

# Ninevah University

جامعة نينوى



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

بكالوريوس هندسة - هندسة الحاسوب والمعلوماتية



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### 1. **Mission & Vision Statement**

#### ***Vision Statement***

The vision of the Computer and Information Engineering (CIE) department at the College of Electronics Engineering is to offer a bachelor degree in the sciences of computer and information engineering that leads the way of innovation, empowering the students to emerge as proficient engineers, leaders and pioneers in the rapidly evolving world of data sciences, information and technology. The CIE department endeavor regional recognition by providing transformative university level education that tie-up the students with skills, knowledge, and ethics to shape the future. By merging theory and practical learning, the graduates of the CIE department are prepared to initiate technological innovation, solve real-life problems and address challenges to impact positively in the society.

#### ***Mission Statement***

The mission of the CIE department at College of Electronics Engineering is to provide holistic interdisciplinary education in the field of computer and information engineering, underpinning the students with the foundation and theoretical knowledge, handy practical skills and state-of-the-art technologies in the field. The CIE department promote and support collaborative and inclusive learning experience through an interdisciplinary computer engineering and informatics course program. The encouragement of critical thinking, innovation and creativity are usually adopted to prepare the graduates to have a magnificent impact as an engineer in their field of work.

## 2. Program Specification

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

Recognizing the significant influence of information and technology in our everyday lives, it became crucial to adapt and provide education that outfits to the evolving scene. As a result, the College of Electronics Engineering took the initiative in 2002 to establish a specialized undergraduate program in Ninevah province in Iraq focusing particularly on an interdisciplinary field of computer engineering and informatics. This program was carefully designed to train students with a comprehensive understanding of various subjects that form the foundation of knowledge in this rapidly evolving field. By offering a diverse range of courses, the program aims to prepare students for the dynamic challenges and opportunities brought forth by the modern era of information and technology.

The program follows a structured curriculum, with Level 1 serving as an introduction to the fundamentals of computer engineering, providing a solid basis for progressing into specialized topics within the field. Program-specific core subjects are covered at Level 2, laying the groundwork for more specialized modules at Levels 3 and 4. Additionally, the program incorporates a sufficient number of modules dedicated to general knowledge, science and mathematics.

At Levels 3 and 4, students are exposed to a wide range of modules that are specifically tailored to strengthen their understanding of computing systems and informatics. These modules ensure that graduates with a degree in computer and information engineering possess the breadth of knowledge expected of them. Learning outcomes from these modules enable students to acquire the skills necessary to understand, analyze, and design processing elements at the transistor, gate, and register levels, encompassing software, hardware, data and network aspects of complex computing and information systems.

The course program adopts integrated practical sessions within lecture modules as well as facilitating research seminars and tutorials. Moreover, at Level 4, students undertake a capstone research project under the guidance of a supervisor who monitors their progress throughout the process.

Furthermore, the program offers opportunities for summer training, internships, and industrial placements. Individual needs and preferences are discussed with the appropriate tutors, and accommodations are made whenever possible to ensure a fulfilling and well-rounded educational experience.

### **3. Program Goals**

1. To deliver a broad spectrum of education in the field of computer engineering and informatics that emphasizes scientific reasoning and problem solving across the range of disciplines in the field.
2. To train students for conducting a wide variety of postgraduate studies and professional training programs in the field of information and technology.
3. To offer an extensive practical training in computer engineering and technology, solid mathematical background, laboratory and field skills.
4. To provide thorough training in written and oral communication to present and discuss topics from engineering perspective.
5. To enrich students with opportunities for education in the field of computer and information engineering through undergraduate research, internships, and study-abroad.

### **4. Student Learning Outcomes**

The field of computer and information engineering focuses on the study of the organization and operation of computational systems at various aspects, including hardware, software, networks, and data. Graduates gain comprehensive knowledge from the hardware and software perspective about computer and information systems and apply fundamental principles to address broader concepts. The CIE department offers a Bachelor of Science program in Computer and Information Engineering through providing courses with wide range of spectrum to deliver a comprehensive education in the field of computer engineering and informatics. The curriculums of CIE department are designed to prepare students, in part, for entry into professional programs in technology and engineering, pursue advanced studies, pursue technical careers, and engage in education.

1. Proficiency in fundamental concepts: Demonstrate a strong understanding of fundamental principles and core concepts in computer and information engineering, including programming languages, algorithms, data structures, computer organization and architecture, software engineering and artificial intelligent.
2. Problem-solving skills: Develop the ability to analyze complex computational problems and apply critical thinking and problem-solving techniques to design, implement, and evaluate efficient and innovative solutions.
3. Technical competency: Acquire practical skills and proficiency in utilizing various software tools, programming languages, and technologies commonly used in the field of computer and information engineering, such as data structure, networking, microprocessor architecture, management of information system and software engineering.

