments. (D3)
- d2- Effectively manage tasks, time, and resources. (D6)
- d3- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's				
A	Knowledge and understanding	A18, A24, A27, A29				
В	Intellectual skills	B5, B15				
С	Professional and practical skills	C15, C17, C19				
D	General and transferable skills	D3, D6, D7				

3 – Contents

Tonic	Lecture	Tutorial	Practical
Торіс	hours	hours	hours
 Introduction to needs for modulation 	2	1	2
How radio system started and developed	2	1	2
 Kinds of radio systems and comparison 	4	1	2
Radio system design fundamentals	8	1	2
Radio circuits design	10	1	2
Advantages of stereo system VS. mono	2	1	2
 Structure stereo signal and system. 	4	1	2
The human eye response to colors	2	1	2
Prime colors and color mixing fundamentals	4	1	2
Photometric measurements & color matrix	4	1	2
TV camera and construction of color signal	4	1	2
Scanning and synchronization	4	1	2
TV receiver structure and analysis	6	1	2
TV-tubes color picture demonstration	4	1	2
TOTAL	60	15	30

4 - Teaching and Learning and Assessment methods:

	Teaching Methods						Learning Methods			Assessment Method					
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
s Ng	a1	1			1						1	1	1	1	
edge tandi	a2	1		1	1							1	1	1	
iowle derst	a3	1		1	1	1					1			1	
ЪЧ	a4	1		1							1	1	1	1	
	b1			1				1	1	1			1		
ectua ills	b2	1		1		1		1	1	1	1		1	1	
ntelle Sk	b3	1			1								1		
—	b4						1	1	1	1			1		1
d ion s	c1				1		1								1
pplie ofessi Skill	c2						1		1	1			1		1
Pro al	c3						1						1		
al (ills	d1						1						1		1
ienen in. Sł	d2												1		
G(Trai	d3	1			1						1	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	6-th Week	10
Practical Exam	12 th Week	30
Written Exam	Sixteenth week	90
Total	150	

6- List of references:

6-1 Course notes:

- Radio & TV theoretical part
- Radio & TV practical part

6-2 Required books:

• B. Lathi Modern Digital and Analog communication systems oxford press 1998.

6-3 Recommended books:

- S. Haykin, Communication systems, 4th edition J. W. 2001.
- Kennedy " electronic communication system ", McGraw 1992

6-4 periodicals, web sites, etc

7- Facilities required for teaching and learning:

- Laboratory
- Library
- Internet

Course coordinator

: Prof. Dr. Said Baiomy.

- Head of the Department Date
- : Prof. Dr. Mokhtar Abd El- Haleem
- : August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E519: Antennas and Waves II

A- Affiliation

ronics Engineering & Communications Technology Program.
onics Engineering and Communications Technology Dpt.
onics Engineering and Communications Technology Dpt.
ar, communication Eng. 2 nd semester
2011

B-Basic information

Title: Antennas and Waves II	Code: E519	Year/level: 5th year
Teaching Hours:	Lectures: 3	Tutorial: 1
	Practical: 2	Total: 6

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to understand the basic principle of operation of antennas with different types in addition of measuring different parameters of antenna.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- The different types of antenna families. (A1, A21)
- a2- The physical concept the antenna parameters. (A1, A2, A21)
- a3- The different measurement techniques of antenna parameters. (A5, A21)
- a4- Different approaches for antenna analysis and design. (A5, A21)
- a5- The potential applications of an antenna in a variety of wireless communication systems. (A21, A29)

B - Intellectual skills:

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

- b1- Select the proper antenna for a specific application. (B1, B2)
- b2- Choose a suitable antenna design approach. (B1, B2)
- b3- Implement of a simple antenna (eg., Yagi or Helix). (B5, B7)
- b4- Represent radiation pattern of the designed antenna . (B5, B7)

C - Professional and practical skills:

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

- c1- Solve a simple radiation problem related to a specific application. (C1)
- c2- Analyze radiation pattern for antennas with up to date technology. (C2, C7)

D- General and transferable skills:

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

- d1- Communicate effectively through assignments. (D3, D6, D7)
- d2- Search for information and engage in life-long self-learning discipline. (D1, D2, D5)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
A	Knowledge and understanding	A1, A2, A5, A21, A29
В	Intellectual skills	B1, B2, B5, B7
С	Professional and practical skills	C1, C2, C7
D	General and transferable skills	D1, D2, D3, D5, D6, D7

3 - Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
Introduction to antennas	4	-	-
Basic antenna parameters	8	3	-
Measurement Techniques of antenna parameters	2	-	2
Mathematical tools for antenna analysis and design	6	-	-
Wire antennas:	-	-	-
Dipole (infinitesimal, small, finite length, long)	6	3	3
Loop antenna (circular and square)	2	1	6
Special types of wire antennas (Helix and Yagi)	2	1	6
Aperture antennas:	-	-	-
Rectangular and circular aperture	4	1	1
Microstrip antennas	2	1	4
Horn antennas	2	2	4
Reflector antennas	3	1	1
Array antennas:	-	-	-
Two elements array	2	1	1
N-element linear array of uniform amplitude and spacing	2	1	2
Total hours	45	15	30

Teaching Methods						L	Learning Assessment Methods			Method					
Coursea II O's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
	a1	1				1			1			1			
ge	a2	1				1		1	1		1		1	1	
wled	a3	1				1		1	1		1	1	1	1	
Knc	a4	1				1	1				1	1	1	1	1
	a5	1			1	1		1	1	1	1	1	1	1	
_	b1	1			1	1		1	1	1	1	1	1	1	
ctua	b2	1			1	1	1		1	1	1	1	1	1	1
Itelle	b3	1			1	1		1			1	1	1	1	1
-	b4	1			1			1					1	1	1
lied	c1						1	1		1					1
App	c2									1	1	1	1	1	1
ieral an.	d1								1						1
Gen Trá	d2	1				1			1			1			

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	20
Mid-Term Exam	6-th Week	10
Practical Exam	15 th Week	30
Written Exam	Sixteenth week	90
Total	150	

6- List of references:

6-1 Course notes

- 1- Antenna and Wave Propagation "Theoretical part"
- 2- Antenna and Wave Propagation "Practical part"

6-2 Main book

Constantine A. Balanis, "Antenna Theory: Analysis And Design", John Wiley & Sons, New York, 2nd Edition 1997.

6-3 Additional book

John D. Kraus and Ronald J. Marhefka, "Antennas For All Applications", McGraw Hill, Boston, 3rd Edition, 2002.

6-4 Periodicals, Web sites, etc.

