

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



**Academic Program
Al-Ayen Iraqi University
Engineering technical college
Computer technical
engineering**

2025–2026

Academic Program Description Form

University Name: Alayen Iraqi University
Faculty/Institute: Engineering technical college
Scientific Department: Computer techniques Engineering
Academic or Professional Program Name:
Final Certificate Name: Bachelor
Academic System: Annual
Description Preparation Date: 1 / 9 / 2025
File Completion Date: 12 / 10 / 2025

Signature:

Head of Department Name:

Dr. Ghadir Ibrahim Mada

Date: 13 / 10 / 2025



Signature:

Scientific Associate Name:

Asst. Prof. Dr. Raed N. Alubaidy

Date: 13 / 10 / 2025

أ.م.د. رائد نصير الجبيري
معاون العميد للشؤون العلمية

The file is checked by: Mohammed Hussein Haider

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 13 / 10 / 2025

Signature:

3 / Approval of the Dean



Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

1. Program Vision

Qualifying distinguished and innovative competencies scientifically and with high skill and professional and ethical behavior who are able to keep pace with developments in the fields of computer techniques and facing the engineering scientific challenges to provide applicable solutions and community service.

2. Program Mission

Graduating distinguished technical engineers with qualified scientific and ethical levels and high efficiency in the fields of computer techniques by providing an advanced scientific environment and specialized faculty to be able to complete the process of higher education and professional learning and provide community service within multidisciplinary work times.

3. Program Objectives

PEO1: competently apply engineering methods to solve professional problems associated with the design, development, manufacture, and maintenance of computers techniques and related systems and understand the social, ethical, and environmental context of their work.

PEO2: communicate effectively with diverse and international communities, collaborate competently in cross-functional teams, and assume leadership roles while meeting the expectations of their employers.

PEO3: habitually engage in technical professional development.

4. Program Accreditation

ABET

5. Other external influences

Labor market: where many seminars and meetings held to discuss academic and applied content with employers

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	٦	١٣	%	
College Requirements	١0	٥2	24%	
Department Requirements	٢٦	١٤٧	70%	
Summer Training				
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
Fourth year	CE 411	Computer Networks Protocols	2	2
Fourth year	CE 421	Information Theory and Coding	2	2
Fourth year	CE 422	Mobile Communication systems	2	2
Fourth year	CE 461	Project Management	2	2
Fourth year	CE 423	Multimedia Computing	2	2
Fourth year	CE 413	Security of Computer and Networks	2	2
Fourth year	CE 412	Advanced Computer Technology	2	2

8. Expected learning outcomes of the program

Knowledge	
A1	Knowledge and understanding of telecommunications networks and how to connect them.
A2	Knowledge and understanding of the digital signal and how to analyze them.
A3	Knowledge and understanding of parts of computers and how to address their problems.
A4	Knowledge and understanding of electronic circuits for different computerized devices and how to design them.
A5	Knowledge and understanding of different programming languages and how to take advantage of them.
A6	Know the types of digital systems and how to design and program them.
Skills	
B1	Linking internal and external networks wired and wireless.
B2	Design and Implementation of printed circuit boards.
B3	Installation and interfacing communications of computerized operations Systems.

B4	Skills of maintaining personal and industrial computerized systems.
B5	Decision-making skills
Ethics	
C1	Planting the spirit of creativity among students to ensure that they can find innovative solutions to problems.
C2	Students develop the ability to work together effectively as teams
C3	Sense of responsibility among students and psychological configuration to carry burdens.
C4	Development to ensure the values and perseverance to get the job done and to reach satisfactory results.

9. Teaching and Learning Strategies

1. Use the strategy of cooperation and assistance during the educational process.
2. Field visits to relevant ministries and educational institutions.
3. Organizing seminars, courses and workshops for students that encourage spiritual values.
4. Discussions during lectures.
5. Labs
6. Discussions

10. Evaluation methods

1. Observing students' interaction with electronic circuits
2. Problems -based scenarios
3. Homework
4. Questionnaires
5. Short MCQs
6. Oral exam and direct questions in the class
7. Midterm exam
8. Electronic exams on the electronic platform
9. Final exam

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
	9	11			6	14

Professional Development	
Mentoring new faculty members	
Participation in training courses held within the college.	
Professional development of faculty members	
The department organizes different courses through the center of continuing education in several areas.	

