Republic of Iraq

Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

Academic Program Specification Form for Colleges for the Academic Year 2023-2024

University: University of Anbar

College: College of Computer Science and Information Technology

Department: Computer Science

Date of Form Completion : 10\3\2024

Signature:

Head of Department: Prof. Dr. Esam Taha Yaseen

Signature:

Dean's Assistant For Scientific Affairs:

أ.م.د. خطاب معجل علي

معاون العميد للشؤون العلمية والدراسات العليا

Quality Assurance And University Performance Manager

Signature:

Dean Authenticatio

Republic of Iraq - Ministry of Higher Education and Scientific Research

University of Anbar

Bachelor's degree in Computer Science (First cycle)

Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr

Program Curriculum (2023 - 2024)

جمهورية العراق - وزارة التعليم العالي والبحث العلمي

جامعة الانبار

بكالوريوس في علوم الحاسوب (الدورة الأولى)

أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة

المنهاج الدراسي للعام ٢٠٢٣-٢٠٢٤

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code	
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
UGI	One	1	CSDC110	Computer Technology	تقنيات الحاسبة	English	2		2		2		3	93	57	150	6.00	C		Dep
		2	CSDC111	Programming in C++ I	البرمجةبلغة C++ 1	English	4		2	2			3	123	77	200	8.00	C		Dep
		3	CSDC112	Logic Design I	التصميم المنطقي١	English	3		2		1		3	93	57	150	6.00	C		Dep
		4	CCIT060	Mathematics	الرياضيات	English	3			1	2		3	93	57	150	6.00	B		College
		5	UOA003	English Language I	اللغة الانكليزية ١	English	2						3	33	17	50	2.00	S		Uni
		6	UOA005	Democracy and Human Rights	الديمقراطية وحقوق الانسان	Arabic	2						3	33	17	50	2.00	S		Uni
						Total	16	0	6	3	5	0	18	468	282	750	30.00			

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code	
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
UGI	Two	1	CSDC120	Microprocessors	المعالجات المايكروية	English	2		2	1	1		3	93	57	150	6.00	C		Dep
		2	CCIT061	Discrete Structures	الهياكل المتقطعة	English	3				2		3	78	72	150	6.00	B		College
		3	CSDC121	Programming in C++ II	البرمجة بلغة C++ 2	English	4		2	2			3	123	77	200	8.00	C	CSDC111	Dep
		4	CSDC122	Logic Design II	التصميم المنطقي٢	English	2		2	2			3	93	57	150	6.00	C	CSDC112	Dep
		5	UOA001	Arabic Language I	اللغة العربية ١	Arabic	2						3	33	17	50	2.00	S		Uni
		6	CSDC123	Communication Skills	مهارات التواصل	Arabic	2						3	33	17	50	2.00	C		Dep
						Total	15	0	6	5	3	0	18	453	297	750	30.00			

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code	
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
UGII	Three	1												0		0	0.00			
		2												0		0	0.00			
		3												0		0	0.00			
		4												0		0	0.00			
		5												0		0	0.00			
														0		0	0.00			
						Total	0	0	0	0	0	0	0	0	0	0	0			

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w)						Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code	
							CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)								
UGII	Four	1												0		0	0.00			
		2												0		0	0.00			
		3												0		0	0.00			
		4												0		0	0.00			
		5												0		0	0.00			
														0		0	0.00			

						Total	0	0	0	0	0	0	0	0	0	0	0.00							
Level	**Semester**	**No.**	**Module Code**	**Module Name in English**	**اسم المادة الدراسية**	**Language**	**SSWL (hr/w)**						**Exam hr/sem**	**SSWL hr/sem**	**USSWL hr/sem**	**SWL hr/sem**	**ECTS**	**Module Type**	**Prerequisite Module(s) Code**					
							CL (hr/w)	**Lect (hr/w)**	**Lab (hr/w)**	**Pr (hr/w)**	**Tut (hr/w)**	**Semn (hr/w)**												
		1												0		0	0.00							
		2												0		0	0.00							
		3												0		0	0.00							
	Five	4												0		0	0.00							
		5												0		0	0.00							
						Total	13	0	0	0	0	0	0	0	0	0	0.00							
UGIII	**Semester**	**No.**	**Module Code**	**Module Name in English**	**اسم المادة الدراسية**	**Language**	**SSWL (hr/w)**						**Exam hr/sem**	**SSWL hr/sem**	**USSWL hr/sem**	**SWL hr/sem**	**ECTS**	**Module Type**	**Prerequisite Module(s) Code**					
							CL (hr/w)	**Lect (hr/w)**	**Lab (hr/w)**	**Pr (hr/w)**	**Tut (hr/w)**	**Semn (hr/w)**												
		1												0		0	0.00							
		2												0		0	0.00							
		3												0		0	0.00							
	Six	4												0		0	0.00							
		5												0		0	0.00							
		6												0		0	0.00							
						Total	0	0	0	0	0	0	0	0	0	0	0.00							
Level	**Semester**	**No.**	**Module Code**	**Module Name in English**	**اسم المادة الدراسية**	**Language**	**SSWL (hr/w)**						**Exam hr/sem**	**SSWL hr/sem**	**USSWL hr/sem**	**SWL hr/sem**	**ECTS**	**Module Type**	**Prerequisite Module(s) Code**					
							CL (hr/w)	**Lect (hr/w)**	**Lab (hr/w)**	**Pr (hr/w)**	**Tut (hr/w)**	**Semn (hr/w)**												
		1												0		0	0.00							
		2												0		0	0.00							
		3												0		0	0.00							
	Seven	4												0		0	0.00							
		5												0		0	0.00							
						Total	0	0	0	0	0	0	0	0	0	0	0.0							
UGIV	**Semester**	**No.**	**Module Code**	**Module Name in English**	**اسم المادة الدراسية**	**Language**	**SSWL (hr/w)**						**Exam hr/sem**	**SSWL hr/sem**	**USSWL hr/sem**	**SWL hr/sem**	**ECTS**	**Module Type**	**Prerequisite Module(s) Code**					
							CL (hr/w)	**Lect (hr/w)**	**Lab (hr/w)**	**Pr (hr/w)**	**Tut (hr/w)**	**Semn (hr/w)**												
		1												0		0	0.00							
		2												0		0	0.00							
		3												0		0	0.00							
	Eight	4												0		0	0.00							
		5												0		0	0.00							
		6																						
						Total	0	0	0	0	0	0	0	0	0	0	0.0							
						Total	90	0	12	8	8	0	36	921	579	1500	60.0		**Must be 240 ECTS**					