- <u>http://www.antenna-theory.com/ NPTEL :: Electronics & Communication Engineering -</u> <u>Advanced Antenna Theory</u>
- http://nptel.ac.in/courses/117107035/

7- Facilities required for teaching and learning:

- Lectures
- Exercises
- Laboratory

Course coordinator:	
Head of the Department:	
Date:	

Dr. Eng. Muhammad El-Wakeel Prof. Dr. Mokhtar Abd El- Haleem August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E562: Communications System III

A- Affiliations

Relevant program:Electronic Engineering & Communications Technology.Department offering the program:Electronic Engineering & Communications Technology Dpt.Department offering the course:Electronic Engineering & Communications Technology Dpt.Date of specifications approval:Nov. 2011

B - Basic information

Title: Communication system (III)	Code: E562	Year/level: Fifth
Teaching Hours:	Lectures: 4	Tutorial: 2
	Practical: 1	Total: 7

C - Professional information

1- Course Learning Objectives:

- To introduce the main stages of digital communication system focusing on coding processes and discrete channel analysis.
- To introduce the main principles of information theory.
- To explain source coding technique and examples of this technique.
- To introduce the importance of channel coding stages showing various types of that technique.
- To analyze discrete channel effect on the transmitted symbols and probability of error calculation.
- 2- Intended Learning Outcomes (ILOS):

a- Knowledge and Understanding:

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

- a1- Coding stages applied in digital communication system and the goal of each stage. (A18, A19)
- a2- Common types of information sources and make some operations on them. (A2)
- a3- Understand the concept of source coding and the efficient characteristics that should exist in source codes. (A2, A19)
- a4- The objective of channel coding technique and difference among its various kinds. (A19, A27)
- a5- The discrete channel memory-less model. (A27)
- a6- How to estimate the probability of error using many techniques. (A2)

b - Intellectual skills:

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

- b1- Perform some operation on zero- memory source and Markov source such as symbol information and source entropy. (B11)
- b2- Design suitable source codes for a group of symbols with optimum characteristics. (B2, B3, B11)
- b3- Design optimum channel encoder circuit taking in consideration advantages and disadvantages of encoder parameters. (B11, B15)
- b4- Take decision about the suitable channel coding technique applied in the digital communication system (Hamming cyclic convolutional).
- b5- Simulate a complete digital communication system (base band transmitted data) using software program and study the bit error rate performance of the system. (B2, B3, B15)
- b6- Calculate the probability of error for a given discrete channel model using two methods: maximal likelihood and ideal decision. (B2, B3, B15)

c- Professional and practical skills:

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

- c1- Simulate simple digital communication system in the presence of noisy channel, transmitting random bits and find the BER at the receiver. (C13, C14)
- c2- Design software program that creates source codes using Huffman method and make some operation on the output codes such as: average code length and source entropy. (C13, C14)
- c3- Simulate complete digital communication system with Hamming encoder / decoder stages in the presence of noisy channel and find the BER at the receiver. (C13, C14)
- c4- Simulate complete digital communication system with cyclic encoder / decoder stages in the presence of noisy channel and find the BER at the receiver. (C13, C14)
- c5- Simulate complete digital communication system with convolutional encoder / decoder stages in the presence of noisy channel and find the BER at the receiver. (C13, C14)
- c6- Compare among three channel coding techniques: Hamming cyclic convolutional based on BER performance versus SNR variation. (C13, C14)

d - General and transferable skills:

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

- d1- Communicate effectively through assignments and e- mails. (D3)
- d2- Effectively manage tasks, time, and resources. (D6)
- d3- Search for information and engage in life-long self-learning discipline. (D7)

	ILO's	Program ILO's
Α	Knowledge and understanding	A2, A4, A17, A18
В	Intellectual skills	B1, B2, B3, B11, B14
С	Professional and practical skills	C5, C6, C12, C13
D	General and transferable skills	D3, D6, D7

Course Contribution in the Program ILO's

3- Contents

Торіс	Lecture hours	Tutorial hours	Practical hours
1- Introduction to digital communication system stages.	4	2	2
2- The concept of information theory.	6	2	0
3- Types of information sources – symbols information –	6	4	2
4- Characteristics of source codes.	4	2	0
5- Source coding using tree and Huffman methods.	6	4	2
6- Introduction to channel coding concept of Hamming coding	8	4	3
7- Concept of cyclic coding techniques (systematic and non-	6	4	2
8- Convolutional encoder design and analysis.	6	2	2
9- Convolutional decoding using Viterib's algorithm.	6	2	2
10- Discrete memory-less channel model.	4	2	0
11- Probability of error calculation for discrete channel.	4	2	0
Total hours	60	30	15

4 - Teaching and Learning and Assessment methods:

Course ILO's			Теа	aching	Meth	ods		Learning Methods			Assessment Method				
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
	a1	1		1							1			1	
a D	a2	1	1	1	1	1		1			1	1	1	1	
edge . andir	a3	1	1	1	1	1		1			1		1	1	
nowle	a4	1		1								1	1	1	
х 7	a5	1	1	1	1	1		1	1	1			1	1	
	a6	1	1	1	1	1		1	1	1			1	1	
	b1	1			1	1		1			1		1		
slii	b2	1			1	1		1			1	1	1	1	
llectual Ski	b3	1			1	1		1			1		1	1	
	b4	1			1	1		1				1	1	1	
Inte	b5	1			1	1		1				1		1	
	b6	1			1	1		1							

la	c1			1	1					1
sione	c2			1	1					1
rofes dills	c3			1	1					1
ed Pi St	c4			1	1					1
Appli	c5			1	1					1
	c6			1	1					1
al tills	d1			1						
enera n. Sk	d2			1						1
G Tra	d3					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	6-th Week	10
Practical Exam	-	20
Written Exam	Sixteenth week	60
Total		100

6- List of references:

6-1 Course Notes:

- 1- Communications III (Theoretical part)
- 2- Communications III (Practical part)

6-2 Required References:

- 1- "Information Theory and Coding", Associated Professor of Electrical Eng, McGraw-Hill, INC, 1963.
- 2- "Error Control Coding Fundamental and Application", SHU LIN, Prentice-Hall, 1983.

6-3 Recommended References:

- "ESSENTIALS OF ERROR CONTROL CODING", Jorge Moreira, John Wiley & Sons Ltd, 2006.
- "Coding Theory the Essentials", D. G. Hoffman, Marcel Dekker, 1991.
- "Introduction to Error Correcting Codes", Michael Purser, Artech House-Inc, 1995.
- "Introduction To Coding Theory And Algebraic Geometry", Jacobus Van Lint, Besel-Boston, 1988.