12. Acceptance Criterion	
This is done according to the acceptance rate in the engineering group (of Electrical Engineering Technical College, Technical Engineering Department) within the electronic form approved by the Ministry of Higher Education and Scientific Research (central admission). The central admission standards have been applied to the college since the 2017 academic year.	

13. The most important sources of information about the program	
1. Lectures given by the subject teacher. 2. Books available in the college library. 3. Books on the Al-Ayen University platform. 4. Any website related to studying electronic circuits. Using modern references, using the latest books used in international universities, and developing the curriculum annually in a way that is compatible with university education	

14. Program Development Plan	
1. Creating an urgency for innovation and change 2. Overcoming barriers that often get in the way of effective change efforts	

3. Looking outward for innovative inspiration and best practices
4. Determining the need for new facilities
5. Budgeting for marketing and recruitment efforts

			Program Skills Outline															
					Required program Learning outcomes													
Year/Level	Course Code	Course Name	Basic or optional	Knowledge						Skills					Ethics			
				A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4
Fourth	CE 411	Computer Networks Protocols	Basic	X	X		X	X	X	X	X		X	X	X	X		X
	CE 421	Information Theory and Coding	Basic	X	X	X		X	X	X	X	X		X	X	X	X	
	CE 422	Mobile Communication systems	Basic	X	X	X	X		X	X	X	X	X		X	X		X
	CE 461	Project Management	Basic	X	X	X	X	X		X	X		X	X	X	X	X	
	CE 423	Multimedia Computing	Basic	X	X		X	X	X	X	X	X		X	X	X		X
	CE 413	Security of Computer and Networks	Basic	X	X	X		X	X	X	X	X	X		X	X	X	
	CE 412	Advanced Computer Technology	optional	X	X	X	X		X	X	X		X	X	X	X		X

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

Course Description Form

1. Course Name:	
Advanced Computer Technology	
2. Course Code:	
CE 412	
3. Semester / Year:	
Fourth year (Annual)	
4. Description Preparation Date:	
٢٩/٠٩/2025	
5. Available Attendance Forms:	
Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
120 h/٦	
7. Course administrator's name (mention all, if more than one name)	
Name: Mazen mohammad youssef Email: Mazen.mohammad@alayen.edu.iq Name: Zahraa bassim soud Email: Zahraa.bassim@alayen.edu.iq	
8. Course Objectives	
Course Objectives	1. Enable student to understanding the μP and its architecture and the addressing modes. 2. Enable student to Viewing and knowledge the Paging mechanism, Segment translation and Page translation 3. To enable student to Analyzing the Cache memory, Cache organization, fully associative, Direct mapped and Set associative 4. Enable the graduate student to analyzing the Cache memory used for 80386 • Direct Maps • Two-way set associative 5. Empower the graduate student to develop problem solving skills and understanding of Intel's Pentium and its Features 6. Pentium pro, Out of order execution 7. Other Pentium processors, Core Processor
9. Teaching and Learning Strategies	
Strategy	1. Organizing seminars, courses and workshops for students that encourage spiritual values.

			2. Discussions during lectures. 3. Labs 4. Discussions		
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1,2,3 th	12	A1, A2, B1, B2, C1, C2,	Introduction to computers and assembly programming	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam
4,5 th	8	A1, A2, B1, C1, C2	The μ P and its architecture. Addressing modes		
6,7 th	8	A1, A2, B2, C1, C2, C4,	Protected mode memory addressing. Selectors and descriptors. Local and global descriptor tables		
8,9 th	8	A1, A2, B2, C1, C2	Descriptor and page table entries		
10,11 th	8	A1, A2, A3, B3, C1, C2, C4	- Memory paging - Virtual memory		
12,13,14 th	12	A1, A2, A3, B2, , C1, C4, C4	- Paging mechanism. Segment translation. Page translation		
15,16,17 th	12	A1, A2, A3, B1, B2, B3, C1, C2, C4,	Major changes in the 80386, Hardware organization of		

			the memory address space		
18,19,20, 21 th	16	A1, A4, A6, B1, B2, B3, C1, C2, C4	Cache memory –Cache organization. –Fully associative. –Direct mapped. –Set associative		
22,23 th	8	A1, A2, A3, B1, B2, B3, C1, C2, C4,	Cache memory used for 80386 - Direct Maps - Two-way set associative		
24,25 th	8	A3, A4, A5, B3 B5,, C1, C2, C4,	Enhancements of 80386, Pipelining design Techniques		
26,27 th	8	A3, A5, B3, B5 , C1, C2, C4,	intel's Pentium . Features of the Pentium		
28,29,30 th	12	A3, A4, A6, B3, B3, B5, C2, C4,,	Pentium pro -Out of order execution Core processor		