Structured Interms

	CL	Class Lecture	**Module type**	**B**	Basic learning activities		**SWL:**	Student Workload
	Lab	Laboratory		**C**	Core learning activity		**SSWL:**	Structured SWL
	Pr	Practical Training		**S**	Support or related learning activity		**USSWL:**	Unstructured SWL

		Tut	Tutorial		**E**	Elective learning activity			
		Lect	Online lecture						
		Sem n	Seminar	Note: Columns O, Q and R are progrmaed, protected and should not be edited					

University of Anbar

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

بكالوريوس – علوم حاسبات

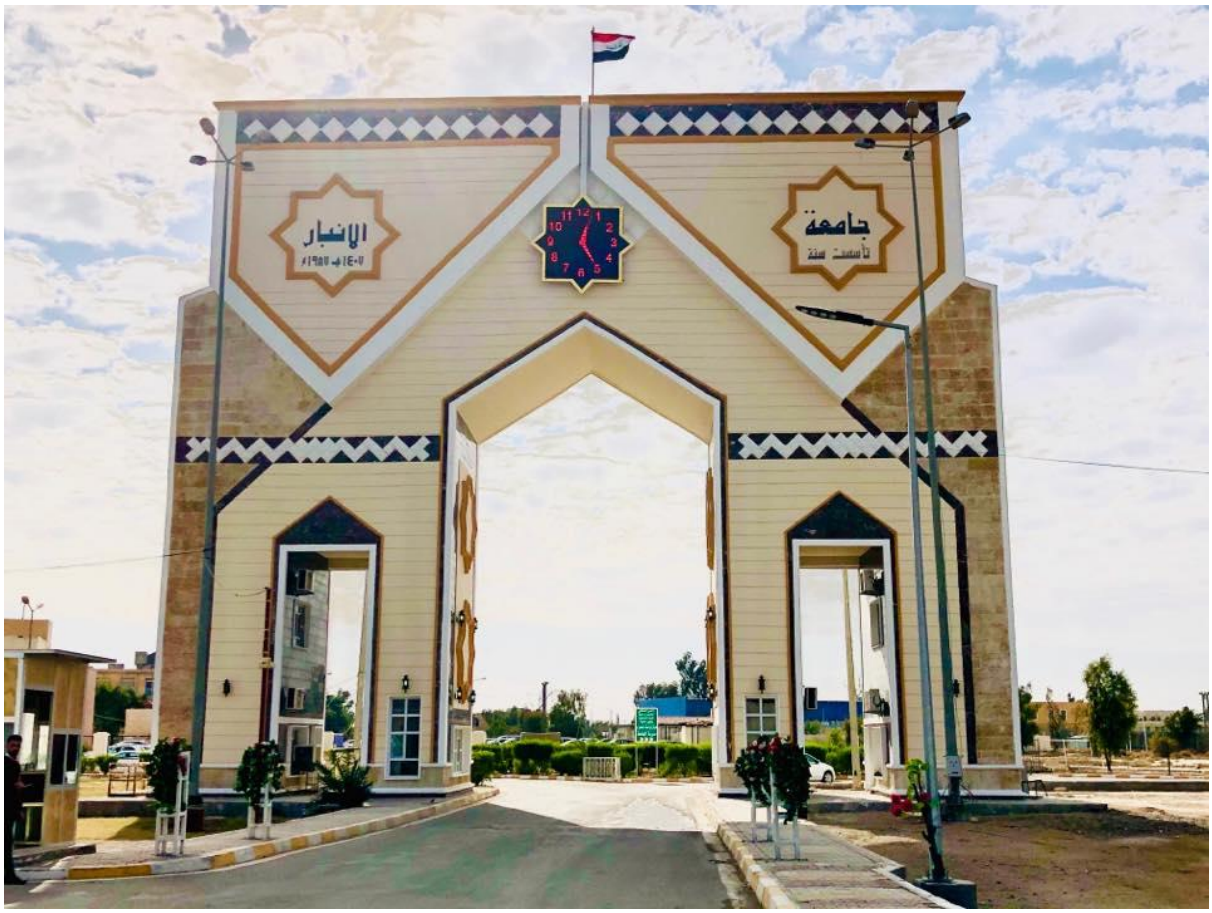

Table of Contents | جدول المحتويات

1. Mission & Vision Statement

Vision Statement

The depart of computer science seeks to achieve a prominent position among the relevant departments in Iraqi universities by providing and updating modern distinguished programs that focus on the requirements of the labor market and technological development.

Mission Statement

The department's mission is summarized in preparing, qualifying, and supplying the IT job market with distinguished graduates equipped with the knowledge and skills necessary to solve problems, possessing functional intelligence skills and qualifying them to meet the needs of various government institutions and the IT job market, and the ability to conduct scientific and applied research and provide consulting and training services in the areas of the specialized college.

2. Program Specification

Programme code:	BSc-CS	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

This program provides a comprehensive educational and practical training in various aspects of computer science. The focus of the program is core concept principles of computer science, including programming languages, data structure, algorithms, computer architecture, and operating system. These foundational topics form the basis for understanding and solving complex computational problems.

Level 1 exposes students to the fundamentals of computing, suitable for progression to the specialized topics in this program. Program-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4.

At Levels 2, 3 and 4 students are free to choose some of their module credits with the provision of a range of modules are selected that reflect the aspects of computer science, through analyzing problems, to stage of providing solutions to ensure the breadth of knowledge expected of a graduate with a computer science degree. This allows students to develop their own wide-ranging interests in computer science. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start through practical, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. At Level 4 all students carry out an independent research project.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

Graduates of the program can pursue careers in software development, data analysis, cybersecurity, artificial intelligence, systems analysis, research, or pursue further education at the postgraduate level.

3. Program Goals

1. Preparing qualified graduates with the ability to carry out computer science work professionally.
2. Maintaining a friendly academic environment that encourages education and scientific research.
3. Preparing students to pursue postgraduate studies and continuing education.
4. Preparing graduates with a high level of ethical behavior and responsibility, and providing leaders in the academic and societal fields.

5. Student Learning Outcomes

Computer science is a field of study that explores the theoretical foundations, practical applications, and technologies related to computers and computing systems. Graduates obtain information on theoretical and practical aspects of computing, including, the study of computers, computational systems, algorithms, programming languages, and various aspects of information technology. The programme of computer science is planned to prepare students for entry into profession computer science programs, information technology careers, research and innovation, graduate studies.