4. Collaboration and teamwork: Demonstrate effective teamwork and collaboration skills by actively participating in group seminars and projects, engaging in team-based and collaborative problem-solving activities, and effectively communicating with peers working in an interdisciplinary project.
5. Communication skills: Develop strong written and oral communication skills to effectively convey technical concepts, ideas, and solutions in a clear and formal manner to both technical and non-technical audiences, including presenting research findings, documenting software systems, and preparing comprehensive technical reports.

## 5. Academic Staff

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## 6. Credits, Grading and GPA

### Credits

Ninevah University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS 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:				
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.				

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

1. 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 | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEECI111	Computer Programming I	88	62	6.00	C	
NVEE206	Mathematics I	72	78	6.00	B	
NVEE215	DC Circuit Analysis	88	62	6.00	B	
NVEE218	Physical Electronics	88	37	5.00	B	
NV12	Democracy and Human Rights	30	20	2.00	B	
NVEECI112	Information Technology	74	51	5.00	C	

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

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEECI121	Computer Programming II	88	62	6.00	C	NVEECI111
NVEE207	Mathematics II	72	78	6.00	B	NVEE206
NVEE216	AC Circuit Analysis	88	62	6.00	B	NVEE215
NVEE217	Digital Techniques	88	62	6.00	C	
NVEE201	Engineering Drawing	72	53	5.00	B	
NV11	English	30	20	2.00	B	

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

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEECI211	Object Oriented Programming	63	37	4.00	C	NVEECI121
NVEE208	Engineering Analysis I	60	65	5.00	B	NVEE207
NVEECI212	Digital Design I	75	50	5.00	C	NVEE217
NVEE210	Signals & Systems I	75	50	5.00	B	NVEE207
NVEE22	Communication Principles	63	37	4.00	S	NVEE210
NVEE224	Electronics	90	35	5.00	B	NVEE218
NV13	The Crimes of the Baath Regime in Iraq	30	20	2.00	B	

**Semester 4 | 30 ECTS | 1 ECTS = 25 hrs**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEECI221	Data Structures	63	37	4.00	C	NVEECI211
NVEE209	Engineering Analysis II	60	65	5.00	B	NVEE208
NVEECI222	Digital Design II	75	50	5.00	C	NVEECI212
NVEE210	Signals & Systems II	75	50	5.00	B	NVEE210
NVEECI223	Microprocessor Programming	60	40	4.00	C	NVEECI212
NVEECI224	Digital IC Design	60	65	5.00	C	NVEE224
NV14	Arabic	30	20	2.00	B	

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

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEECI311	Computer Architecture I	58	67	5.00	C	NVEECI223, NVEECI222
NVEECI312	Computer Networks I	74	51	5.00	C	NVEE222
NVEECI324	Operating Systems	58	67	5.00	C	NVEECI221, NVEECI314
NVEECI314	Microprocessor Applications	74	51	5.00	C	NVEECI223
NVEECI315	Digital Signal Processing I	74	51	5.00	C	NVEECI224
NVEECI316	Digital Communications	74	51	5.00	S	NVEE222

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

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEECI321	Computer Architecture II	58	67	5.00	C	NVEECI311
NVEECI322	Computer Networks II	74	51	5.00	C	NVEECI312
NVEE202	Industrial Management and Professional Ethics	44	56	4.00	B	
NVEECI323	Microcomputers and Microprocessors	60	65	5.00	C	NVEECI314
NVEECI315	Digital Signal Processing II	74	51	5.00	C	NVEECI315
NVEECI325	Information Theory and Cryptography	74	76	6.00	C	NVEECI316

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

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEE211	Design of Graduation Project	30	20	2.00	C	
NVEECI411	Digital Image Processing	88	62	6.00	C	NVEECI315
NVEECI412	Information Systems	58	67	5.00	C	NVEECI221
NVEECI413	Network Programming	88	62	6.00	C	NVEECI322, NVEECI211
NVEECI414	Real Time Systems	88	62	6.00	C	NVEECI314
NVEECI415	Software Engineering	58	67	5.00	C	NVEECI221

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

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
NVEE212	Implementation of Graduation Project	58	42	4.00	C	
NVEECI421	Computer Graphics	74	51	5.00	C	NVEECI411
NVEECI422	Database management	44	56	4.00	C	NVEECI412
NVEECI423	Embedded Systems	74	51	5.00	C	NVEECI414
NVEECI424	Digital Control Systems	88	62	6.00	C	NVEECI315, NVEE209
NVEECI425	Artificial Intelligence	72	78	6.00	C	NVEECI325, NVEECI211, NVEE209

**8. Contact**

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