11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books)	CORE TEXTS
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any)	· COURSE MATERIALS · OTHER
Main references (sources)	The 80386, 80486 and Pentium Processor By: Wal A. Triebel
Recommended books and references (scientific journals, reports...)	The 80x86 IBM Pc and Compatible Computers (Volumes I & II) By: Mohammed Ali Mazidi
A- Recommended books and references (scientific journals, reports...).	Intel Microprocessors By: Barry B. Brey

Course Description Form

1. Course Name:	
Computer Networks Protocols	
2. Course Code:	
CE 411	
3. Semester / Year:	
Fourth year (Annual)	
4. Description Preparation Date:	
٢٩/٠٩/٢٠٢٥	
5. Available Attendance Forms:	
Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
120 h/4	
7. Course administrator's name (mention all, if more than one name)	
Name: Yousif Ward Sakr, Email: ywsfward7@gmail.com Name: Baneen shuaibth bzaiea Email: Baneen.shuaibth@alayen.edu.iq	
8. Course Objectives	
Course Objectives	1. Know the types of computer networks 2. Know the types of devices of Computer Networks protocols 3. Learn methods of linking and layering computer networks 4. Know how to relay information through computer networks protocols 5. Know the types of protocols and programs that is appropriate for computer networks depending on the desired application.
9. Teaching and Learning Strategies	
Strategy	1. Use the strategy of cooperation and assistance during the educational process. 2. Discussions during lectures. 3. Labs 4. Discussions

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1, 2	8	A1, A2, B1, B2, C1, C2,	Introduction to the OSI Reference Mode, and the TCP/IP Reference Model. Protocol Hierarchies in these models	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam
3	4	A1, A2, B1, C1, C2	The LANs Protocols: • Ethernet (CSMA/CD) • Fast Ethernet • Local Talk • Token Ring • FDDI ATM		
4	4	A1, A2, B2, C1, C2, C4	The Internet Protocols • Internet Protocol (IP): (IPv4 & IPv6) • TCP UDP		
5, 6	8	A1, A2, B2, C1, C2	The WIRELESS LANs Protocols • The Bluetooth Protocol Stack BROADBAND WIRELESS Protocols (the 802.11, and the 802.16).		
7	4	A1, A2, A5, B4, C1, C2, C4	The ELECTRONIC MAIL {Message Formats, Message Transfer Protocols (SMTP (simple mail transfer protocol), Extensions ESMTP (Extended SMTP) and POP3 (post office protocol) }.		
8	4	A1, A2, A4, B5, , C1, C3, C4,	DNS (Domain Name System) DHCP (Dynamic Host Configuration Protocol)		
9, 10, 11, 12, 13, 14, 15, 16, 17,	80	A1, A2, A4,A5,A6, B1, B2, B4, C1, C2, C4,	OTHER Protocols • RTP the real-time transport protocol, and RTCP real-time		

18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28			transport control • SSH secure shell • Talent telephone network • SFTP: secure file transfer protocol • SSL: secure socket layer • TLS: transport layer security • E6: Ethernet globalization protocols • NTP: network time protocol • PPP : point to point protocol		
29	4	A1, A2, A4, B1, B2, B5, C1, C2, C3, C4	Network layer(Routing Algorithms)		
30	4	A1, A2, A5, B1, B2, B4, C1, C2, C4	Network layer(Broadcast Routing)		

11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• CORE TEXTS • COURSE MATERIALS • OTHER
Main references (sources)	Computer. Networking.A.Top–Down. –1 Appro 6th Edition
Recommended books and references (scientific journals, reports...)	COMPUTER NETWORKING by James F. Kuro University of Massachusetts, Amhers