Upon completion of the program, students will be able to:

1. Apply computer knowledge and mathematics appropriate to the educational outcomes of students and their specialization.
2. Analyze a problem, identifying and defining computing requirements appropriate to the solution.
3. Design, implement, and evaluate a computer-based system, process, component, or program to meet required needs.
4. Work effectively in teams to accomplish a common goal.
5. Understand the professional, ethical, legal, security, and societal responsibilities related to computer science and its uses.
6. Communicate effectively with a large group of attendees when presenting any presentation or presenting work related to computer science.
7. Analyze the local and global impact of computing on individuals, organizations, and society.

6. Academic Staff

Esam Taha Yaseen Hussien | Ph.D. in Computer Science | Professor
Email: co.esamtaha@uoanbar.edu.iq
Mobile no.:

Belal Ismail Khalil Ibrahim | Ph.D. in Computer Science| Professor
Email: belal-alkhateeb@uoanbar.edu.iq
Mobile no.:

Azmi Tawfeq Hussein Ali | Ph.D. in Physics| Professor
Email: azmi.alrawi@uoanbar.edu.iq
Mobile no.:

Wesam Mohammed Jasim Abid | Ph.D. in Electrical and Electronic Engineering | Professor
Email: co.wesam.jasim@uoanbar.edu.iq
Mobile no.:

Fouad Salem Mubarek Abdullah | Ph.D. in Computer Science | Asst. Prof.
Email: co.foad.salem@uoanbar.edu.iq
Mobile no.:

Ahmed Subhi Abdul-Ghafoor | Ph.D. in Computer Science | Asst. Prof.
Email: ahmed.abdalkafor@uoanbar.edu.iq
Mobile no.:

Dhafer Hamed Abd Jassam | Ph.D. in Computer Science| Asst. Prof.
Email: dhafar.hamed@uoanbar.edu.iq
Mobile no.:

Abdul-Adheem Zaily Hameed | Ph.D. in Physics | Teacher
Email: ab72d74@uoanbar.edu.iq
Mobile no.:

Makarim Abdulwahid Abduljabar | Ph.D. in Mathematics| Teacher

Email: mak_alturky@uoanbar.edu.iq
Mobile no.:

Ruqayah Ayad Abduljabar | Ph.D. in Computer Science| Teacher
Email: ruqayah.alani@uoanbar.edu.iq
Mobile no.:

Ruqayah Rabeea Hashim Al-Dahhan | Ph.D. in Computer Science| Teacher
Email: Ruqayah85@uoanbar.edu.iq
Mobile no.:

Arwa Hatem Qasim Mohamad | Ph.D. in Computer Science| Teacher
Email: arwa.alqudsi@uoanbar.edu.iq
Mobile no.:

Saad Adnan abed | Ph.D. in Computer Science| Teacher
Email: saad.adnan@uoanbar.edu.iq
Mobile no.:

Saif addin M. Najim | MSc in Computer Science| Teacher
Email: saifaddin.r@uoanbar.edu.iq
Mobile no.:

Waleed Kareem Awad Salim| MSc in Computer Science| Asst. Prof.
Email: waleed.kareem@uoanbar.edu.iq
Mobile no.:

Wijdan Jaber Benayah Hamad | MSc in Computer Science| Teacher
Email: wijdan-jaber@uoanbar.edu.iq
Mobile no.:

Nawar Ahmed Irsan Al-jumaily | MSc in Computer Science| Asst. Teacher
Email: nawar_irsan@uoanbar.edu.iq
Mobile no.:

Sura Mahroos Searan Mutlaq | MSc in Computer Science| Asst. Teacher

Email: sura.mahroos@uoanbar.edu.iq
Mobile no.:

Rehab Hazem Qasim Hammadi | MSc in Computer Science| Asst. Teacher
Email: rihab.hazim@uoanbar.edu.iq
Mobile no.:

Tahseen Alawi Ahmed | MSc in Computer Science| Asst. Teacher
Email: Tahseen.alawi@uoanbar.edu.iq
Mobile no.:

Mustafa Maad Hamdi Swedan | MSc in Computer Science| Asst. Teacher
Email:
Mobile no.:

---

7. Credits, Grading and GPA

Credits

University of Anbar 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:

   CGPA = [(1st ^{m}odule score x ECTS) + (2nd ^{m}odule score x ECTS) + ……] / 240

8. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CSDC110	Computer Technology	93	57	6.00	C	None
CSDC111	Programming in C++ I	123	77	8.00	C	None
CSDC112	Logic Design I	93	57	6.00	C	None
CCIT060	Mathematics	93	57	6.00	B	None
UOA003	English I	33	17	2.00	S	None
UOA005	Democracy and Human Rights	33	17	2.00	S	None

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CSDC120	Microprocessors	93	57	6.00	C	None
CCIT061	Discrete Structures	78	72	6.00	B	None
CSDC121	Programming in C++ II	123	77	8.00	C	CSDC111
CSDC122	Logic Design II	93	57	6.00	C	CSDC112
UOA001	Arabic Language I	33	17	2.00	S	None
CSDC123	Communication Skills	33	17	2.00	C	None

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CSDC210	Database	108	67	7.00	C	None
CSDC211	Object Oriented Programming	123	77	8.00	C	CSDC121
CSDC212	Data Structures	108	67	7.00	C	CSDC121
CSDC213	Advanced Mathematics	63	37	4.00	C	CCIT060
UOA006	The crimes of the defunct Ba'ath party	33	17	2.00	S	None
UOA002	Arabic Language II	33	17	2.00	S	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

CSDC220	Computational Theory	78	47	5.00	C	None
CSDC221	Python	108	67	7.00	C	CSDC211
CSDC222	Algorithms	93	57	6.00	C	None
CCIT062	Numerical Analysis	63	37	4.00	B	CSDC213
CCIT063	Computer Networks	93	57	6.00	S	None
UOA004	English Language 2	33	17	2.00	S	None

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CSDC310	Visual Programming	93	57	6.00	C	CSDC211
CSDC311	Computer Graphics	93	57	6.00	C	None
CSDC312	Computer Architecture	93	57	6.00	C	None
CSDC321	Wireless Networks	93	57	6.00	C	CCIT063
CSDC323	Mobile Applications Programming	93	57	6.00	C	CSDC221

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CSDC320	Multimedia	108	67	7.00	C	CSDC311
CSDE223	Internet of Things	93	57	6.00	E	CSDC120
CSDC322	Compilers	108	67	7.00	C	None
CSDC313	Software Engineering	93	57	6.00	C	None
UOA019	Research methodology	63	37	4.00	B	None