7- Facilities required for teaching and learning:

- Lectures room equipped with OHP and data show facility.
- Computer lab installed by Matlab software.

Course coordinator:	Dr. Nelly Mohammed Hussein
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E524: Advanced Communication Systems

A- Affiliation

Relevant program:Electronics Engineering & Communications Technology Dpt.Department offering the program:Electronics Engineering and Communications Technology Dpt.Department offering the course:Electronics Engineering and Communications Technology Dpt.

Department offering the course: Academic year/level: Date of specifications approval: Electronics Engineering and Communications Technology Dpt. Electronics Engineering and Communications Technology Dpt. 5th Communications. / 2nd Semester. Nov. 2011

B - Basic information

Title: Advanced communication	Code: E524	Year/level:5th Comm./ 2nd Semester
Teaching Hours:	Lectures: 4	Tutorial:2
	Practical: 1	Total : 7.

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to:

- Good understanding of multiple access techniques.
- Principles of satellite communication.
- Digital hierarchical system and global system mobile.
- Mobile communications.

2 - Intended Learning Outcomes (ILOS)

a- Knowledge and understanding:

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

- a1-Satellite link calculation and estimation of path loss. (A26)
- a2- The frequency time and analog digital combination in mobile. (A27)
- a3- CDMA system and spread spectrum modulation techniques. (A27)
- a4 Design of TDM communication for PCM signals and framing synchronization. (A18, A26)

b- Intellectual skills:

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

- b1- Design advanced communication systems. (B2,B15)
- b2- Design a digital hierarchical telephone system. (B2 ,B15)
- b3- Evaluate the spectrum efficiency of communication techniques (B18)

c- Professional and practical skills:

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

- c1- Measure of performance levels of comm. systems. (C19)
- c2- Calculate of effect of noise on bit error rate. (C18)
- c3- Study of safety security of communication. (C15)

d - General and transferable skills:

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

- d1- Communicate effectively through assignments and e- mails. (D3)
- d2- Effectively manage tasks, time, and resources. (D6)
- d3- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's				
A	Knowledge and understanding	A18, A26, A27				
В	Intellectual skills	B2, B15, B18				
С	Professional and practical skills	C15, C18, C19				
D	General and transferable skills	D3, D6, D7				

3 - Contents

Tonic	Lecture	Tutorial	Practical
Τορις	hours	hours	hours
 Introduction to telephone sets. 	2	1	1
 Digital telephone and switching. 	4	1	2
Hierarchical systems and framing.	4	1	2
 Satellite orbits and orbital parameters 	2	1	2
Basic transmission concepts.	2	2	2
 Link parameter and effect of noise. 	4	1	2
 Satellite transponder and antenna. 	4	1	4
 Multiple access techniques. 	8	1	2
 Spectral efficiency and measurements. 	4	1	2
 Evaluation of mobile comm 	2	1	2
 GSM – structure and features. 	6	1	2
 Cellular concepts and advanced. 	2	1	1
 Spread spectrum techniques. 	8	1	4
 Procedures of mobile comm 	8	1	2
TOTAL	60	15	30

4 - Teaching and Learning and Assessment methods:

	Teaching Methods							Learning Assessment Method							
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
න වි	a1	1			1						1	1	1	1	
edge tandi	a2	1		1	1							1	1	1	
nowle	a3	1		1		1					1			1	
z 7	a4	1		1							1	1	1	1	

ectual ills	b1	1	1				1	1	1		1		
Intelle Sk	b2	1	1		1		1	1	1	1	1	1	
d Inal	c1					1	1	1	1		1		1
vpplied fessio Skills	c2			1		1							1
Pro	c3					1		1	1		1		1
ran.	d1					1					1		
eral Tı Skills	d2					1					1		1
Gen	d3										1		

5- Assessment Timing and Grading:

Assessment Method	Timing	Grade (Degrees)
Semester Work: seminars, quizzes assignments and reports	Bi-Weekly	20
Mid-Term Exam	6-th Week	10
Practical Exam	12 th Week	30
Written Exam	Sixteenth week	90
Total	150	

6- List of references:

6-1 Course notes:

Advanced Communication Systems – **theoretical part** Advanced Communication Systems – **practical part**

6-2 Required books:

Rolmill Valdar, "SPC Digital Telephony Exchange", IEEE, Telecom series 1994

6-3 Recommended books:

"Lee ", "Mobile Communication fundamentals", John Wiley 1993 "Stevo Heath", " Multimedia &Communications Technology", Focal press,1996

7- Facilities required for teaching and learning:

- Laboratory
- Library
- Internet

Course coordinator	Prof. Dr. Said Baiomy.
Head of the Department	Prof. Dr. Mokhtar Abd El- Haleem
Date	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E582: Radar System & remote sensing

A- Affiliation

Relevant program:	Electronic Engineering & Communication Technology
Department offering the program:	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Electronic Engineering & Communication Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic Information

Title: Radar Systems & Remot Sensing Teaching Hours:

Code: E582 Lectures: 4 Practical: 0 Year/level: Fifth, 2nd term Tutorial:2 Total: 6

<u>C</u> - Professional Information

1 – Course Learning Objectives

By the end of this course the students should demonstrate the knowledge and understanding of the basic principals and concepts for analysis of performance for different types of radar systems and its applications.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

- On successful completion of the course the student should demonstrate the knowledge and understanding of: a1-classification and theories underlying different radar systems-CW & Pulse radars- (A2, A4, A20, A28)
 - a2-basic radar range equation and main parameters and factors that influence the maximum range of radar system (A1, A18, A21, A28).
 - a3-construction, operation and characteristics of basic components of different radar systems (A4, A18, A20, A24).
 - a4-basic techniques used for radar tracking of targets-mono-pulse & split gate systems- (A2, A20, A28).
 - a5- basic techniques used for radar remote sensing-SAR- (A2, A4, A24, A28).

B - Intellectual Skills

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

- b1- Investigate the effect external and internal parameters of radar system on the radar maximum range (B4, B5).
- b2-Evaluate the losses budget of the radar system, and its contribution on range of radar (B2, B5).
- b3-Invistigate how to improve the signal to noise ratio in pulse radars to increase the probability of detection of targets (B4, B17).
- b4-Identify the decision threshold level required to decide between targets and fulse alarm (B2, B15).

C - Professional and Practical Skills

- By the end of the course the student should be able to:
 - c1-analyze and investigate the performance of typical radar system- surveillance radar, tracking radar-(C1, C2).
 - c2-design and select the proper values of main prameters of radar subsystems (transmitter, antenna,... receiver) to achieve certain system performance (C1, C2, C3).