Course Description Form

1. Course Name:	
Information Theory and Coding	
2. Course Code:	
CE 421	
3. Semester / Year:	
Fourth year (Annual)	
4. Description Preparation Date:	
٢٩/٠٩/2025	
5. Available Attendance Forms:	
Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
120 h/٦	
7. Course administrator's name (mention all, if more than one name)	
Name: Zain Alabdeen Abbas Email: alabdeen568@gmail.com Name: Fatima mohammed abbas Email: fatimamohammed2u@gmail.com	
8. Course Objectives	
Course Objectives	1. To study the important of information system and show its facilities and limitations. 2. To analysis all types of communication channels and study its characteristics and capacity calculations. 3. To know the source coding using various theories that transfer the information into digital form with minimum data rate. 4. To analysis the efficiency of each type of source code. 5. To calculate the efficiency for each type. 6. To study some types of channel coding, its facilities and its limitations.
9. Teaching and Learning Strategies	
Strategy	1. Use the strategy of cooperation and assistance during the educational process. 2. Organizing seminars, courses and workshops for students that encourage spiritual values. 3. Discussions during lectures. 4. Labs

5. Discussions

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1,2	8	A1, A2, B1, B2, C1, C2,	The probability	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam
3,4	8	A1, A2, B1, C1, C2	The conditional probability and random variable		
5,6,7	12	A1, A2, B2, C1, C2, C3	The channels with and without noise		
8,9,10	12	A1, A2, B2, C1, C2	symmetric and non-symmetric channels		
11,12,13	12	A1, A2, A5, B5, C1, C2, C3	The capacity of each channel		
14,15	8	A1, A2, A6, B5, , C1, C3, ,	----		
16,17	8	A1, A2, ,A5,A6, B1, B2, B3, C1, C2, C3,			
18,19,20 ,21	16	A1, A2, A6, B1, B2, B5, C1, C2, C3,	The types of coding		
22,23,24 ,25	16	A1, A2, A5, B1, B2, B3, C1, C2, C3	The types of channel coding		
26,27	8		Review		
28,29,30	12				

11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	· CORE TEXTS · COURSE MATERIALS
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	· OTHER
Main references (sources)	Coding and Information Theory by Steven
Recommended books and references (scientific journals, reports...)	Elements of information theory by Thomas
Electronic References, Websites	

Course Description Form

1. Course Name:	
Mobile Communication systems	
2. Course Code:	
CE 422	
3. Semester / Year:	
Fourth year (Annual)	
4. Description Preparation Date:	
٢٩/٠٩/2025	
5. Available Attendance Forms:	
Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
120 h/٦	
7. Course administrator's name (mention all, if more than one name)	
Name: Mohammad Ali Anbar Email: Mohammad.Ali.Anbar@alayen.edu.iq Name: Zahraa Mohsen Ghaithan Email: Zahraa.Mohsen@alayen.edu.iq	
8. Course Objectives	
Course Objectives	1. Concepts and terminology used in cellular systems 2. The study of developments in the generation cellular system 3. How to design cells 4. How to cover all the cell by signal and at all spaces 5. Types of modulation signal in Cellular Communications 6. Wireless systems construction, design and processing of interference signals
9. Teaching and Learning Strategies	
Strategy	1. Academic lectures: providing a solid foundation upon which to develop

2. cognitive balance for students
3. Practical laboratory, which provides each student the expertise to help develop
4. Practical skills side and consolidate the principles necessary to carry out the
5. projects
6. Discussions during lectures.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1,2,3	12	A1,A4,A5,B1, B2,C1	Introduction to Wireless Communication System: Evolution of mobile communication s, Mobile Radio System around the world, Types of Wireless communication System, Comparison of Common wireless system, Trend in Cellular radio and personal communication , Second generation (2G) systems. Evolved Second-	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam

			Generation Systems (2.5G). Third-Generation (3G) Systems. Fourth-Generation (4G) Systems. Fifth-Generation (5G) Systems		
4,5,6,7	16	A1,A2,A3,B1, B5,C3	The Cellular Concept-System Design Fundamentals: Cellular system, Hexagonal geometry cell and concept of frequency reuse, Channel Assignment Strategies Distance to frequency reuse ratio, Channel & co-channel interference reduction factor, S/I ratio consideration and calculation for Minimum Co-channel and adjacent interference, Handoff		