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSW	ECTS	Type	Pre-request

			L			
CSDC410	Operating Systems I	93	57	6.00	C	CSDC221
CSDC411	Computer Security 1	93	57	6.00	C	None
CSDC412	Artificial Intelligence	108	42	6.00	C	None
CSDC413	Digital Image Processing	93	57	6.00	C	CSDC213
CSDE414	Game Programming	93	57	6.00	E	None

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CSDC420	Operating Systems II	78	47	5.00	C	CSDC410
CSDC421	Computer Security II	78	47	5.00	C	CSDC411
CSDC422	Machine Learning	93	57	6.00	C	CSDC412
CSDC423	Web Development	93	57	6.00	C	CSDC210
UOA020	Project	123	77	8.00	B	None

9. Contact

Program Manager:
Esam Taha Yaseen Hussien | Ph.D. in Computer science | Professor
Email: co.esamtaha@uoanbar.edu.iq
Mobile no.: 07815403674

Program Coordinator:
Waleed Kareem Awad Salim | Msc in computer science | Asst. Prof.
Email: waleed.kareem@uoanbar.edu.iq
Mobile no.: 07700005824

University of Anbar
جامعة الانبار

First Cycle – Bachelor's Degree (B.Sc.) – Computer Science

بكالوريوس – علوم حاسبات

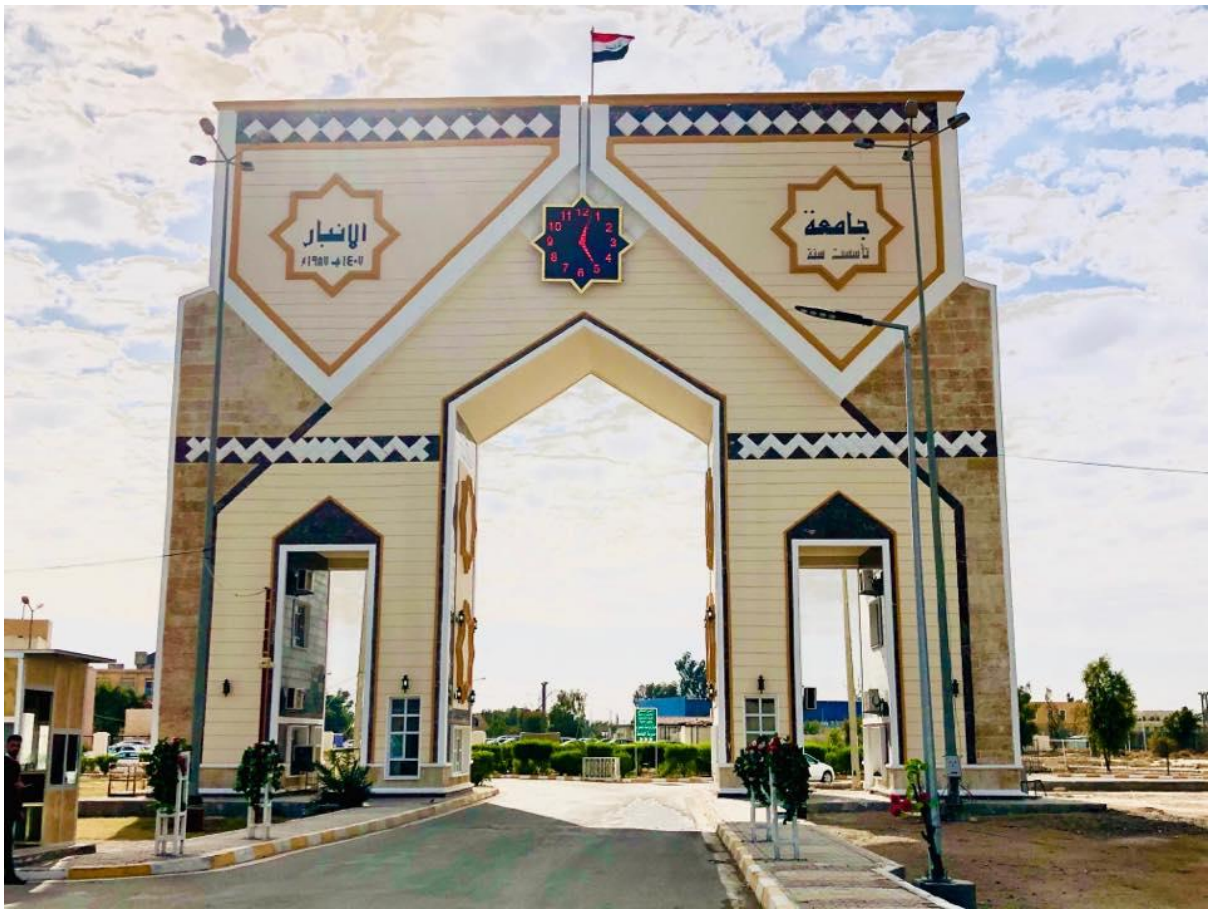

Table of Contents

1. Overview

This catalogue is about the courses (modules) given by the program of computer science to gain the Bachelor of Science degree. The program delivers (46) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظره عامه

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج علوم الحاسبات للحصول على درجة بكالوريوس في علوم الحاسبات. يقدم البرنامج (46) مادة دراسية، على سبيل المثال، مع (٦٠٠٠) إجمالي ساعات حمل الطالب و ٢٤٠ إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

2. Undergraduate Courses 2023-2024

Module 1

Code	Course/Module Title	ECTS	Semester
CSDC110	Computer Technology	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			
This module cover computer systems and includes all hardware, software, and Electronic Data. Additionally, the course addresses the principles of modern computing technology, its role in helping to solve real-world problems and the critical issues affecting management. **After completing the module,** the student should be able to: 1. The student should understand the architecture of any IT systems. 2. The student should understand the parts of hardware. 3. The student should understand the system software. 4. The student should understand the architecture of networks ,protocols and communications devices.			

Module 2

Code	Course/Module Title	ECTS	Semester
CSDC111	Programming in C++ I	8	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
4	4	123	77
Description			
This module provides an overview of programming languages; and explains the principles of abstraction and modularity. The elements of structured programming are then given before outlining the steps in program design and execution. An introduction to the C++ programming language follows with how to use and apply operators and control statements. **After completing the module,** the student should be able to develop proficiency in the C++ programming language, including a strong understanding of its syntax, semantics, data types, control structures, functions, and object-oriented programming concepts.			