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 (D7).
- d2- write technical reports and prepares convenient presentations (D1, D4).

d3-practice self-learning (D7, D9).

Course Contribution in the Program ILO's

	ILO's	Program ILO's
A	Knowledge and understanding	A1,A2,A4,A18,A20,A21,A24,A28
В	Intellectual skills	B2,B4,B5,B15,B17
С	Professional and practical skills	C1, C2, C3
D	General and transferable skills	D1,D4,D7,D9

3 – Contents:

	Торіс	Lecture hours	Tutorial hours
•	Introduction to Radar systems		
1.	Basic Radars (pulse & CW radars) & Simple form of pulse radar		
	equation.	8	4
2.	Radar system (pulse & CW) – costruction- block diagrams.		
3.	Application of radar systems (military & civilian).		
•	The Pulse Radar Range Equation		
1.	Receiver Noise & S/N.		
2.	Noise Figure & Effective Noise Temp.		
3.	Probability of detection and False Alarm.		
4.	Integration of radar echo pulses.	24	11
5.	Target radar cross section fluctuation (Swerling Model).	24	14
6.	De-correlation of target echos.		
7.	Analysis of parameters of radar equation.		
8.	Radar system losses.		
9.	Surveillance-Radar range Equation		
•	Tracking Radar		
1.	Types of tracking Radar Systems		
2.	Amplitude Comparison mono-pulse.		
3.	Two-channel amplitude compression mono-pulse.	16	4
4.	Phase-comparison mono-pulse.		
5.	Conical scan and sequential lobbing.		
6.	Tracking by division of target echo envelop.		
•	Secondary Surveillance Radar:		
1.	Basic principles.	6	Л
2.	Problems with Secondary Surveillance Radar.	0	4
3.	Multipath.		
•	Radar Subsystems		
1.	Synchronizers	n	2
2.	Radar transmitters	۷	۷
3.	Radar Receivers.		
•	Remote Sensing Radar	4	2
Tota		60	30

			Teaching Methods							g s	Assessment Method			
	Course ILO's	Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Researches and Reports	Modeling and Simulation	Site Visits	Quizzes & Presentations	Assignments	Written Exam	Practical Exam
	a1	1		1	1			1			1	1	1	
dge	a2	1			1			1			1	1	1	
wle	a3	1			1			1				1	1	
Kno	a4	1		1	1			1				1	1	
	a5	1		1				1					1	
a	b1	1			1	1		1			1	1	1	
sctu	b2	1			1	1		1			1		1	
telle	b3	1			1	1		1			1		1	
<u>_</u>	b4	1			1	1		1			1		1	
lied	c1	1		1	1			1			1		1	
App	c2	1		1	1			1			1	1	1	
. ସ୍ଥ	d1				1	1		1						
ener	d2	1	1					1					1	
ĞГ	d3				1			1				1		

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

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

6- List of References

6-1 Course Notes

Tantawy, M. (2014) Radar Systems& Remote Sensing. Cairo: MAM Press.

6-2 Essential Books (Text Books)

• Skolnik, Introduction to Radar Systems and Radio Aids to Navigation, Khanna Publishers, 2003.

6-3 Recommended Books

- Sen& Bhattacharya (2003). Radar Systems and Radio Aids to Navigation. Delhi:Khanna Publishers.
- Kingsley & Quegan (2001). Understanding Radar Systems. Delhi: Meenakshi Printers.

6-4 Periodicals, Web Sites, etc.

www.radartutorial.eu / index.en.html

7- Facilities Required for Teaching and Learning:

- Lectures
- OHP and Data show facility for presentation of lectures material.

Course Coordinator:	Ass. Prof. Dr. Magdy Tantawy
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	September 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E552(d): POWER ELECTRONICS

A- Affiliation

Relevant program:	Electronic Engineering & Communication Technology
Department offering the program:	Electronic Engineering & Communication Technology Dpt.
Department offering the course:	Computer Engineering & Information Technology Dpt.
Date of specifications approval:	Nov. 2011

B - Basic information

Title: Power Electronics	Code: E 552 (d)	Year/level: 5th year,
Teaching Hours:	Lectures: 4	Tutorial: -
	Practical:	Total: 4

C - Professional information

1 – Course Learning Objectives:

A study of this course will enable the student to design an AC or DC power supply and use the controlled rectifier and chopper circuits to control DC motors and the inverters to control AC motors.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and understanding:

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

- a1- All kinds of conversions. (A14, A15, A16)
- a2- All kinds of semiconductor switch. (A14, A15, A16)
- a3- The use of all power supplies. (A14, A15, A16)
- a4- The principles of rectifier circuits operations. (A14, A15, A16)
- a5- The operations of inverters operations. (A14, A15, A16)
- a6- Specification of the properties of switches and circuits elements needed for a power supply. (A14, A15, A16)
- a7- All kinds of DC choppers (A14, A15, A16)
- a8- The operation of UPS (A14, A15, A16)

B - Intellectual skills:

- By the end of the course the student should be able to:
- b1- Choose the proper power supply. (B13)
- b2- Evaluate the performance of rectifiers. (B13)
- b3- Calculate the parameters of any power electronic circuit (B13)
- b4- Control the speed and toque of DC and AC motors. (B13)
- b5- Design a rectifier inverter and chopper circuits. (B13)

C - Professional and practical skills:

- By the end of the course the student should be able to:
- c1- Design any rectifier, inverter or chopper circuit. (C1, C2)
- c2- Test the correct operation of any rectifier of any power supply. (C1, C2)
- c3- Measure the efficiency of any power supply. (C1, C2)
- c4- Use power electronics for motor speed control. (C1, C2)

D - General and transferable skills:

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

- d1- Communicate effectively through assignments. (D7)
- d2- Effectively manage tasks, time, and resources. (D7)
- d3- Search for information and engage in life-long self-learning discipline. (D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A14, A15, A16
В	Intellectual skills	B13
С	Professional and practical skills	C1, C2
D	General and transferable skills	D7

3 – Contents

Торіс	Lecture hours	Tutorial hours	Practical hours	
Main task of power electronics	4	-	-	
Semiconductor switches	4	-	-	
Thyristors	4	-	-	
Power transistors	4	-	-	
Firing circuits	4	-	-	
Uncontrolled rectifiers	8	-	-	
Controlled rectifiers	8	-	-	
Parallel inverters	6	-	-	
Series inverters	6	-	-	
DC – Choppers	8	-	-	
• UPS	4	-	-	
Total hours	60	-	-	