			Strategies, Umbrella Cell Concept		
8,9,10,11	16	A3,A5,B2,B4, C1,C3	Traffic Engineering: Trunking and Grade of Service, Improving Coverage & Capacity in Cellular System-cell splitting, Cell sectorization		
12,13,14, 15	16	A1,A5,B1,B4, C3	Large scale path loss: Free Space Propagation loss equation, Path-loss of NLOS and LOS systems, Reflection, Ray ground reflection model, Diffraction, Scattering, Link budget design		
16,17,18	12	A3,A5,B2,B4, C2	Small scale multipath propagation: Impulse model for multipath channel, Delay spread, Feher's delay spread, upper bound Small		

			scale, Multipath Measurement parameters of multipath channels, Types of small scale Fading, Rayleigh and Rician distribution		
19,20	8	A1,A2,A3,B1, B2,C2	Modulation Techniques for Mobile Radio: Review for basic digital modulation techniques, QPSK,MSK,G MSK		
21,22	8	A2,A3,A5,B1, B4,C1	Multiple Access Techniques: Frequency Division Multiple Access (FDMA). Time Division Multiple Access (TDMA). Spread Spectrum Multiple Access.		
23-28	24	A5,B2,B5,C3	Wireless Systems: GSM system architecture, Radio		

			interface, Protocols, Localization and calling, Handover, Authentication and security in GSM, GSM speech coding, Concept of spread spectrum, Architecture of IS-95 CDMA system, Air interface, CDMA forward channels, CDMA reverse channels, Power control in CDMA, cellular technology, GPRS system architecture		
29,30	8	A1,A4,A5,B1, B2,C1	Recent trends: Wi-Fi, WiMAX, ZigBee Networks, Software Defined Radio, UWB Radio, Wireless Ad- hoc Network and Mobile		

			Portability, Security issues and challenges in a Wireless network.		
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11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books any)	Mischa Schwartz, Mobile Wireless Communications, Cambridge University Press 2005
Main references (sources)	J. G. Proakis, Digital Communications, 4th ed. NY: McGraw Hill, 2000
Recommended books and references (scientific journals, reports...)	J. G. Proakis, Digital Communications, 4th ed. NY: McGraw Hill, 2000
A- Recommended books and references (scientific journals, reports...).	J. G. Proakis, Digital Communications, 4th ed. N McGraw Hill, 2000

Course Description Form

1. Course Name:	
Multimedia computing	
2. Course Code:	
CE 423	
3. Semester / Year:	
Fourth year (Annual)	
4. Description Preparation Date:	
٢٩/09/2025	
5. Available Attendance Forms:	
Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120hr/4 U	
7. Course administrator's name (mention all, if more than one name)	
Name: Bashar Hindawi Email: Bashar.hindawi@alayen.edu.iq Name: Fatima mohammed abbas Email: fatimamohammed2u@gmail.com	
8. Course Objectives	
Course Objectives	1. The student will be able to understand the various parts of the functions and how they interact. 2. Understand the basics of multimedia data (text, image, audio video, and graphics). 3. Handling multimedia data using different software. 4. Provides the student with basic information to be able to process multimedia data using different programs and different projects. 5. Understand the basics of multimedia data (text, image, audio video, and graphics).
9. Teaching and Learning Strategies	
Strategy	1. Academic lectures: providing a solid foundation upon which to develop 2. cognitive balance for students 3. Practical laboratory, which provides each student the expertise to help develop 4. Practical skills side and consolidate the principles necessary to carry out the

5. projects
6. Discussions during lectures.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	8	A1,A2,A5,A6 B1,B2,B5 C2,C4	Introduction to Multimedia Hypertext and Hypermedia	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam
3,4,5,6	16	A1,A2,A4,A6 B1,B2, B6 C1,C2	Components of Multimedia Multimedia Research Topics and Projects Multimedia Applications Multimedia on the web		
7	4	A1,A2,A4,A6 B2, B6 C1,C2,C4	Multimedia Data Basics		
8,9,10,11,12,	20	A1,A2,A4,A6 B6,B2,B5 C1,C2,C4	Graphics and Image Data Representation (1) Graphics and Image Data Representation (2) Image Digitization Spatial resolution and quantization Type of Image Image file formats		
13,14,15,16	16	A1,A2,A5,A6 B1,B2,B5 C2,C4	Arithmetic operation on image Logical operation on image Image histogram Histogram modification and histogram equalization Image compression techniques (1) Image compression techniques (2)		Achievement test +discussion question
17,18,19,20	16	A2,A5,A6 B6,B2,B5 C2,C4	Basics of Digital Audio Digitization of Sound Nyquist Theorem Synthetic Sound Quantization and transmission of audio		Achievement test +discussion question
21,22,23,24	16	A1,A2,A4,A6 B1,B2,B5,B6 C2,C4,C1	Compression of Audio		Achievement test +discussion question
25,26,27	12	A1,A2,A5,A6 B1,B2,B5 C2,C4	Video Basics Video Color Model		Achievement test +discussion question