Module 3

Code	Course/Module Title	ECTS	Semester
CSDC112	Logic Design I	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	3	93	57
Description			
This module demonstrates a solid understanding of digital logic principles, including Boolean algebra, logic gates, truth tables, and the concept of binary representation. **After completing the module,** the student should be able to: 1. Understand number systems and codes and conversion between them. 2. Understand the Boolean expression and how to apply it. 3. Recognize among different logic gates and how to use them. 4. Understand how to design a logic circuit. 5. Understand using K-map for simplification.			

Module 4

Code	Course/Module Title	ECTS	Semester
CCIT060	Mathematics	6	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57
Description			
This module aims to provide students with a solid foundation of core mathematical concepts and theories. This includes topics such as algebra, calculus, geometry, discrete mathematics, probability, and statistics. The aim is to ensure that students have a comprehensive understanding of fundamental mathematical principles. **After completing the module,** the student should be able to: 1. Understand and use basic mathematical terminology. 2. Understand the role of formal definitions and proofs and be able to apply them in problem solving. 3. Understand the basics of propositional and predicate logic. 4. Understand the basics of elementary set theory. 5. Understand the basics of mathematical relations and functions. 6. Understand the basics of graph theory.			

Module 5

Code	Course/Module Title	ECTS	Semester
UOA003	English Language I	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	17
Description			
This module focuses on developing the specific skills required for academic studies and exploring strategies for success in academic. New texts, topics, and design, integrated-skills syllabus with a clear grammar focus, new version of Headway iTools – whole book onscreen, Headway iTutor – new interactive self-study DVD-ROM, included with the Student's Book.			

Module 6

Code	Course/Module Title	ECTS	Semester
UOA005	Democracy and Human Rights	2	1
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	0	33	17

Description
تهدف هذه المادة الى تعليم الطلبة على أساسيات حقوق الإنسان وقوانينها والتعرف على الحقوق وأهم الإشكاليات والتحديات التي تواجهها. اخذ مفردات هذه المادة تساعد على: 1- أن يعرف الطالب مفهوم الحقوق وقوانينها وتطبيقاتها . 2- أن يعرف الطالب كيفية المشاركة في نشر الحقوق وتطبيقها بالعمل الواقعي الحقيقي. 3- القدرة على استخدام الحقوق وسيلة من أجل التعايش السلمي بين مكونات المجتمع وجميع المخلوقات . 4- القدرة على مشاركة الآخرين في نشر هذه الحقوق .

Module 7

Code	Course/Module Title	ECTS	Semester
CSDC120	Microprocessors	6	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			
This module covers the following issues: 1. Evolution of microprocessors, 8086 Microprocessor - Architecture and signals. 2. Memory organization 3. Minimum and maximum mode of operation. 4. Minimum mode Timing Diagram. 5. Comparison of 8086 and 8088.			

Module 8

Code	Course/Module Title	ECTS	Semester
CCIT061	Discrete Structures	6	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	2	78	72
Description			
The model of discrete structures aims to study the objects that have discrete as opposed to continuous values including the foundations of logic, algorithms and their complexity, mathematical reasoning, relations, graphs, trees and combinatorics. More precisely: 1- To describe the aim of study discrete mathematics 2- To understand what difference between ordinary math and discrete math. 3- To understand what the relation between computer science and math 4- To learn the operation between the difference objects of math. 5- To apply the relation between this objects.			

Module 9

Code	Course/Module Title	ECTS	Semester
CSDC121	Programming in C++ II	8	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
4	4	123	77
Description			
This module provides the principles of abstraction and modularity of structure programing. Functions and arrays in C++ are then discussed, finally ending the course with a study of structures, files and pointers in C++. Learn how to use the advanced tools which help programmers to write fast, portable programs. The main principles of programming and the development of programming languages are considered.			

Module 10

Code	Course/Module Title	ECTS	Semester
CSDC122	Logic Design II	6	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	4	93	57
Description			
This module covers the following issues: - The student should understand encoder, decoder and multiplexers - The student should understand synchronous logic circuit - The student should understand flip-flops and how to use them - The student should understand registers and their types - The student should understand counters and their types - The student should understand ROM and PLA implementation			

Module 11

Code	Course/Module Title	ECTS	Semester
UOA001	Arabic Language I	2	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**

2	0	33	17
Description			
تهدف هذه المادة الى: 1. تعليم الطلبة عل أساسيات اللغة العربية وقواعدها 2. تعليم الطلبة عل كيفية الاعراب 3. أن يتعرف الطالب على قواعد اللغة العربية 4. أن يعرف الطالب كيفية بناء الجمل واستخراجها للعنوان المطلوب 5. القدرة على استعمال العبارات الصحيحة 6. القدرة على مشاركة الاخرين في الحوار الصحيح			

Module 12

Code	Course/Module Title	ECTS	Semester
CSDC123	Communication Skills	2	2
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	17
Description			
This module is essential for college students as they play a vital role in academic success, personal development, and future career prospects. After completing the module, the student should be able to: 1. Written Communication: Strong writing skills are crucial for college students as they frequently need to write essays, reports, and assignments. 2. College students should focus on improving their grammar, punctuation, and overall writing style to communicate their thoughts accurately. 3. Listening Skills: Effective communication is a two-way process, and listening plays a vital role in it. College students should develop active listening skills, which involve paying full attention to the speaker, understanding the message being conveyed, and responding appropriately. 4. Presentation Skills: Delivering presentations is a common requirement in college. Students should develop the ability to organize and present information in a structured and engaging manner.			

Module 13

Code	Course/Module Title	ECTS	Semester
CSDC210	Database	7	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	4	108	67

Description
This module aims to create, update, and store the static and the dynamic objects to be used in the simulation, both related to the infrastructure (supply) and to the demand. **After completing the module,** the student should be able to: 1. Understand relational data model in terms of data structure, data integrity, and data manipulation. 2. Understand and create conceptual database models utilizing entity-relationship. 3. Design data structures that will limit redundancy and enforce data integrity while conforming to organizational requirements utilizing normalization methodology. 4. Understand the theory behind the relational data model as it applies to interactions with current database management systems. 5. Interpret a given data model to query the database and transform the data into information using SQL (Structured Query Language). 6. Implement a data model in a current RDBMS. 7. Create reports based on transactional data, including elements such as data groupings and summary values.

