Faculty of Engineering – Mansoura University

COMMUNICATIONS & COMPUTERS ENGINEERING

http://engfac.mans.edu.eg/

PROGRAM MATRIX

Course		Year	Aims					General Competencies (A)										Elec. Comp. (B)					Sp. C. (C)		Course	
			1	2	3	4	5	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	1	2		
BAS 011	Mathematics (1)	Level 000																							BAS 011	Mathematics (1)
BAS 021	Mechanics (1)																								BAS 021	Mechanics (1)
BAS 031	Physics (1)																								BAS 031	Physics (1)
BAS 041	Basics of Chemical Engineering																								BAS 041	Basics of Chemical Engineering
PDE 052	Engineering Drawing																								PDE 052	Engineering Drawing
UNR 061	English Language (1)																								UNR 061	English Language (1)
BAS 012	Mathematics (2)																								BAS 012	Mathematics (2)
BAS 022	Mechanics (2)																								BAS 022	Mechanics (2)
BAS 032	Physics (2)																								BAS 032	Physics (2)
CSE 042	Introduction to Computer Systems																								CSE 042	Introduction to Computer Systems
PDE 051	Principles of Manufacturing Engineering																								PDE 051	Principles of Manufacturing Engineering
UNR 062	English Language (2)																								UNR 062	English Language (2)
BAS 113	Mathematics (3)	Level 100																							BAS 113	Mathematics (3)
ENG 111	Technical Report Writing																								ENG 111	Technical Report Writing
UNR 171	History of Engineering and Technology																								UNR 171	History of Engineering and Technology
ECE 121	Electric Circuits																								ECE 121	Electric Circuits
CSE 141	Digital Logical Design 1																								CSE 141	Digital Logical Design 1
ECE 122	Solid State Electronics																								ECE 122	Solid State Electronics
BAS 114	Mathematics (4)																								BAS 114	Mathematics (4)
BAS 115	Statics and Probability Theory																								BAS 115	Statics and Probability Theory
CSE 112	Algorithms and Data Structures																								CSE 112	Algorithms and Data Structures
ECE 131	Signals and Systems																								ECE 131	Signals and Systems
ECE 123	Electronic Basics																								ECE 123	Electronic Basics
ELE 151	Electric Power and Machines																								ELE 151	Electric Power and Machines
BAS 215	Mathematics (5)	Level 200																							BAS 215	Mathematics (5)
CSE 211	Digital Design 2																								CSE 211	Digital Design 2
CSE 212	Database Systems																								CSE 212	Database Systems
ECE 231	Digital Signal Processing																								ECE 231	Digital Signal Processing
UNR 241	Communication and Presentation Skills																								UNR 241	Communication and Presentation Skills
CSE 221	Control 1																								CSE 221	Control 1
CSE 213	Computer Architecture																								CSE 213	Computer Architecture
ECE 232	Analog Communication Systems																								ECE 232	Analog Communication Systems
ECE 221	Electronic Circuits																								ECE 221	Electronic Circuits
UNR 281	Law and Human Rights																								UNR 281	Law and Human Rights
CCE 271	Field Training (1)																								CCE 271	Field Training (1)
CSE 311	Operating Systems	Level 300																							CSE 311	Operating Systems
ECE 331	Digital Communication Systems																								ECE 331	Digital Communication Systems
CSE 313	Microprocessors																								CSE 313	Microprocessors
ECE 341	Electromagnetic Fields																								ECE 341	Electromagnetic Fields
CCE 311	Integrated Circuits																								CCE 311	Integrated Circuits
CCE 331	Optical Fiber																								CCE 331	Optical Fiber
CCE 332	Microwave Engineering																								CCE 332	Microwave Engineering
CCE 341	Distributed Systems																								CCE 341	Distributed Systems
CCE 342	Multimedia																								CCE 342	Multimedia
CCE 343	Computer System Programming																								CCE 343	Computer System Programming
CCE 344	Software Engineering																								CCE 344	Software Engineering
CCE 345	Control (2)																								CCE 345	Control (2)
CSE 312	Computer Networks (1)																								CSE 312	Computer Networks (1)
ECE 342	Waveguides and Antennas																								ECE 342	Waveguides and Antennas
CSE 315	Embedded Systems																								CSE 315	Embedded Systems
CSE 314	Computer Drawing																								CSE 314	Computer Drawing
CCE 371	Training 2																								CCE 371	Training 2
CCE 481	Graduation Project (1)	Level 400																							CCE 481	Graduation Project (1)
ECE 431	Mobile Communications																								ECE 431	Mobile Communications
CSE 411	Advanced Programming Techniques																								CSE 411	Advanced Programming Techniques
UNR 461	Ethics and Morals of the Profession																								UNR 461	Ethics and Morals of the Profession
ENG 412	Project Management																								ENG 412	Project Management
CCE 482	Graduation Project (2)																								CCE 482	Graduation Project (2)
CSE 421	Programmable Logic Control																								CSE 421	Programmable Logic Control
CSE 422	Artificial Intelligence																								CSE 422	Artificial Intelligence
UNR 471	Marketing																								UNR 471	Marketing
CCE 411	Industrial Electronics																								CCE 411	Industrial Electronics
CCE 412	Introduction to Nanotechnology																								CCE 412	Introduction to Nanotechnology
CCE 421	Information Theory																								CCE 421	Information Theory
CCE 422	Selected Topics in Communications Engineering																								CCE 422	Selected Topics in Communications Engineering
CCE 423	Satellite Communications																								CCE 423	Satellite Communications
CCE 424	Communication Security																								CCE 424	Communication Security
CCE 425	Adaptive Filters																								CCE 425	Adaptive Filters
CCE 426	Phonics																								CCE 426	Phonics
CCE 427	Wireless Communications																								CCE 427	Wireless Communications
CCE 441	Computer Networks (2)																								CCE 441	Computer Networks (2)
CCE 442	Design and Programming of Web server																								CCE 442	Design and Programming of Web server
CCE 443	Big Data Analytics																								CCE 443	Big Data Analytics
CCE 444	Selected Topics in Computers Engineering																								CCE 444	Selected Topics in Computers Engineering
CCE 445	Game Theory and Decision Making																								CCE 445	Game Theory and Decision Making
CCE 446	Internet Engineering																								CCE 446	Internet Engineering
CCE 447	Languages Compilers																								CCE 447	Languages Compilers
CCE 461	Digital Image Processing																								CCE 461	Digital Image Processing
CCE 462	Biomedical Engineering																								CCE 462	Biomedical Engineering
CCE 463	Communication Engineering for Genetics and Bioinformatics																								CCE 463	Communication Engineering for Genetics and Bioinformatics
CCE 464	Neural Engineering																								CCE 464	Neural Engineering