		Teaching Methods					Learning Methods		Assessment Method						
Coursea II O's		Lecture	Presentations and Movies	Discussions	Tutorials	Lab Experiment	Problem solving	Brain storming	Projects	Site visits	Research and Reporting	Group Working	Discovering	Simulation and Modeling	Role Playing
	a1	1		1	1	1	1		1		1			1	
	a2	1		1	1	1	1		1		1			1	
ge	a3	1		1	1	1	1		1		1			1	
/ledç	a4	1		1	1	1	1		1		1			1	
Now	a5	1		1	1	1	1		1		1			1	
×	a6	1		1	1	1	1		1		1			1	
	а7	1		1	1	1	1		1		1			1	
	a8	1		1	1	1	1		1		1			1	
	b1	1		1	1	1	1	1	1		1			1	
ual	b2	1		1	1	1	1	1	1		1			1	
llect	b3	1		1	1	1	1	1	1		1			1	
Inte	b4	1		1	1	1	1	1	1		1			1	
-	b5	1		1	1	1	1	1	1		1			1	
	c1	1		1			1	1							
Applied	c2	1		1			1	1							
	c3	1		1			1	1							
	c4	1		1			1	1							
7	d1								1		1			1	
Genera Tran.	d2								1		1			1	
	d3								1		1			1	

4 - Teaching and Learning and Assessment methods:

5- Assessment Timing and Grading:

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

6- List of references:

6-1 Course notes

S. A. Gawish, Power Electronics, Cairo, 2008

6-2 Essential books (text books)

Cyril W. Lander, Power Electronics, Mc Grow - Hill Company, 2002

6-3 Recommended books

Muhammad H. Rashid, Power electronic circuit, Devices, and Applications, Second Edition, Prentice hall Inc., 2000

6-4 Periodicals, Web sites, etc.

Educational CD

7- Facilities required for teaching and learning:

 None 	
Course coordinator:	Prof. Dr. Said A. Gawish
Head of the Department:	Prof. Dr. Said A. Gawish
Date:	August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E572: Optoelectronics

A- Affiliation

Relevant program:	Electronics Engineering & Communication Technology Dept.
Department offering the	Electronics Engineering& Communication Technology Dept.
program:	
Department offering the course:	Electronics Engineering& Communication Technology Dept.
Academic year/level:	5th / 2 nd Semester
Date of specifications approval:	Nov. 2011

B - Basic information

Title: Control Engineering (I)	Code:E552(C)	Year/level:FifthYEAR / 2 nd term
Teaching Hours:	Lectures:3	Tutorial:1
	Practical: 1	Total:5

C - Professional information

1 – Course Learning Objectives:

The main objects of this course is to introduce the nature of optics and the physics as particles and wares, fundamentals of optical fiber communication, and light, laser semiconductor sources detectors.

2 - Intended Learning Outcomes (ILOS)

A - Knowledge and Understanding

- By the end of the course the student should gain the following knowledge and understanding:
- a1- Design and implementation of limited range optical fiber system. (A25)
- a2- Selection of proper light source and kind of modulation. (A22, A24)
- a3- Selection of light detector and construction of optical receiver. (A22, A25)
- a4- Noise analysis, power budget & bandwidth budget of the system. (A24, A25)

B - Intellectual Skills

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

- b1- Investigate of optical transmitters for analog and digital communication. (B12)
- b2- Investigate of optical receivers for analog and digital communication. (B12)
- b3- Investigate of distortion in optical fibers. (B12)
- b4- Identify bandwidth and power requirements. (B2, B17)
- b5- Judge the optical communication system requirement. (B2, B17)
- b6- Identify the studied system given the specification requirements. (B2, B17)

C - Professional and Practical Skills

- By the end of the course the student should be able to:
- c1- construct of an optical communication system. (C15, C18)
- c2- Measure and evaluate the optical system performance. (C15, C18)
- c3- Control of the factors affecting system performance. (C15, C18)
- c4- Understand of the interface between the system components. (C15, C18)
- c5- Use experimental facilities to investigate System performance. (C15, C18)

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- Communicate effectively. (D2)
- d3- Demonstrate efficient IT capabilities. (D7)
- d4- Effectively manage tasks, time, and resources. (D7)
- d5- Search for information and engage in life-long self-learning discipline. (D6)
- d6- Refer to relevant literatures. (D6)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A22, A24, A25
В	Intellectual skills	B2, B12, B17
С	Professional and practical skills	C15, C18
D	General and transferable skills	D2, D6, D7

3 – Contents

Торіс	Lecture	Tutorial	Practical
Optic & light wave fundamentals	3	-	-
Integrated optic wave Guides	10	2	2
Optic Fiber W.G	9	3	3
Light sources	4	2	2
Modulation	4	1	1
Light detectors	5	2	2
Noise & Detection	5	3	3
System design	5	2	2
TOTAL	45	15	15

4 - Teaching and Learning and Assessment methods:

Course ILO's			Tea	aching	Meth	ods		Lear	ning N	lethods	Assessment Method				
		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
م و	a1	1									1			1	
edge tandii	a2	1						1			1	1	1	1	
nowle	a3	1	1	1		1		1				1	1	1	
хЪ	a4	1	1	1		1		1	1			1	1	1	
	b1	1			1	1		1			1	1	1	1	
kills	b2	1			1	1		1			1	1	1	1	
lal S	b3	1			1	1		1			1	1	1	1	
llectu	b4	1			1	1		1				1	1	1	
Inte	b5	1			1	1		1						1	
	b6	1			1	1		1						1	
ills	c1						1								1
al Ski	c2						1								1
pplie siona	c3						1								1
A ofes:	c4						1								1
P	c5						1								1
s	d1								1						1
Skills	d2								1	1					
ran.	d3								1	1					
ıral T	d4								1						1
Sene	d5								1	1					
0	d6								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	6-th Week	10
Practical Exam	12 th Week	30
Written Exam	Sixteenth week	90
Total	150	

6- List of references:

6-1 Course notes

Theoretical part Practical part

6-2 Required books

Joseph polais, "fiber optical communication", 3rd

6-3 Recommended books

Keiser,"Optic fiber communication", 4th

6-4 Periodicals, Web sites, etc.

IEEE publications and Websites.

