

## AlFarabi University College

### كلية الفارابي الجامعة



*First Cycle – Bachelor's degree (B.Sc.) – Computer Engineering*

بكالوريوس - هندسة الحاسوب





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### 1. Mission & Vision Statement

#### **Vision Statement**

The Department of Computer Engineering endeavors to be one of the leading Computer Engineering Programs in Iraq and the region.

#### **Mission Statement**

1. Graduating highly qualified ethical Computer engineers.
2. Building the leadership qualities in its graduates through teaching how to lead, problem solving, team work, quality considerations, and professionalism at work.
3. Raising the spirit and commitment for acquiring knowledge and community service in graduates.
4. Contributing ideas of projects and carrying out research for the benefit and development of the community.
5. Nurturing and care for outstanding students and encouraging them to use their skills.
6. Student counselling, guidance and strengthening of citizenship spirit.
7. Providing a good working Computer Engineering for students, faculty, and other personnel with emphasis on high academic, professional and ethical standards within the university campus. Freedom of opinions and respect of others opinions and encouragement in exchanging knowledge.

### 2. Program Specification

<b>Programme code:</b>	BSc-COE	<b>ECTS</b>	240
<b>Duration:</b>	4 levels, 8 Semesters	<b>Method of Attendance:</b>	Full Time

The Computer Engineering (COE) Department at Al-Farabi University College offers engineering programs leading to the degree of Bachelor of Science (B.Sc.) in the Computer Engineering. Our graduates, who can be found in agencies and businesses throughout the country and abroad, are the best indicator of our dedication to student success.



### 3. Program Goals

#### PEO-1:

**Intellectual goals:** The capacity to describe and resolve issues using knowledge of mathematics, physics, and engineering. Ability to build a system, component, or process to satisfy specific needs; ability to plan and carry out experiments; ability to evaluate and understand data. Graduates have successful professional careers, and have contributed to the success of their organizations through effective leadership and ethical practices.

#### PEO-2:

**Skills development goals:** The capacity for using the contemporary engineering methods, abilities, and equipment required for engineering practice. Students who complete the Computer Engineering program will be able to: Acquire a foundational understanding of the various fields of computer engineering. Graduate will be able to utilize current engineering tools, techniques, and skills, identify, formulate, and resolve computer engineering challenges. Through hands-on practice, perform integrated design of computer systems, components, or processes. Graduates have advanced their knowledge and professional career development through lifelong learning.

#### PEO-3:

**Emotional and moral objectives:** gaining an awareness of the impact a graduate's profession has on society; gaining a grasp of some of the ethical issues that arise in the practice of the profession. Graduates have demonstrated creative thinking and effective communication, and worked collaboratively with others to solve engineering problems encountered at the local and the global levels.

#### PEO-4:

**General objectives:** (additional skills important for employability and growth personally): Ability to work in multidisciplinary teams; development of written and vocal communication abilities Graduates have successful professional careers, and have contributed to the success of their organizations through effective leadership and ethical practices.

**Followings are also goals of the department of computer engineering:**

1. Creating curricula for numerous disciplines that stay up with technological advancement.
2. Managing the scientific relationships with the departments of computer engineering at various universities by planning seminars, hosting scientific meetings and workshops, and collaborating with other government colleges and the commercial sector to address issues with institutional research.
3. Training and preparing engineering employees with a high level of understanding, expertise, and ability to create, examine, and develop computer systems.



4. Encouraging and motivating students to comprehend the idea of self-development, as well as to create the drive and enthusiasm to seek out and comprehend the information they will need to be successful in the jobs that will be assigned to them in the future.
5. Offering computer engineering consulting services that are both applied and scientific to both the public and commercial sectors of society.
6. Providing students with the knowledge, skills, and talents they need to be qualified to pursue higher education after graduation.

#### 4. Student Learning Outcomes

1. An ability to distinguish identifies, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics.
2. An ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process.
3. An ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences.
4. An ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels
5. An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations.
6. An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly.
7. An ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty.

#### 5. Academic Staff

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## 6. Credits, Grading and GPA

### Credits

Al-Farabi University College is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs. Student workload, including structured and unstructured workload.

### Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
<p><i>Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</i></p>				

### Calculation of the Cumulative Grade Point Average (CGPA)

The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

CGPA of a 4-year B.Sc. degree:

$$\text{CGPA} = [ (1^{\text{st}} \text{ module score} \times \text{ECTS}) + (2^{\text{nd}} \text{ module score} \times \text{ECTS}) + \dots ] / 240$$



## 7. Curriculum/Modules

### Semester 1 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USSWL	SWL	ECTS	Type	Pre-request
COE101	Mathematics and Matlab	93	57	150	6	B	
COE102	Computer Structure and Organization	63	62	125	5	C	
COE103	Computer Programming	78	47	125	5	C	
COE104	Mathematical Modeling and Electrical Circuits	93	32	125	5	C	
COE105	Boolean Algebra	78	47	125	5	B	
FU010	Democracy Human Rights	32	18	50	2	S	
FU031	English Language I	469	281	750	30	S	
	<b>Total / Hrs/week</b>	<b>469</b>	<b>281</b>	<b>750</b>	<b>30</b>		

### Semester 2 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE106	Engineering Mathematics	79	56	5	B	
COE107	Logic Circuit Design	79	71	6	C	
COE108	Object oriented Programming	64	56	5	C	
COE109	Mathematical Modeling and Electrical Systems	94	26	5	C	
COE110	Semi -Conductor Physics	78	57	5	B	
GE08	English (3,4)	63	27	4	B	

### Semester 3 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USWL	ECTS	Type	Pre-request
COE201	Assembly Language	94	56	6	C	
COE202	Engineering Analysis	63	62	5	B	
COE203	Digital System Design	79	71	6	C	
COE204	DSP and Applications	79	46	5	C	
COE205	Electronic Circuits and Devices	94	56	6	C	
GE01	Arabic Language	33	17	2	B	

### Semester 4 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE206	Computer System Design	63	87	6	C	
COE207	Mathematical Modeling and Communication Systems	94	56	6	C	
COE208	Data Structure & Algorithms	79	51	5	E	
COE209	Database Systems	79	41	5	C	
COE210	Mathematical Modeling and Control Systems	64	86	6	C	
GE02	Democracy Human Rights	33	17	2	B	



Semester 5 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE301	Web Site Programming	79	21	4	C	
COE302	Embedded Systems	79	71	6	C	
COE303	Computer Networks	79	71	6	C	
COE304	Operating Systems	94	56	6	C	
COE305	Research Methodology	33	17	2	C	
COE306	Computer Vision & image processing	94	56	6	E	

Semester 6 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE307	Digital Control Systems	64	86	6	E	
COE308	Computer Security	94	56	6	C	
COE309	Group Project	120	30	6	C	
COE310	Individual Project	94	56	6	C	
COE311	Artificial Intelligence and Applications	63	37	4	E	
GS104	Ethics	33	17	2	B	

Semester 7 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USWL	ECTS	Type	Pre-request
COE401	Internet Infrastructure	64	86	6	E	
COE402	Microprocessor & Microcomputer	64	86	6	E	
COE403	Computer Architecture	64	86	6	E	
COE404	Mobile App Development	64	36	4	E	
COE405	Supervised study & Research	120	80	8	C	

Semester 8 | 30 ECTS | 1ECTS = 25 hrs.

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COE406	Integrated engineering: Graduation Thesis	363	387	30	C	

## 8. Contact

### Program Manager:

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