			Types of Video Signals		
28,29	8	A5,A6 B1,B2,B3,B5 C2,C4	Video Compression		Achievement test +discussion question
30	4	A1,A2,A5,A6 B1,B2,B3 C2,C4	Revision		Achievement test +discussion question

11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• “Digital Image Processing Using MATLAB”, Rafael C. Gonzalez, Richard E. Woods, and Steven L. Eddins, Prentice Hall, 2004. • “Digital video processing”, A. M. Tekalp, Prentice Hall, 2005.
Main references (sources)	“Digital video processing” , A. M. Tekalp, Prentice Hall, 2005.
Recommended books and references (scientific journals, reports...)	“The data compression book” , Mark Nelson, Imprint: M & T Books, Publisher: IDG Books Worldwide, Inc., January 1, 1991.
Electronic References, Websites	www.tutorialspoint.com

Course Description Form

1. Course Name:					
Project Management					
2. Course Code:					
CE 411					
3. Semester / Year:					
Fourth year (Annual)					
4. Description Preparation Date:					
20/09/2025					
5. Available Attendance Forms:					
Compulsory					
6. Number of Credit Hours (Total) / Number of Units (Total) :					
120 h/1					
7. Course administrator's name (mention all, if more than one name)					
Name: Makarim rashid khudhair					
Email: Makarim.rashid@alayen.edu.iq					
8. Course Objectives					
Course Objectives		1. study definitions of project management 2. learn methods to draw network diagrams for projects 3. The knowledge and understanding of linear programming process 4. learn methods of inventory models in management 5. know how to find the break-even point 6. know and understand the maintenance			
9. Teaching and Learning Strategies					
Strategy		1. Use the strategy of cooperation and assistance during the educational process. 2. Organizing seminars, courses and workshops for students that encourage spiritual values. 3. Discussions during lectures. 4. Labs 5. Discussions			
10. Course Structure					
Week	Hours	Required	Unit or subject	Learning	Evaluation method

		Learning Outcomes	name	method	
1,2	8	A1, A2, B1, B2, C1, C2,	Introduction to project management,	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam
3,4	8	A1, A2, B1, C1, C2	Economics and management for engineering		
5,6,7	12	A1, A2, B2, C1, C2, C3	Layout for factories and workshops productivity		
8,9	8	A1, A2, B2, C1, C2	Networks		
10, 11,12	12	A1, A2, A5, B5, C1, C2, C3	Critical path Method(cpm)		
13,14,15	12	A1, A2, A4, B5, , C1, C3, ,	Pert technique (time and cost)		
16	4	A1, A2, A4, B1, B2, B5, C1, C2, C3,	The resource allocation problems		
17, 18	8	A1, A2, A4, B1, B2, B5, C1, C2, C3,	Linear programming graphical method simplex method		
19,20 ,21	12	A1, A2, A5, B1, B2, B4, C1, C2, C3	Inventory model(EOQ)		
22	4	A1, A2, A4, B5, , C1, C3, ,	The break-even point		
23, 24	8	A1, A2, A4, B1, B2, B5, C1, C2, C3,	The cost of inventory		
25, 26, 27	12	A1, A2, A4, B5, , C1, C3,	Maintenance policy and concepts		
28,29	8	A1, A2, A4, B1, B2 ,B5, , C1, C3,	Quality contra		
30	4	A1, A2, A4, B3, , C1, C2,	Employer management		

11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	- CORE TEXTS - COURSE MATERIALS
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	· OTHER
Main references (sources)	AutoCAD 2016 Tutorial First Level 2D Fundamen Randy H. Shih
Recommended books and references (scientific journals, reports...)	Learning AutoCAD® 2010, Volume 1 Autod Official Training Guide Essentials
Community-based facilities (include for exampl guest Lectures , internship , field studies)	S. choudhury” project mangement”, tata McGraw h 2003