7- Facilities required for teaching and learning:

- Library
- Internet
- Data show, white board

Course coordinator:						
Head of the Department:						
Date:						

Prof. Dr. Said Baiomy Prof. Dr. Mokhtar Abd El- Haleem August 2015

Modern Academy for Engineering & Technology Electronic Engineering & Communication Technology Department E599: 5th Year Project

A- Affiliation

Relevant program:	Electronic and Comm. Tech. Dpt.
Department Offeringthe Program:	Electronic and Comm. Tech. Dpt.
Department Offering the Course:	Electronic and Comm. Tech. Dpt.
Date of Specification Approval:	Nov. 2011

B-Basic Information

Title: 5th Year Project	Code: E599		Year/Level:	Fifth
Teaching Hours:	Lectures:	1	Tutorials:	1
	Practical:	3	Total:	5

C- Professional Information

1- Course Learning Objectives

Developments of the following skills:

- Stating the requirements for developing useful Telecommunication Systems
- Analysis and Project design requirements.
- Projecting possible solutions and anticipated applications.
- Practical design implementation.
- Appreciating project economy.
- Making needed measurements.
- Writing complete report and conclusions.

2- Intended Learning Outcomes (ILOS)

a - Knowledge and understanding

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

- a1- Planning skills. (A4, A5, A8, A12, A14)
- a2- Organizational skills (A7, A8, A11)
- a3- Improvement of personal leadership skills. (A9, A11, A14)
- a4- Economics with existing market products. (A6, A7)
- a5- Understanding the requirements to produce quality production. (A6, A7)

b - Intellectual skills

- b1- Develop imaginative and design abilities. (B1, B3, B4)
- b2- Conceptualize of ideas. (B5, B7, B9)
- b3- Convert concepts to real entities. (B12, B13)
- b4- Integrate the results of design concepts. (B14, B15)
- b5- Predesign quality for production training. (B8, B16)

c - Professional and practical skills

- c1- Appreciating elements of Telecommunications design. (C1, C2, C3)
- c2- Practicing the setup of working Models. (C4, C5, C6)
- c3- Testing and correcting the projected operation. (C7, C8, C9)

d – General and transferable skills

- d1- Communicate effectively through e- mails. (D3, D4)
- d2- Effectively manage tasks, time, and resources. (D5, D6, D7)
- d3- Search for information and engage in life-long self-learning discipline. (D5, D6, D7)

Course Contribution in the Program ILO's

	ILO's	Program ILO's
А	Knowledge and understanding	A2, A4, A5, A6, A7, A8, A9, A11, A12, A14
В	Intellectual skills	B1, B3, B4, B5, B7, B8, B9, B12, B13, B14, B15, B16
С	Professional and practical skills	C1, C2, C3, C4, C5, C6, C7, C8, C9
D	General and transferable skills	D3, D4, D5, D6, D7

3- Contents

Торіс	Lecture Hours	Tutorial hours	Practice hours
Project Background	6		
Project Activities	10		
Practical implementation		10	20
Production of the final model		10	20
Testing and correcting output		10	20
Preparation of the presentation	10		
Total hours	26	30	60

4 - Teaching and Learning and Assessment methods:

			Tea	ching	Metho	ods		L N	Learning Assessment Method						
Course ILO's		Lecture	Presentations & Movies	Discussions & Seminars	Tutorials	Problem solving	Laboratory & Experiments	Brain storming	Self Learning	Researches and Reports	Midterm	Quizzes	Assignments	Written Exam	Practical Exam
g	a1	Х	Х	Х	Х	Х	Х	Х	Х	Х		Х	Х		Х
Knowledge Jnderstandin 8 8		Х		Х	Х	Х		х	х				Х		Х
			Х	х	Х	Х		х	х			Х	Х		Х
		Х		Х		Х			Х	Х					
ଝା	a5	Х		Х				Х	Х				Х		

	b1	Х	х	х	х	х	Х	х	х	х	Х	х	
Skills	b2		х		х	х	х	х		х		х	
ctual	b3	х		х		х		х		х	х	х	Х
ntelle	b4		х		х	х	х	х	х	х		х	Х
_	b5	х		х		х		х		х		х	х
nal	СХ	х	х	х	х	х		х		х		х	х
pplie fessic Skills	c2					х		х		х		х	
Pro	c3		х	х	х	х		х		х		х	
al iils	d1	х	х		х	х	х	х		х		х	
ener: In. Sk	d2		х	х	х	х	х	х	х	х		Х	
Tra	d3		х	х		х		х		х		Х	

5- Assessment Timing and Grading:

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

6- List of References

6-1 Course notes

Printouts and board explanations

6-2 Essential books (text books)

Library and field searching, including industry connections and practical relations with Research Institutes and Hardware Vendors

6-3 recommended books

Books and references related to the chosen subject

6-4 Periodical, Web sites, etc.

IEEE publications and Websites

7- Facilities Required for Teaching and Learning:

Project laboratories, including Lab1 and Lab 2 Workshops, inside and outside, for practical arrangements

Course Coordinator:	Projects distributed among the teaching Staff
Head of the Department:	Prof. Dr. Mokhtar Abd El- Haleem
Date:	August 2015



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قواعد حساب التقدير والتيسير للجان رصد الدرجات

تنفيذا للقرار الوزاري رقم ١٦٦٣ بتاريخ ٢٠١٣/٦/٢٢ بشأن قواعد التيسير لطلاب المعاهد العالية الخاصه الخاضعه لوزاره التعليم العالي يتم منح درجات التيسير كما يلي.

