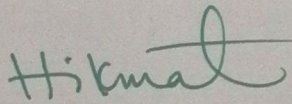


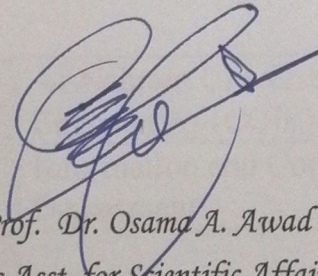
Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation

Academic Program Specification Form for The Academic Year 2019-2020

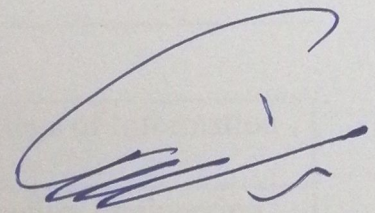
University: Al- Nahrain
College: Information Engineering
Department: Information and Communication Engineering
Date of Form Completion: 2019/8/15



Prof. Dr. Hikmat N. Abdullah
College Dean
Date: 2019/11/17
Signature

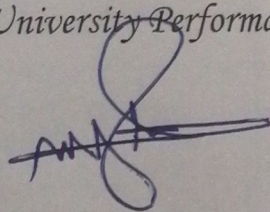


Asst. Prof. Dr. Osama A. Awad
Dean's Asst. for Scientific Affairs
Date: 2019/11/17
Signature



Asst. Prof. Dr. Mohammed F.A-1
Head of Department
Date: 2019/11/17
Signature

Quality Assurance and University Performance Manager
Date: 2019/11/17
Signature



SYSTEMS ENGINEERING PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

The Information and Communications Engineering program consists of 4 compulsory academic years (8 semesters) with a total of 144 units, with an average of 36 units per academic year. Total academic hours are 3,285 hours, 5.5% for university requirements, 39.58% for college requirements and 54.68% for department (specialist) requirements.

The program provides the basic knowledge and skills needed in the fields of modern digital communications engineering and multimedia technology, as well as in the programming and design of computer networks, in addition to computer and information security and encryption algorithms. Furthermore to the analysis and design of advanced computer information systems and their applications, and data transmission in wired and wireless networks.

1. Teaching Institution	Al-Nahrain University\ College of Information Engineering (COIE)
2. University Department/Centre	Information and Communication Engineering Department
3. Programme Title	B.Sc., M.Sc. and PhD. In Information and Communication Engineering
4. Title of Final Award	Bachelor of Science in Information and Communication Engineering Masters, PhD in Information and Communication Engineering
5. Modes of Attendance offered	Internal / Full Time / 2- semester courses
6. Accreditation	ABET like requirements
7. Other external influences	Quality Assurance Program of the Ministry of Higher Education and Scientific Research
8. Date of production/revision of this specification	2019/8/15

9. Aims of the Programme

The program aims to graduate scientifically and professionally qualified engineering cadres, capable of developing information and communication systems and their applications, managing them and using them effectively and efficiently to provide integrated quality in information and communication engineering services.

As well as arming graduates with the necessary knowledge and skills required and the latest technology to analyze problems, face challenges, work in a team spirit, and have the ability to compete in the labor market, whether in the public or private sectors.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

- A1. Employing the foundations of mathematics in the field of information and communication engineering.
- A2. Introducing programming concepts, object-oriented programming, and operating systems.
- A3. Apply engineering principles in defining, formulating and solving engineering problems.
- A4. Analyzing and designing information systems, their applications, and data transmission.

Teaching and Learning Methods

Theoretical, tutorials and practical lectures, daily assignments, and discussions. In addition to uploading video lectures via the Internet using the Moodle system.

Assessment methods

Daily, quarterly and final exams, daily tasks and assignment, discussions, laboratory reports, and graduation projects.

B. Subject-specific skills

- B1. The ability to present, analyze and solve problems using scientific methods.
- B2. The ability to use engineering principles and apply computational and programming methods to analyze information and communication systems in general.
- B3. Use of effective communication means and skills and the ability to work as a group to activate the processes associated with the specialty.
- B4. The ability to use methods and procedures in collecting and analyzing data and writing and submitting scientific reports.

Teaching and Learning Methods

1. Practicing continuous learning and self-learning in the field of specialization
2. Students learn to lead individuals to achieve the desired goals
3. Familiarity with the English language in addition to the mother tongue to enable the graduate to continue working and learning

Assessment methods

Conduct classroom and field practices to test student skills

C. Thinking Skills

- C1. The ability to present the problem, define objectives and procedures, and collect the required information from its correct sources.
- C2. The ability to analyze the problem using various engineering, mathematical and software methods, find appropriate solutions and possible alternatives, and make a decision.
- C3. The ability to analyze the results and make tables and graphs to represent the various data.
- C4. The ability to work within security procedures and professional and ethical methods in the field of information and communication engineering.

