

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



Academic Program and Course Description Guide

2026-2025

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 extracurricular activities to achieve the learning outcomes of the program.

1. Program Vision

Increase in engineering sciences and their applications, transfer of technology for the benefit of the local and global community, and provision of educational programs and technical services based on the spirit of competition and communication with the outside world.

2. Program Mission

The department seeks to select competent professors who, in turn, are keen to choose the best scientific, popular, easy and modern methods to deliver scientific materials to students. As for the other important aspect, which is the scientific aspect, the department is keen to choose engineering workshops and modern scientific laboratories to support the theoretical aspect of the student and provide the student with scientific experience and develop their skills in this field.

3. Program Objective

Gaining graduates the ability to effectively contribute to community service and solve specialized industrial problems.

1. Preparing graduates with applied industrial expertise by incorporating modern technological means into the department's curriculum.
2. Qualifying students to become technical engineers capable of preparing preliminary designs for various types of electronic and electrical circuits, particularly those related to computer and communications technology engineering.

4. Program Accreditation

Middle Technical University

5. . Other external influences

Academic programs are affected by the rapid development of technology, which requires updating the content of courses and the technology used in education. Changes in educational and organizational policies represented by the Quality Assurance Program of the Ministry of Higher Education and Scientific Research are also external influences that must be taken into account in developing and improving the academic program of the department. Therefore, universities and colleges that contain similar specializations through joint working mechanisms that allow communication between the teaching staff and students for the purpose of coming up with a common vision and setting plans for developing the academic content.

6.Program structure

Note	percentage	Study unit	Number of courses	Program structure
None	%50	226	50	Institutional requirements
None	%4.23	18	9	College requirements
None	%17.86	198	38	Department requirements
None	None	None	2	Summer training
None	None	None	None	Other

.Notes may include whether the course is basic or optional • •

6. Program Description

Credit hours		Course name	Course code	Year/Level
practical	theoretical			
2	2	Digital System	CET1201	First stage

2	2	Communications Basics	CET2105	Second Stage
2	2	Digital Communications	CET3105	Third Stage
2	2	Computer Network Protocols	CET4102	Fourth Stage

6. Expected learning outcomes of the program	
knowledge	
11. Knowledge and understanding of communication networks and how to connect them. 2. Knowledge and understanding of computer components, how to assemble them, and how to troubleshoot them. 3. Knowledge and understanding of digital signals and their analysis. 4. Knowledge and understanding of various programming languages and how to use and benefit from them. 5. Knowledge and understanding of electronic circuits for various computing devices and how to design them. 6. Knowledge of the types of digital controllers and how to program and design their circuits.	Education Outcomes - A
Skills	
Writing and implementing programs for communications, .controllers, and engineering algorithms	Education Outcomes – B
Diagnosing and troubleshooting faults in computer equipment .and accessories	
Design and implementation of wired and wireless computer networks	

Values

Instilling a spirit of creativity in students and ensuring that they find innovative solutions to various problems.

Developing students' ability to work as effective teams that produce outstanding results

9. Teaching and learning strategies

Academic lectures: provide a solid foundation upon which to build students' knowledge. Practical laboratories and workshops: provide all the experiences students need to develop practical skills and establish the necessary principles for correctly implementing practical projects and following occupational safety steps to reduce damage to people and property. Systematic training: Systematic training aims to provide exposure between the student and the labor market so that the student can understand the practical application of the curricula he has studied..

10.Evaluation methods

Interactive Assessment: This assessment process takes place directly between the student and the instructor and is one of the basic feedback methods faculty members rely on to evaluate the teaching and learning process. Periodic Written Exams: These provide faculty members with insight into the extent to which students are following academic content and interacting with the information and feedback provided by the instructor. Midterm Exams: This is the intermediate stage to assess the student's interest in and interaction with the academic and skill-based material they have learned during the semester. Final Exams: This is the final stage to assess the student's interest in and interaction with the academic and skill-based material they have learned during the academic year.

Direct Assessment: This assessment is conducted directly by faculty members through their observations of student interaction and their application of the department's value-based objectives, and through their observations regarding this. Practical and Graduation Projects: This assesses the student's ability to achieve and innovate, to work within teams, and to produce results and solutions to the various scientific problems facing students. Interactive Assessment: This assessment process takes place directly between the student and the instructor and is one of the basics of feedback that faculty members rely on to evaluate the teaching and learning process. Midterm Exams: This is the intermediate stage to assess the student's interest and

interaction with the academic and skill-based material they received during the semester. Final Exams: This is the final stage to assess the student's interest and interaction with the academic and skill-based material they received during the academic year..