Module 14

Code	Course/Module Title	ECTS	Semester
CSDC211	Object Oriented Programming	8	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
4	4	123	77
Description			
This module covers a programming language, system or software methodology that is built on the concepts of logical objects. Usually, the Object Oriented Programming module correspond to classes, packages, files, and components. **After completing the module,** the student should be able to: • Apply the fundamental constructs of imperative and object-oriented programming, and data structures • Write, test and debug computer programs • Design complete computer programs to solve given software problems • Demonstrate an understanding of the advantages and limitations of OOP			

Module 15

Code	Course/Module Title	ECTS	Semester
CSDC212	Data Structures	7	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	4	108	67

Description
This module provides a formal model that describes the way the data elements are organized. **After completing the module,** the student should be able to: 1. Utilize different data structures 2. Understand why this data structure is better than the other one. 3. Choose the best data structure for your algorithm. 4. Learn how to deal with your problem, building its algorithm and fitting the best data structures to it.

Module 16

Code	Course/Module Title	ECTS	Semester
CSDC213	Advanced Mathematics	4	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	2	63	37
Description			
This To equip students with the mathematical and statistical knowledge and skills necessary for successful subsequent degree-level study in computer science. **After completing the module,** the student should be able to: A- Knowledge and Understanding A1. Understand the concept of ordinary and partial A2. Understand the method of solving the first order differential equation A3. Understand the method of solving second order differential equation A4. Understand the Laplace transform A5. Understand the Fourier series B- Subject-specific skills B1. explain what mean of ordinary and partial B2. classify the method of solving B3. Classify the differential equation			

Module 17

Code	Course/Module Title	ECTS	Semester
UOA006	The crimes of the defunct Ba'ath party	2	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	17
Description			
This module covers the following issues: The concept of crimes and their types, definition of crime and its terminology, types of			

international crimes, decisions issued by the Supreme Criminal Court, psychological and social crimes and their effects, and environmental crimes.

Module 18

Code	Course/Module Title	ECTS	Semester
UOA002	Arabic Language II	2	3
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
2	0	33	17
Description			
تهدف هذه المادة الى: تعليم الطلبة كيفية كتابة الأوراق البحثية والتقارير والمقالات والتحليل النصي. يتم تقييم الطلاب من خلال الاختبارات والمشاريع والمناقشات الفصلية. يهدف تعلم مادة العربي في مرحلة الجامعات إلى تزويد الطلاب بمهارات لغوية وأدبية متقدمة، وتعزيز فهمهم للثقافة العربية. كما يساعدهم في تطوير مهارات التواصل والتفكير النقدي والبحث العلمي			

Module 19

Code	Course/Module Title	ECTS	Semester
CSDC220	Computational Theory	5	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USWL (hr/w)**
3	2	78	47
Description			

This module introduce general models of computation such as finite state automata and Turing machines and their relationship to classes of languages, and use these models to explore the limits of the power of computers. **After completing the module,** the student should be able to:

1. Find occurrences of words, phrases, or other patterns; Software for verifying systems of all types that have a finite number of distinct states, such as communication protocols or protocols for secure exchange of information.
2. Knowledge and understanding
   - Acquire a full understanding and mentality of Automata Theory as the basis of all computer science languages design.
   - Have a clear understanding of the Automata theory concepts such as RE's, DFA's, NFA's, Stack's, Turing machines, and Grammars

3. Cognitive skills (thinking and analysis).
   - Be able to design FAs, NFAs, Grammars, languages modelling, small compilers basics
   - Be able to design sample automata

4. Communication skills (personal and academic).

- Be able to minimize FA's and Grammars of Context Free Languages.

Module 20

Code	Course/Module Title	ECTS	Semester
CSDC221	python	7	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
4	3	108	67

Description

This module covers a programming language, system or software methodology that is built on the concepts of logical objects. **After completing the module,** the student should be able to:

1. Introduce the principles of a higher-level programming language in python.
2. Analyze a problem statement to develop a mental model of objects necessary to create a software architecture
3. Utilize object-oriented programming to frame software architectures, with care towards separation of concerns and abstraction
4. Gain skills in designing, and programming software for reuse of code.

Module 21

Code	Course/Module Title	ECTS	Semester
CSDC222	Algorithms	6	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57

Description

This section covers the algorithms that can be used to store and organize data. An algorithm is a collection of steps to solve a particular problem. Learning data structures and algorithms allow us to write efficient and optimized computer programs. **After completing the module,** the student should be able to:

1. To demonstrate performance of algorithms with respect to time and space complexity.
2. To explain graph and tree traversals.
3. To explain the concepts greedy method and dynamic programming. Applying for several applications like knapsack problem, job sequencing with deadlines, and optimal binary search tree, TSP and so on respectively.
4. To Illustrate the methods of backtracking and branch bound techniques to solve the problems like n-queens problem, graph coloring and TSP respectively.
5. To familiarize the concepts of deterministic and non-deterministic algorithms.

Module 22

Code	Course/Module Title	ECTS	Semester
CCIT062	Numerical Analysis	4	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	2	63	37
Description			

This module introduces students to the study of the numerical analysis, methods, applications and its relationship with the real problems. Teach train the students to deal with the numerical process in the future in logic and right style. Additionally, **After completing the module,** the student should be able to study of numerical approximation techniques for problems of continuous mathematics. We consider both theoretical questions regarding how, why and when numerical methods work, and practical implementation using computer programs. Its aims are:

1. Understanding the concept of numerical analysis, its methods and applications.
2. Explain the concept of the Matrices and its application in numerical analysis.
3. Understanding the relationship between the numerical methods and the real problems and how to deal with it.

Module 23

Code	Course/Module Title	ECTS	Semester
CCIT063	Computer Networks	6	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57
Description			

The Computer Networks module provides the students an introduction to the fundamentals of packet switching technologies as used in the internet. Emphasis is placed on core Internet protocols such as IP and TCP. **After completing the module,** the student should be able to:

1. Understanding Network Fundamentals: Introduce students to the basic concepts and components of computer networks, including network architectures, protocols, and network layers.
2. Exploring Network Protocols: Familiarize students with various network protocols, such as TCP/IP, UDP, HTTP, FTP, DNS, and their roles in facilitating communication and data transfer in computer networks.
3. Studying Network Topologies and Technologies: Explore different network topologies, such as bus, star, ring, mesh, and hybrid, and technologies such as Ethernet, Wi-Fi, and cellular networks.
4. Learning Network Design and Implementation: Develop skills in designing and implementing computer networks, including network planning.

Module 24

Code	Course/Module Title	ECTS	Semester
UOA004	English Language 2	2	4
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	0	33	17
Description			
This module focuses on developing the specific skills required for academic studies and exploring strategies for success in academic learning. It also offers guidance in key study areas and provides plenty of practice to encourage learner independence..			