PROGRAM VISION

"Achieve leadership in the field of communications and computer engineering and gain the confidence of the local and regional community in the graduate of the program"

PROGRAM MISSION

"The Communications and Computers Engineering program at Mansoura University committed to prepare scientifically and ethically qualified and professional engineers in the fields of communications and computer engineering, able to compete in the local and regional labor market and conduct scientific research to serve society and develop the environment "

PROGRAM AIMS

Upon successful completion of the program, graduates must be able to:

1. In-depth knowledge: Acquire in-depth knowledge of the requirements of mathematics, natural sciences, and basic engineering concepts to practice communication engineering or advanced computer engineering, including accurate analysis and creative design, compact and real design and smart applications.
2. Broad specialized science: Acquisition of specialized science for communications engineering, including knowledge of various contemporary engineering issues related to disciplines.
3. Professional: Use practical and managerial skills to design systems, conduct experiments, analyze data, manage projects, identify and solve engineering problems necessary for productive occupations in the public and private sectors, or to pursue higher education.
4. Professionalism: Identify communication, presentation and language skills to ensure effective communication, demonstrate professional and ethical responsibilities, and engage in lifelong self-learning so that graduates are prepared for a modern and complex work environment
5. Creativity: Providing an environment that enables students to pursue their goals in an innovative, rigorous, developed and supportive program.

Learning Outcomes (LO's)

A Competencies of engineering graduate

The engineering graduates should be able to:

A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
A2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
A3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the discipline and within the principles and contexts of sustainable design and development.
A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
A5. Practice research techniques and methods of investigation as an inherent part of learning.
A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8. Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools.
A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
A10. Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.

B Competencies of Basic Electrical Engineering

Electrical engineering graduate must be able to:

B1. Select, model and analyze electrical power systems applicable to the specific discipline by applying the concepts of: generation, transmission and distribution of electrical power systems.
B2. Design, model and analyze an electrical/electronic/digital system or component for a specific application; and identify the tools required to optimize this design.
B3. Design and implement: elements, modules, sub-systems or systems in electrical/electronic/digital engineering using technological and professional tools.
B4. Estimate and measure the performance of an electrical/electronic/digital system and circuit under specific input excitation, and evaluate its suitability for a specific application.
B5. Adopt suitable national and international standards and codes to: design, build, operate, inspect and maintain electrical/electronic/digital equipment, systems and services.

C High Specialized Competencies

The graduates of communications and computers engineering program should be able to:

C1. Design, analyze and measure the performance of communication and control systems in various applications
C2. Designing and simulating different applications using computers and mobile phones