11. Faculty

Faculty members

Faculty counter		Requirements/Special Skills	Specialization		Academic rank	
lectural	hiring					
11	20		10	Computer Engineering	31	Assistant Professor
0	5		10	Communication Engineering	5	Lecturer
1	4		10	Electrical Engineerng	3	Assistant Professor
0	2		5	Computer Science	2	Professor
			6	Supporting specialties		

Professional development

Orientation of new faculty members

Continuous improvement is a focus on students and is done every day as a natural part of our profession. We always strive to improve processes that further raise the level of achievement of the department's and college's goals. Periodic studies are conducted to examine areas of weakness or deficiency in order to overcome them. We ask every instructor to work on continuous improvement of student performance and to write down the problems and

obstacles facing students or the educational process within their specialization in their workplace in an effort to ensure quality

Professional development for faculty members

Familiarizing the new faculty member with the university, its development vision, its plan for internationalization, and its programs Helping the new faculty member with practical and psychological adaptation and alleviating the anxiety that could hinder their participation and integration into university work and activities Informing the faculty member of the role played by Al-Salam University College and their responsibilities regarding it. Familiarizing the faculty member with the university's professional development programs so that they can play an active role in them. Providing the new faculty member with the opportunity to build a network of relationships and communicate with their peers from other departments and colleges. Familiarizing the new faculty member with their rights and duties. Introducing the university's scientific research programs to enable them to contribute to its research processes. Identifying the services provided by the university to its members so that they can benefit from them Identifying the electronic sources of knowledge and information available to university faculty members and providing them with Internet and database search skills. Developing faculty members' skills in teaching, learning, and managing the educational process.

12. Acceptance Criteria

- 1. Applicants must have an Iraqi high school diploma or equivalent. Students must have a high GPA that qualifies them for admission to engineering colleges.**
- 2. Admissions are centrally controlled by the Ministry of Higher Education and Scientific Research.**

13. The most important sources of information about the program

- A- The department's page on the college's website.**
- B- The Computer Engineering Technology Department Directory.**
- C- The Electrical Engineering Technology College Directory.**
- D- Some ministry committee meetings for the Computer Engineering Technology Department**

14. Program Development Plan

1. Developing the field of education and enhancing the capabilities of teachers.
2. Developing the field of scientific aspects and scientific research.
3. Developing the field of innovation.

Developing the field of building relationships and exchanging experiences.

Innovation (scientific materials and new methodological additions).

Curriculum Skills Map

Please tick the boxes corresponding to the individual learning outcomes of the programme being assessed.

Required learning outcomes of the program

General and transferable skills (other skills related to employability and personal development)	Emotional and value goals								Program skill objectives				Cognitive objectives				Essential or optional	Course name	Course code	Year/Level
	D4	D3	D2	D1	C4	C3	C2	C1	B4	B3	B2	B1	A4	A3	A2	A1				
	✓				✓				✓				✓					Engineering drawing	1104 CET	
	✓				✓				✓				✓				Basic	Foundations of Electrical Engineering	1102 CET	
	✓				✓				✓				✓				Basic	digital electronics	1101 CET	
	✓				✓				✓				✓					Workshops	1105 CET	
	✓				✓				✓				✓				Basic	mathematics (1)	1103 CET	

✓				✓				✓				✓					English language	1002 CET	First Stage	
✓				✓				✓				✓				Basic	digital system	1201 CET		
✓				✓				✓				✓					electronic circuits	1202 CET		
✓				✓				✓				✓					Programming basics	1203 CET		
✓				✓				✓				✓				Basic	Mathematics (2)	1204 CET		
✓				✓				✓				✓				Basic	Computer Basics	1203 CET		
✓				✓				✓				✓					Human rights and democracy	1006 CET		
✓				✓				✓				✓					Arabic language	1001 CET		
✓				✓				✓				✓					Engineering mathematics	CET 2101		
✓				✓				✓				✓					Communications Basics	CET 2105		
✓				✓				✓				✓					Object-oriented programming	CET 2102		
✓				✓				✓				✓					Computer organization	CET 2103		

																			n and its application s	
✓				✓			✓			✓									Electronics Basics	CET 2104
✓				✓			✓			✓									Advanced Engineerin g Mathemati cs	CET 2021
✓				✓			✓			✓									Python programmi ng	CET 2202
✓				✓			✓			✓									microproce ssors	CET 2203
✓				✓			✓			✓									Analog communica tions	CET 2204
✓				✓			✓			✓									electronic circuits	CET 2205
✓				✓			✓			✓									Instruments and Measureme nts	CET 2206