Teaching and Learning Methods

Theoretical and scientific lectures, in addition to self-learning and obtaining information, whether inside or outside the classroom, and devising ways to obtain information on their own.

Assessment methods

Conducting tests in addition to those mentioned in the syllabus, especially those related to informatics published in the pages of modern scientific communication.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- D1. The ability to design and implement programs and applications appropriate to the needs of the beneficiary.
- D2. The ability to be creative, innovative, solve problems, communicate scientific ideas, suggest solutions and provide advice.
- D3. Ability to manage oral presentations, manage time, use information sources and work as part of a team.
- D4. The ability to apply security procedures and professional and ethical methods in the field of information and communication engineering.

Teaching and Learning Methods

Theoretical and scientific lectures, in addition to urging students to achieve the above goals through the procedures for achieving the goals of the graduation project, as well as being able to view research related to the above goals.

Assessment methods

Quarterly and final exams in addition to discussing scientific projects and experiments in laboratories.

11. Programme Structure

Year/ Semester	Course or Module Code	Course or Module Title	Units	Notes
1 st Year 1 st Sem.	UR111	English Language I	2	1 st Year (36) units 18 units each semester
	CR111	Computer Programming	3	
	CR112	Mathematics I	3	
	CR113	Logic Circuits	3	
	CR114	IT Fundamentals & Workshop	3	
	CR115	Physical Electronics	4	
1 st Year 2 nd Sem.	UR121	English Language II	2	
	CR121	Object oriented Prog. I (C++)	3	
	CR122	Mathematics II	4	
	CR123	Electrical Circuits	4	
	CR124	Engineering Drawing & CAD	2	
	ICE121	Internet Programming I	3	
Year/ Semester	Course or Module Code	Course or Module Title	Units	Notes
2 nd Year 1 st Sem.	UR211	Arabic Language	2	2 nd Year (36) units 18 units each semester
	CR211	Object Oriented Prog. II (Java)	3	
	CR212	Electronics	4	
	CR213	Engineering Analysis	4	
	ICE211	Statistical Inform. Theory	2	
	ICE212	Database Systems & Data Structure	3	
2 nd Year 2 nd Sem.	CR221	Digital Electronics	3	
	ICE221	Coding & Data Compression	3	
	ICE222	Microprocessors Architecture & Interfacing	4	
	ICE223	Internet Programming II	3	
	ICE224	Transmission Line Theory	2	
	ICE225	Computer Networks	3	

Year/ Semester	Course or Module Code	Course or Module Title	Units	Notes
3 rd Year 1 st Sem.	CR311	Communication Systems	4	3 rd Year (36) units 18 units each semester
	CR312	Project Management	2	
	ICE311	Computer Architecture	3	
	ICE312	Modern Algebra & Discrete Mathematics	2	
	ICE313	Engineering Analysis (signal + numerical)	4	
	ICE314	Distributed Database	3	
3 rd Year 2 nd Sem.	UR321	Human Rights	1	
	CR321	Operating Systems	4	
	ICE322	Cryptography	3	
	ICE323	Digital Communications	4	
	ICE324	Image Processing	3	
	ICE325	Information Systems	3	
Year/ Semester	Course or Module Code	Course or Module Title	Units	Notes
4 th Year 1 st Sem.	UR411	Democracy	1	4 th Year (36) units 18 units each semester
	CR411	Digital Signal Processing	4	
	ICE411	Project	2	
	ICE412	Wireless Communications	3	
	ICE413	Advanced Operating Systems	4	
	ICE414	Control Engineering	4	
4 th Year 2 nd Sem.	ICE411	Project	2	
	ICE421	Multimedia Computing	3	
	ICE422	Internet Engineering	3	
	ICE423	Data Mining	2	
	ICE424	Artificial Intelligence	4	
	ICE425	Network and Communication Protocols	4	

12. Awards and Credits

Bachelor Degree Requires (144) credits

Master Degree Requires (36) credits

PhD Degree Requires (60) credits

13. Personal Development Planning

1. Urging students to build a self-study plan and teaching them how progress towards achieving this plan through self-learning.
2. To be guided by the department head and his council in this regard.
3. Benefit from the experience of professors with long experience in the field of personal development.
4. Extracurricular activities.