Module 25

Code	Course/Module Title	ECTS	Semester
CSDC310	Visual Programming	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
4	2	93	57
Description			

This module provides students to understand the process in words that are understandable to humans, as opposed to a traditional text-based computer language that forces the developer to think like a machine. It aims:

1. The course aims to introduce students to the fundamental concepts of C# programming language, including syntax, data types, variables, control structures (loops, conditional statements), and functions.
2. The course focus on teaching students how to use C# to develop practical software applications. This includes topics such as input/output operations, file handling, exception handling, and basic user interface development.
3. The course also focus on teaching students Working with data such as arrays, collections, and databases.
4. Understanding how to debug and troubleshoot code is an important skill for any programmer.

Module 26

Code	Course/Module Title	ECTS	Semester
CSDC311	Computer Graphics	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57

Description
This section includes a description of the computer-based generation of digital images—mostly from two-dimensional models (such as 2D geometric models, text, and digital images) and by techniques specific to them. It aims To introduce students to the fundamental concepts of computer graphics, including the principles of digital image representation, rasterization, and vector graphics. This includes understanding concepts such as modeling, transformation, projection, rasterization, and rendering. **After completing the module,** the student should be able to: • Be able to explain the basic algorithms used in computer graphics, their advantages and limitations. • Be able to manipulate the equations and data structures involved in computer graphics algorithms

Module 27

Code	Course/Module Title	ECTS	Semester
CSDC312	Computer Architecture	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57
Description			
This module provides **an overview of computer architecture**, then progresses to topics on how computer systems execute programs, store information, and communicate. It aims to: 1. To understand the structure, function and characteristics of computer systems. 2. To understand the design of the various functional units and components of computers. 3. To identify the elements of modern instructions sets and their impact on processor design. 4. To explain the function of each element of a memory hierarchy. 5. To identify and compare different methods for computer I/O. The Outcomes of Module Learning is Enabling students to verify performance analysis, memory system hierarchy, pipelining, and communication.			

Module 28

Code	Course/Module Title	ECTS	Semester
CSDC321	Wireless Networks	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			
The Computer Networks module reviews emerging networking technologies, which might include topics such as future routing protocols, IPv6 transition, and software-defined networking. **After completing the module,** the student should be able to:			

1. Design and implement a local area network (LAN) or a wide area network (WAN), considering factors such as network topology, security, and scalability.
2. Understand the principles and protocols of wireless networking, including Wi-Fi and cellular networks.
3. Evaluate network security risks and implement appropriate security measures, including authentication, encryption, and intrusion detection systems.
4. Demonstrate knowledge of network management and monitoring techniques, including network monitoring tools and protocols.

Module 29

Code	Course/Module Title	ECTS	Semester
CSDC323	Mobile Applications Programming	6	5
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57

Description

This module is concerned with the design, implementation and testing of applications for the Android platform. **After completing the module,** the student should be able to:

1. Understand Mobile Development Fundamentals: Introduce students to the fundamental concepts and principles of mobile application development, including platform architecture, user interface design, and application lifecycle.
2. Learn Mobile Programming Languages and Tools: Familiarize students with programming languages and frameworks commonly used in mobile app development, such as Java/Kotlin for Android and Swift/Objective-C for iOS. Introduce them to integrated development environments (IDEs) and software development kits (SDKs) specific to mobile platforms.
3. Explore User Interface Design: Teach students the principles of designing effective and user-friendly interfaces for mobile applications. Cover topics such as screen layouts, navigation patterns, input controls, and responsiveness.
4. Understand Mobile Application Architecture: Introduce students to the architecture patterns commonly used in mobile app development, such as Model-View-Controller (MVC) or Model-View-View Model (MVVM). Explore topics such as data persistence, networking, and integration of device features (e.g., camera, GPS).

Module 30

Code	Course/Module Title	ECTS	Semester
CSDC320	Multimedia	7	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	5	108	67

Description

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

Module 31

Code	Course/Module Title	ECTS	Semester
CSDE223	Internet of Things	6	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57

Description

This module introduces the IoT, which extends Internet connectivity from computers and related devices to other physical devices or common objects and leverages from technologies such as embedded systems, wireless sensors, and automation. **After completing the module,** the student should be able to:

- Understand key concepts relating to Internet of Things (IoT), including common structure and requirements
- Recognize examples of consumer, commercial, industrial, and infrastructural applications of IoT.
- Identify current trends in IoT, including the evolution of IoT components and the important role played by governance.
- Understand ethical, security, and interoperability considerations around adoption of IoT, and consider how IoT could be implemented in a given scenario.
- Consider appropriate solutions and models for implementing cloud computing in a given scenario or situation.

Module 32

Code	Course/Module Title	ECTS	Semester
CSDC322	Compilers	7	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	4	108	67

Description

The objective the compiler module is to understand the basic principles of compiler design, its various constituent parts, algorithms and data structures required to be used in the compiler. **After completing the module,** the student should be able to:

1. Understand the fundamental concepts of compiler design: Students should be able to

comprehend the basic principles, techniques, and components involved in designing and implementing compilers.
2. Analyze and describe the various phases of a compiler: Students should be able to explain the different phases of a compiler, including lexical analysis, syntax analysis, semantic analysis, intermediate code generation, optimization, and code generation.
3. Implement a compiler: Students should gain practical experience by implementing a simple compiler for a programming language. This may involve designing and developing the lexical analyzer, parser, semantic analyzer, and code generator.
4. Apply formal language theory: Students should understand formal languages, regular expressions, context-free grammars, and automata theory, and be able to apply this knowledge to analyze and manipulate programming languages.
5. Test and debug compilers: Students should develop skills in testing and debugging compilers.

Module 32

Code	Course/Module Title	ECTS	Semester
CSDC313	Software Engineering	6	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57
Description			

This module deals with the design, development, testing, and maintenance of software applications. Software engineers apply engineering principles and knowledge of programming languages to build software solutions for end users. **After completing the module,** the student should be able to:
1. Understand the fundamental principles, concepts, and practices of Software Engineering, including the importance of following a systematic and disciplined approach to software development.
2. Apply software development methodologies and processes, such as the Software Development Life Cycle (SDLC), to analyze, design, implement, test, and maintain software systems.
3. Elicit, analyze, document, and manage software requirements effectively, considering stakeholders' needs and system constraints.
4. Design software systems and architectures that are modular, scalable, and maintainable, applying software design principles, architectural styles, and design patterns.
5. Implement and execute software testing techniques to verify and validate software functionality, ensuring the delivery of high-quality software systems.