Second Stage

✓				✓				✓				✓					Arabic language 2	SUC 203
✓				✓				✓				✓					Baath crimes	SUC 201
✓				✓				✓				✓					English language 2	SUC 202
✓				✓				✓				✓					Operating systems	CET 3101
✓				✓				✓				✓					Control Engineering Fundamentals	CET 3102
✓				✓				✓				✓					Digital signal processing	CET 3103
✓				✓				✓				✓					digital control units	CET 3104
✓				✓				✓				✓					digital communications	CET 3105
✓				✓				✓				✓					Real time	CET 3106
✓				✓				✓				✓					parallel computing	CET 3107

Third Stage

✓				✓				✓				✓					Advanced control systems	CET 3201		
✓				✓				✓				✓					Computer Networking Basics	CET 3202		
✓				✓				✓				✓					Database systems	CET 3203		
✓				✓				✓				✓					Engineering analysis	CET 3204		
✓				✓				✓				✓					Data communications	CET 3205		
✓				✓				✓				✓					digital image processing	CET 3206		
✓				✓				✓				✓					Internet of Things Basics	CET 3207		
✓				✓				✓				✓					Computer network protocols			
✓				✓				✓				✓					Information and Coding Theory			
✓				✓				✓				✓					mobile communication systems			

✓				✓				✓				✓					Computer and Network Security		Fourth Stage
✓				✓				✓				✓					project management		
✓				✓				✓				✓					multimedia computing		
✓				✓				✓				✓					advanced computer technology		
✓				✓				✓				✓					English language 4		
✓				✓				✓				✓					Professional ethics		
✓				✓				✓				✓					The project		

- Please tick the boxes corresponding to the individual learning outcomes of the programme being assessed.

Course Description Form

Module Information				
Module Title	Digital Fundamentals		Module Delivery	
Module Type	Core		✓ Theory Lecture ✓ Lab Tutorial Practical Seminar	
Module Code	CET1101			
ECTS Credits	6			
SWL (hr./Sem)	150			
Module Level	1	Semester of Delivery		1
Administering Department	CET	College	Alsalam university	
Module Leader	Adel akuas		e-mail	adel.a.juad@alsalam.edu.iq
Module Leader's Acad. Title	lecturer		Module Leader's Qualification	MSc.
Module Tutor	Hamed dray		e-mail	hamed.d.murhg@alsalam.edu.iq
Peer Reviewer Name	Asst. Prof. Ali Kamel		e-mail	Ali.kamel@alsalam.edu.iq
Scientific Committee Approval Date	29/10/2025	Version Number	1.0	

Relation with other Modules			
Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To be able to deal with the number systems and codes. 2. To understand the functionality of logic gates. 3. To have a skill to use the logic gates in designing logic circuit. 4. To have a skill to simplify the digital circuits.

	- To learn the simplification process, Boolean expression, Dem organs law, and Karnaugh map. - To understand the principles for designing logic circuit. - To understand adder, subtractor, decoder, in coder, multiplexer, demultiplexers, and comparator circuits.
Module Learning Outcomes	- Recognize each type of number systems. - Identify the process of converting between number systems. - Summarize the types of logic gates. - Discuss the use of each gate. - Describe design of logic circuit by using logic gats. - Explain the simplification processes. - Explain Boolean expression and Dorgan's law. - Explain the Karnaugh map for different numbers of bits. - Discuss the design of logic circuit before and after simplification. - Explain the combinational logic circuit. - Identify the adder, subtractor, decoder, encoder, multiplexer, demultiplexer, comparator circuits, and code conversion. - Identify the basic circuit elements and their applications
Indicative Contents	Indicative content includes the following. --Number systems - decimal, binary, octal, and hexadecimal number system, conversion, operation. [8 hrs.] -Codes- excess-3, gray code, conversions, operations, complements [8 hrs.] --Logic gates-NOT, AND, OR, NOR, NAND, XOR, XNOR. [5 hrs.] --Logic simplification-Boolean theorem and Dem organs law. [10 hrs.] --Karnaugh map-SOP, POS, and don't care. [10 hrs.] --Arithmetic operations Part A- adder, parallel binary adder, subtractor, adder-subtractor . [10 hrs.] --Arithmetic operations Part B- multiplexer, demultiplexer, decoder, encoder, comparator, and code conversion. [10 hrs.]
Learning and Teaching Strategies	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time

	refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.		
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Student Workload (SWL)