اولا: نص القرار

- **مادة** (١) يخصص للطالب سله درجات تعادل ٢% من مجموع النهايات العظمي لمجموع مقررات الفرقه ليستفيد بها لتغيير حالته وتطبق علي نتيجه العام بالكامل (الفصلين الدارسيين) بعد امتحان الطلاب في شهر مايو من كل عام ، ولا تطبق هذه القواعد للتخفيف علي الطالب الراسب ، ولا يسمح بتجاوز السله لدرجات الرأفه والرفع ، وتكون درجات الرأفه المضافه لاي مقرر بحد اقصي 1% من النهايه العظمي لدرجات المقرر ، وتطبق قواعد الرأفه والتيسير طبقا للقواعد والتيسير المضايين المالي الراسب ، ولا يسمح بتجاوز السله لدرجات الرأفه والرفع ، وتكون درجات الرأفه والتيسير طبقا للقواعد التليمين التيسير المناه لاي مقرر بحد اقصي المناي النهايه العظمي لدرجات المقرر ، وتطبق قواعد الرأفه والتيسير طبقا للقواعد والاولويات التاليه.
- لا ينظر لحالة الطالب الراسب في اكثر من نصف عدد المقرارت الخاصه بفرقته و لا تطبق عليه ايه قواعد للرأفه.
- ٢. لا يتم تطبيق قواعد التيسير علي المواد التي يحصل فيها الطالب علي اقل من ٣٠% من درجه التحريري للماده.
- ٣. ترتيب المقررات الراسب فيها الطالب (حاصل علي اقل من ٥٠% من النهايه العظمي للمقرر) طبقا لنو عيتها (مقررات التخلف ثم مقررات الفرقه)
 - ٤. ترتب بعد ذلك كل نوعيه طبقا لقربها من درجه النجاح (٥٠%)
- تتم تجربه اضافه درجات الرأفه للمقررات الاقرب للنجاح خصما من السله ، دون تعدي الحد الاقصي للسله بدءا بمقررات التخلف ثم مقررات الفرقه، فاذا ادت الي تغيير حالة الطالب من راسب الي ناجح في جميع المقررات أو بمقرر تخلف أو مقررين تخلف يتم تطبيقها ، اما اذا استنزفت السلة وتبقي مقررات لم يتم رفعها تزيد عن مقررين تعود حالة الطالب كما هي ولا تخفف عليه ايه مقررات.
- ٦. ويجوز رفع مقررات التخلف أو تخفيفها حتي لو لم ينجح الطالب وظل راسبا في الفرقة دون تجاوز الحد الاقصى للسة.
- ماده (٢) يخضع الطالب المعرض للفصل لقواعد رأفه أكثر مرونه ، فتزاد السلة الي ٤% من النهاية العظمي لمجموع درجات المقررات ، وترفع درجات الرأفة للمقرر الواحد لتكون في حدود ١٠% من النهاية النهاية العظمي للمقرر وتطبق نفس القواعد عاليه.
- ماده (٣) الطالب الذي رسب في أي مقرر واعادة بنجاح يحصل علي الدرجات الفعلية التي حصل عليها في الاعادة يحيث لا تتعدي أعلي درجه في تقدير مقبول.
- ماده (٤) الطلاب المطبق عليهم نظام المجموع التراكمي (المقيدين بالفرقة الأولي في العام ٩٦/٩٥ بالمعاهد العالية وعام ٩٨/٩٧ بالنسبة للمعاهد المتوسطة)، يمكن أن يتم رفع التقدير العام لهم في حدود سلة مقدارها ١% من النهاية العظمي لجميع المقررات التي درسها الطالب خلال سنوات الدراسة، متي كان هناك متبقي من السلة التي خصصت للطالب بجميع سنوات الدراسة.

- ماده (٥) يرفع تقدير الطالب في أي مقرر الي التقدير الأعلي متي كانت درجات الرفع لا تتعدي ١% من النهاية العظمي لدرجات المقرر وتخصم من سلة رفع التقدير العام.
- **ماده** (٦) تعلن نتيجة الفصل الدراسي الأول في المعاهد التي تطبق نظام الفصلين بالتقدير بدون تطبيق قواعد التيسير.
- **ماده** (٧) يعتبر دور نوفمبر بالنسبة للسنوات النهائيه دور آمكملا ويطبق عليه القواعد السابقة مع عدم تخطي المتبقي في السلة من دور مايو لنفس العام.
- **ماده** (٨) لا تطبق قواعد التيسير السابقة علي المواد العمليه والتي لا يدخل في إمتحانها جزء تحريري مثل المشروع او التدريب الميداني ، وكذا المواد التي لا تدخل درجاتها ضمن المجموع الكلي للمواد.
- **ماده** (٩) يعمل بهذا القرار إعتباراً من العام الدراسي ٢٠١٤/٢٠١٣ ، ولا يعتد بأي قرارات سابقة تتعارض مع ما جاء به، وعلي جميع الجهات المختصه تنفيذ هذا القرار.

ثانيا: التعليمات التفصيلية لمنح رجات التيسير

لجان رصد الدرجات تلتزم برصد الدرجات المسلمة اليها بكشوف الرصد منواقع • درجة التحربر بالمسجلة على ورقة الامتحان

- درجة أعمال السنة والامتحان العملي أو الشفهي المسجلة بالكشوف المقدمة من أستاذ المادة وموقع
 على جميع صفحاتها منه مع التأكد من التوقيع قرين أي كشط أو تعديل في الدرجة
 - قرارات التأديب ولجان الممتحنين وأى قرارات أخرى لمجلس تعليم الأكاديمية إن وجدت.

أ- تطبق القواعد التالية على الطلبة الجدد والباقون للإعادة ودور نوفمبر: ١- الحد الأقصى لدرجات التيسير:

۳۰ درجة	السنة الأولى
۳۰ درجة	السنة الثانية
۲۸ درجة	السنة الثالثة عدا العمارة
۳۰ درجة	السنة الثالثة عمارة
۲۹ درجة	السنة الرابعة عدا العمارة والتصنيع
۳۰ درجة	السنة الرابعة عمارة و تصنيع
۲٦ درجة	السنة الخامسة عدا العمارة
۲٤ درجة	السنة الخامسة عمارة
۲٦ درجة	دور نوفمبر عدا العمارة
۲٤ درجة	دور نوفمبر العمارة

					<u> </u>	
70.	۲	10.	1	٧0	0.	الدرجة القصوى للمادة
11.	٨٨	77	źź	٣٣	۲۲	الحد الأدنى للدرجة للسماح بالتيسير
10	۲۱	٩	٦	٥	٣	الحد الأقصىى لدرجة لتيسير التى تمنح

٢- الحد الأقصبي لدرجة التيسير التي تمنح للمادة:

- ٣- أولوية المواد الخاضعة للتيسير:
- أولوية أولى: مواد التخلف التى تحتاج لدرجات أقل للنجاح فالأعلى أولوية ثانية: المواد الأساسية الأقرب للنجاح (التى تحتاج لأقل درجات للنجاح فالأعلى) أولوية ثالثة: المواد الانسانية التى تحتاج لدرجات أقل للنجاح فالأعلى
- ٤- يتم رفع التقدير العام التراكمي للطلاب في حدود سله مقدار ها ١% من النهايه العظمي للخمس سنوات اذا كان متبقي درجات رأفة في السله وفي هذه الحاله لم يعد هناك ضرورة لرفع تقدير الفرقه في اي سنه من السنوات الدر اسبة.
 - م- يتم رفع تقدير الطالب في أي مقرر الي التقدير الأعلي في حدود 1% من النهايه العظمي لدرجات
 المقرر وتخصم من سلة رفع التقدير العام التراكمي كما هو موضح في الجدول الاتي:

لرفع	بعد ا	Ċ	قبل الرفع	الذواده العظم
التقدير	الدرجه	التقدير	الدرجه	المهاب المتعلمي
5	٣٣	J	٣٢	
ここ	3	で	50	0.
م	٤٣	ここ	٤٢	
う	٤٩	J	٤٨	
ここ	٥٧	で	00,0	٧o
م	75	うう	٦٣	
う	70	J	7 £	
ここ	٧٥	さ	٧٤) • •
م	٨٥	ここ	٨٤	
う	٨٢	J	۸۰ إلى ۸۱	
ここ	٩ ٤	で	٥, ٩٢ إلى ٩٣	170
م)•V	うう	۱۰۰ إلى ۱۰۰	
う	٩٨	J	۹۲ إلى ۹۷	
うう	١١٣	う	۱۱۱ إلى ۱۱۲	10.
م	١٢٨	ここ	۱۲۲ إلى ۱۲۷	
5	۱۳.	J	۱۲۸ إلى ۱۲۹	۲۰۰

5 5	10.	で	١٤٩ إلى ١٤٨	
م) V •	ここ	۱٦٨ إلى ١٦٩	
ج	173	L	١٦٠ إلى ١٦٢	
うう	١٨٨	う	۱۸۵ إلى ۱۸۷	70.
م	212	ここ	۲۱۰ إلى ۲۱۲	

ب- تطبق القواعد التالية على الطالب المتقدم من الخارج والمعرض للقيد من الخارج أو الفصل
 لاستنفاذ مرات الرسوب في حدود ١٠ % في المقرر.
 ١- الحد الأقصى لدرجات التيسير:

٢٠درجة	السنةالأولى
٢٠درجة	السنةالثانية
٦٥درجة	السنةالثالثةعداالعمارة
٢٠درجة	السنةالثالثةعمارة
۸ەدرجة	السنةالر ابعةعداالعمار ةو التصنيع
٢٠درجة	السنةالرابعةعمارة
٥٢درجة	السنةالر ابعةتصنيع
۲ ەدرجة	السنةالخامسةعداالعمارة
۸ ٤در جة	السنةالخامسةعمارة
۲ ەدرجة	دور نوفمبر عداالعمارة
۸ ٤ در جة	دور نوفمبر العمارة

۲- الحد الأقصى لدرجة التيسير التي تمنح للمادة:

70.	۲	10.	1	٧٥	0.	الدرجة القصوى للمادة
1 • •	٨.	٦.	٤.	۳.	۲.	الحد الأدنى للدرجة للسماح بالتيسير
70	۲.	10	۱.	٨	0	الحد الأقصى لدرجة لتيسير التى تمنح

ت- أقصى درجة تسجل لمواد التخلف:

70.	۲	10.	1	٧٥	0.	الدرجة القصوي لمادة التخلف
١٦.	١٢٨	٩٦	٦٤	٤٨	٣٢	الحد الأقصى لدرجة النجاح التىتسجل (وتسجل الدرجة الفعلية إذا كانت أقل)

ث - حالة الغياب بعذر الطالب المحمل بمادة تخلف (غياب بعذر) بقر ارمجلس الأكاديمية وموافقة الوزارة يمنح درجته كاملة مالم يكن قد سبق له الرسوب في هذه المادة.

ج- خامسا: التقدم للامتحان من الخارج
حالات التقدم من الخارج ينظمها القرار الوزارى رقم ٤٧٩ بتاريخ ١٩٩٤/٤/١٧ بشأن تعديل

حالة الطالب						
	متقدم من الخارج للمرة اثالثة	متقدم من الخارج للمرة الثانية	متقدم من الخارج للمرة الأولى	باق مستجد للإعادة	الفرقة	
			فصل نهائي	در اسة منتظمة	الأولى	
		فصل نهائي	من الخارج	در اسة منتظمة	الثانية	
فصل نهائى		من الخارج		در اسة منتظمة	الثالثة	
فصل نهائى		من الخارج		در اسة منتظمة	الرابعة	
فصل نهائى فى حالة رسوب الطالب فى اكثر من نصف مقررات السنة النهائية فى حالةنجاح الطالب فى نصف مقررات السنة النهائية فأكثريبقى من الخارج حتى يتم نجاحه فى جميع مقررات السنة		من الخارج		در اسة منتظمة	الخامسة	

ح- تقديرات المواد والسنوات والتخرج

- ١- يحتسب تقدير المادة على أساس النسبة المئوية التي حصل عليها الطالب في المادة وطبقا للجدول أدناه.
- ٢- يحتسب تقدير النجاح في العام الدراسي للطالب في حالة النجاح بدون مواد تخلف من العام الحالي أوسنوات سابقة. يحتسب التقدير على أساس النسبة المئوية لمجموع الدرجات التي حصل عليها الطالب في مواد نفس العام. ول ايدخل في حساب التقدير أي مواد تخلف وطبقا للجدول أدناه.
 ٣- في حالة النجاح في مواد التخلف فإنها تدخل في حساب تقدير عامها الأصلي.
- ٤- يحتسب تقدير التخرج على أساس النسبة المئوية للمجموع التراكمي للخمس سنوات وطبقا للجدول أدناه.

٥٨%فأكثر	من ۷۵% إلى أقل من ۸۵%	من ٦٥% إلى أقل من ٢٥%	من ٥٠% إلى أقل من ٢٥%	من ۳۰% إلى أقل من ۵۰%	أقل من ۳۰%	الدرجة
م امتياز	ج ج جيدجدا	<i>ختر</i> ع	ل مقبو ل	ض ضعيف	ضج ضعيف جدا	التقدير

خ مرتبة الشرف

يحصل الطالب على مرتبة الشرف عند التخرج إذا حقق الشروط الآتية: ١- أن يحصل على تقدير امتياز أوجيد جد ا في المجموع التراكمي للخمس سنوات

- ٢- ألا يقل تقديره في أي عام من أعوام الدراسة عن جيد جدا أو إمتياز في سنوات التخصص
 عداالسنة الأولى
 - ٢- ألا يرسب في أي إمتحان تقدم إليه عدا السنة الأولى
 - د- كيفية حساب أعمال السنة لطالب السنة النهائية في امتحان الدور الثاني (دور نوفمبر)
- ١- إذا كان الطالب ناجحا في أعمال السنة تؤخذ درجات أعمال السنة الحاصل عليها الطالب دون
 تعديل من دور مايو.
- ٢- إذا كان الطالب راسبا في أعمال السنة فيؤخذ بدرجة التحريري مع تنسيب الدرجة الحاصل عليها
 الطالب لتشمل أعمال السنة بشرط أن يكون ناجحا في ورقة الإجابة