Course Description Form

1. Course Name:	
Security of Computer and Networks	
2. Course Code:	
CE 413	
3. Semester / Year:	
Fourth year (Annual)	
4. Description Preparation Date:	
29/09/2025	
5. Available Attendance Forms:	
Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total) :	
120 h ¹	
7. Course administrator's name (mention all, if more than one name)	
Name: Doaa Hammoud Tahayur Email: Doaa.Hammoud@alayer.edu.iq Name: Ayat Ahmed jabbar Email: hangugeogujeol@gmail.com	
8. Course Objectives	
Course Objectives	1. Knowledge the basics of information security in the telecommunications 2. Studying means and methods that must be followed to protect the computers to access them from unauthorized tampering in it. 3. Protection of data and databases from threats. 4. The protection of a network of computers, especially the private networks from malicious attacks by activating investment and network protection protocols 5. Study and analysis of asymmetric encryption algorithms Caser, substitution, vigenere, affine, OTP, Hill cipher, play fair, transposition 6. Studying the concept of code analysis and give an example of the code substitution 7. Studying and analysis of asymmetrical algorithms RSA
9. Teaching and Learning Strategies	
Strategy	1. Use the strategy of cooperation and assistance during the educational process. 2. Field visits to relevant ministries and educational

- institutions.
3. Organizing seminars, courses and workshops for students that encourage spiritual values.
 4. Discussions during lectures.
 5. Labs
 6. Discussions

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1, 2, 3	12	A1, A2, B1, B2, C1, C2,	Symmetric Ciphers model: plaintext, encryption algorithm, secret key, hypertext, decryption algorithm, A Model of conventional encryption. Cryptography, Cryptanalysis, block and stream cipher	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	1. Short MCQs 2. Oral exam and direct questions in the class 3. Midterm exam 4. Electronic exams on the electronic platform 5. Final exam
4	4	A1, A2, A3, B1, C1, C2	Caesar Cipher The affine Cipher		
5, 6	8	A1, A2, B2, C1, C2, C3	Mono alphabetic substitution ciphers Shift ciphers		
7	4	A1, A2, B2, C1, C2	Hill cipher		
8	4	A1, A2, A5, B4, C1, C2, C3	Play fair cipher		
9	4	A1, A2, A5, B4, , C1, C3, ,	Polyalphabetic ciphers Vigenere cipher		
10, 11, 12, 13	16	A1, A2, A6, B1, B2, B3, C1, C2, C3,	The Transposition cipher Affine cipher otp		
14, 15, 16	12	A1, A2, A5, B1, B2, B4, C1, C2, C3	Cryptanalysis of a Symmetric key		
17	4	A1, A2, A4, B5, , C1, C3, ,	Euclid's Algorithm		
18, 19	8	A1, A2, A6, B1, B2, B3, C1, C2, C3,	SYMMETRIC-KEY ALGORITHMS - DES—The Data Encryption Standard, hers -16 round Feistel system		
20, 21, 22	12	A1, A2, A3, B4, , C1, C3,	PUBLIC-KEY ALGORITHMS, - RSA, - Other Public-Key Algorithms		
23, 24, 25, 26, 27	20	A1, A2, A5, B1, B2 ,B4,	AUTHENTICATION PROTOCOLS, -		

		C1, C3,	Authentication Based on a Shared Secret Key, -Establishing a Shared Key: The Diffie - Hellman Key Exchange, - Authentication Using a Key Distribution Center, Authentication Using Kerberos, - Authentication Using Public-Key Cryptography		
28	4	A1, A2, A3, B3, , C1, C2,	OSI security Architecture , a model for network security EMAIL SECURITY		
29, 30	8	A1, A2, A6, B1, B2, B3, C1, C2,	PROTECTION SERVICES: OS protection service: protected objects and methods of OS protection, security of OS, memory and addressing protection, fence protection Database protection service: Network protection service: IP and ECommerce protection, VPN and next generation networks protection		

11. Course Evaluation

		Time/Number	Weight (Marks)	Week Due
Formative assessment	Semester 1 Quizzes	2	25% (25)	5, 10
	Semester 1 Quizzes	2	25% (25)	17, 25
	Projects / Lab.	1	10% (10)	Continuous
	Final Exam	3hr	40% (40)	30
Total assessment			100% (100 Marks)	

12. Learning and Teaching Resources

Required textbooks (curricular books any)	· CORE TEXTS · COURSE MATERIALS · OTHER
Main references (sources)	Cryptography and network security: principles and practice (3rd edition), Author: Stallings, William. Year: 2003

Recommended books and references (scientific journals, reports...)	Computer security: Art and science. Author: Matthew Bish year: 2003
Electronic References, Websites	