Structured SWL (h/Sem)	64	Structured SWL (h/w)	4.26
Unstructured SWL (h/Sem)	86	Unstructured SWL (h/w)	5.73
Total SWL (h/Sem)	150		

Module Evaluation

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quiz	2	10% (10)	5, 10	LO #1- 3, LO # 4 - 8
	Assignments	1	10% (10)	12	LO # 1-11
	Projects / Lab.	1	10% (10)	Continuous	LO # 1-12
	Report	1	10% (10)	Continuous	LO # 1-12
Summative assessment	Midterm Exam	2 hr.	10% (10)	10	LO # 1-10
	Final Exam	4hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

	Material Covered
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Week 1	Number systems (decimal, binary, octal, conversions, operations)
Week 2	Number systems (hexadecimal, BCD, conversions, operations)
Week 3	Number systems (excess-3, gray code, conversions, operations, complements)
Week 4	Logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR)
Week 5	Logic simplification (Boolean theorem)
Week 6	Logic simplification (Dorgan's theorem)
Week 7	Karnaugh maps(2-variables,3-variables,)
Week 8	Karnaugh maps (4-variables (SOP, POS, don't care))
Week 9	Karnaugh maps (5-variables, (SOP, POS, don't care))
Week 10	Midterm exam
Week 11	Arithmetic operations
Week 12	Arithmetic operations (decoder, encoder)
Week 13	Arithmetic operations (Multiplexer, Demultiplexer)
Week 14	Arithmetic operations (comparators)
Week 15	Arithmetic operations (code conversion)
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

	Material Covered
Week 1	logic gates (NOT, AND, OR)
Week 2	Logic gates (NOR.NAND)
Week 3	Logic gates (XOR, XNOR)
Week 4	Boolean theorem
Week 5	Dorgan's law
Week 6	Karnaugh map
Week 7	SOP
Week 8	POS, don't care

Week 9	Combinational circuit (half adder, full adder)
Week 10	Combinational circuit (Half subtractor, full subtractor)
Week 11	Decoder and Encoder circuits
Week 12	Multiplexer and Demultiplexer circuits
Week 13	Comparator circuit
Week 14	Code conversion circuits

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	Digital Fundamentals by Floyed	Yes
Recommended Texts	Digital circuit analysis and design with Simulink modeling by Steven T. Karris	No
Websites		

Grading Scheme

Group	Grade	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	90 - 100	Outstanding Performance
	B - Very Good	80 - 89	Above average with some errors
	C - Good	70 - 79	Sound work with notable errors
	D - Satisfactory	60 - 69	Fair but with major shortcomings
	E - Sufficient	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(0-44)	Considerable amount of work required

Academic Program Description Form

University name: University of

College/Institute: Al-Salam University Colleg

Name of academic or professional program: Bachelor of Computer Engineering Technology

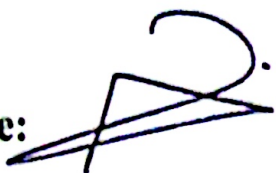
Final Degree Name: Bachelor of Computer Engineering Technology

Academic system: Bologna + Annual

Description preparation date: 10/14/2025

File completion date: 10/14/2025

Signature:



Name of the Department Head: Ali Kenani

Date: 14 / 10 / 2025

Prof. Dr. Sabir Karam AL-Kinani
Dean Assistant For Scientific Affairs

Signature:

Name of the Scientific Assistant:

Date: / /

Check the file before

Quality Assurance and University Performance Division

Name of Director of the Quality Assurance and University Performance Division:

Date: 11 21/10/2025

اديب منصور قاسم



Dean's approval

2026 7/11



Signature:

كلية السلام الجامعة
هندسة تقنيات الحاسبات