14. Admission criteria .

Central admission of the Ministry of Higher Education and Scientific Research

15. Key sources of information about the programme

- Student's guide to central admission prepared by the Ministry of Higher Education and Scientific Research.
- Faculty of Information Engineering Guide.

Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Programme Learning Outcomes

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Year 1 Semester I	UR111	English Language I	O															×	×
	CR111	Computer Programming	C		×		×	×	×	×	×		×	×	×	×	×	×	×
	CR112	Mathematics I	C	×				×	×				×				×		
	CR113	Logic Circuits	C			×	×		×		×		×	×			×		
	CR114	IT Fund. & Workshop	C		×		×	×	×	×	×	×	×	×		×	×	×	
	CR115	Physical Electronics	C	×					×		×		×	×					
Year 1 Semester II	UR121	English Language II	O															×	×
	CR121	Object oriented Prog. I	C		×		×	×	×	×	×		×	×	×	×	×	×	
	CR122	Mathematics II	C	×				×	×				×				×		
	CR123	Electrical Circuits	C	×		×			×		×		×	×		×	×		
	CR124	Eng. Drawing & CAD	C		×	×	×		×		×		×	×		×	×		
	ICE121	Internet Programming I	C		×		×	×	×	×	×	×		×	×	×	×	×	

Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Programme Learning Outcomes

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Year 2 Semester I	UR211	Arabic Language	O															×	×
	CR211	Object Oriented Prog. II	C		×		×	×	×	×			×	×		×	×	×	
	CR212	Electronics	C			×			×		×		×	×					
	CR213	Engineering Analysis	C	×		×	×	×	×				×				×		
	ICE21	Statistical Infor. Theory	C	×			×	×	×				×				×		
	ICE21	DB Sys & Data Structure	C		×		×		×		×		×	×	×	×	×	×	
Year 2 Semester II	CR221	Digital Electronics	C			×			×		×		×	×					
	ICE221	Coding & Data	C	×		×	×	×	×				×				×		
	ICE222	Microprocessors	C		×	×	×		×		×	×	×	×			×		
	ICE223	Internet Programming II	C		×		×	×	×	×	×		×	×	×	×	×	×	
	ICE224	Transmission Line Theory	C	×		×	×	×	×			×	×				×		
	ICE225	Computer Networks	C		×	×	×	×	×	×	×		×	×	×	×	×	×	

Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Programme Learning Outcomes

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Year 3 Semester I	CR311	Communication Systems	C	×		×	×	×	×	×	×	×	×	×			×		
	CR312	Project Management	C							×				×				×	×
	ICE311	Computer Architecture	C		×	×							×						
	ICE312	Modern Algebra & Discrete Mathematics	C	×					×					×				×	
	ICE313	Engineering Analysis	C	×		×		×	×		×		×	×				×	
	ICE314	Distributed Database	C		×		×		×	×		×		×	×	×	×	×	
Year 3 Semester II	UR321	Human Rights	O															×	×
	CR321	Operating Systems	C		×				×		×		×	×	×	×			
	ICE322	Cryptography	C	×		×			×		×		×	×	×	×	×	×	×
	ICE323	Digital Communications	C	×		×	×	×	×	×	×	×	×	×	×		×	×	×
	ICE324	Image Processing	C	×		×	×	×			×	×	×	×		×	×		×
	ICE325	Information Systems	C			×	×		×	×		×	×		×		×		×

Curriculum Skills Map

Please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed

Programme Learning Outcomes

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development				
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4	
Year 4 Semester I	UR411	Democracy	O																x	
	CR411	Digital Signal Processing	C	x		x	x	x	x		x		x	x			x			
	ICE411	Project	C			x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	ICE412	Wireless Communications	C	x		x	x	x	x	x	x	x	x	x	x		x		x	
	ICE413	Adv. Operating Systems	C		x				x		x		x	x	x	x				
	ICE414	Control Engineering	C	x		x		x			x		x	x	x			x		
Year 4 Semester II	ICE411	Project	C			x	x	x	x	x	x	x	x	x	x	x	x	x	x	
	ICE421	Multimedia Computing	C			x	x	x			x		x	x		x	x		x	
	ICE422	Internet Engineering	C		x	x	x	x	x		x		x	x	x	x	x		x	
	ICE423	Data Mining	C				x						x		x	x	x			
	ICE424	Artificial Intelligence	C	x					x		x		x	x		x	x			
	ICE425	Net. & Comm. Protocols	C		x	x	x	x	x		x		x	x	x			x		