Module 33

Code	Course/Module Title	ECTS	Semester
UOA019	Research methodology	4	6
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	2	63	37
Description			

This module explain how a student intends to carry out their research. It is broadly defined as the application of theories, concepts and techniques of research activities to perform scientific research works. **After completing the module,** the student should be able to:

1. To familiarize students with the research process, including the various stages involved, from formulating a research question to presenting findings.
2. To develop students' skills in conducting research, including identifying research problems, designing appropriate research methods, collecting and analyzing data, and drawing valid conclusions.
3. Familiarity with research design: The course focuses on introducing different research designs, such as experimental, correlational, qualitative, and quantitative, and helps students understand their strengths, limitations, and appropriate applications.
4. To conduct a comprehensive review of existing literature on a specific topic, identify gaps in knowledge, and situate their research within the broader scholarly context.
5. Ethical considerations: The course emphasizes the importance of ethical conduct in research, such as obtaining informed consent, protecting participants' rights, and maintaining integrity in data collection, analysis, and reporting.
6. To learn various data collection methods, including surveys, interviews, observations, and experiments. They also gain knowledge about data analysis techniques, including descriptive statistics, inferential statistics, and qualitative analysis.
7. Research proposal development: The course may include practical exercises or assignments that involve developing a research proposal. Students learn how to formulate research questions, create a research design, select appropriate methods, and outline a research plan.
8. Critical thinking and problem-solving: The course encourages students to think critically about research problems, evaluate research designs and methodologies, and develop problem-solving skills to overcome challenges encountered during the research process.
9. To communicate their research effectively through various means, such as research reports, academic papers, oral presentations, and posters.

Module 34

Code	Course/Module Title	ECTS	Semester
CSDC410	Operating Systems I	6	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			

This module involves a number of interfaces for examining and specifying information about the OS environment of the host machine. The OS module aims:

1. To critically understand the specialist theories, principles, and concepts of modern operating systems.
2. To explain the fundamental structure of a modern operating system and its core functions and services.
3. To critically examine and evaluate different strategies and techniques used by operating systems to manage computer resources.
4. To examine the algorithmic ideas integrated into the design and implementation of different operating systems.

5. To understand how operating systems manage resources such as processors, memory, and I/O.

The Outcomes of Module Learning is Enabling students to obtain an understanding and knowledge of the components of an operating system.

Module 35

Code	Course/Module Title	ECTS	Semester
CSDC411	Computer Security 1	6	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57
Description			

This Module refers to controls and measures that guarantee the confidentiality, integrity and availability of the information processed and stored by a computer. The module aims:

1. To explore the concepts of information security attacks, services, and mechanism.
2. To make students familiar with the basic concepts of applied cryptography, including classical cryptography and modern secret key cryptography.
3. To explain the mathematical foundation of modern cryptography, especially number theory and finite fields.
4. To highlight the practical applications and modes of operation of block ciphers.

After completing the module, the student should be able to:

1. Describe the basic mathematical and technical issues relating to information security.
2.Learning how to leverage these concepts to protect computers from external threats.

Module 36

Code	Course/Module Title	ECTS	Semester
CSDC412	Artificial Intelligence	6	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	4	108	42
Description			

This module covers the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, speech recognition and machine vision. The module aims are:

1. Understanding of AI definitions, characteristics, and types.
2. Distinguishing between AI search techniques.
3. This module aims to introduce students to the meaning of the scientific term "Artificial Intelligence" and its applications in computer science, engineering, and other related fields.

Module 37

Code	Course/Module Title	ECTS	Semester
CSDC413	Digital Image Processing	6	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57

Description

This module describes the process of transforming an image into a digital form and performing certain operations to get some useful information from it. The module aims are:

1. Explaining the concept of image processing to students and its various applications.
2. Empowering students to understand the types of image processing.
3. Empowering students with the necessary skills to perform image processing, write relevant algorithms, and employ methods for visualization and digital image manipulation.

After completing the module, the student should be able to:

1. Understanding the concept of image processing and its various applications.
2. Understanding how images are represented and displayed on the screen..
3. Understanding and acquiring knowledge of different methods of image processing.
4. Understanding and gaining knowledge of various algorithms used in image processing.
5. Providing the student with the skill of representing two-dimensional arrays.

Module 38

Code	Course/Module Title	ECTS	Semester
CSDE414	Game Programming	6	7
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
3	3	93	57

Description

This module presents an introduction to the programming concepts and techniques for developing games. The module aims to:

1. Understand the fundamentals of game development.
2. Understand the principles of physics in games.
3. Implement collision detection and response.
4. Simulate realistic movements and interactions.

After completing the module, the student should be able to:

1. Demonstrate a solid understanding of the fundamentals of game programming and design principles.
2. Apply programming concepts and techniques to develop game mechanics and functionality.
3. Utilize game development tools and engines (e.g., Unity, Unreal Engine, or Godot) to create and prototype games.

Module 39

Code	Course/Module Title	ECTS	Semester
CSDC420	Operating Systems II	5	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	3	78	47

Description

This module aims to:

1. To explain the fundamental structure of a modern operating system and its core functions and services.
2. To explain the fundamental structure of a modern operating system and its core functions and services.

After completing the module, the student should be able to

1. use a range of approaches to critically analyze and evaluate practices of operating systems in identifying, defining, and solving problems by using alternative effective and efficient algorithms.
2. Critically analyze and evaluate the performance and effectiveness of different algorithms used by different operating systems.
3. Extend knowledge in operating systems to construct specific and effective solution to manage and control computer resources.

Module 40

Code	Course/Module Title	ECTS	Semester
CSDC421	Computer Security II	5	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	3	78	47

Description

This module provides a strong foundation on the fundamentals of the basic applications of public key systems in key distribution and digital signatures. It aims to:

1. To explore the concepts of cryptographic key distribution and the limitation of symmetrical systems in this area.
2. To make students familiar with the basic concepts of public key cryptography and hash functions.

After completing the module, the student should be able to:

1. Interpret how technology and theoretical advances can threat existing public key systems.
2. Demonstrate skills in using some public key algorithms for various applications.
3. Demonstrate skills in applying cryptographic hash functions for message authentication.
4. Describe the social and ethical issues relating to viruses and other malicious codes.

Module 41

Code	Course/Module Title	ECTS	Semester
CSDC422	Machine Learning	6	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			
In this module, Students will learn about the machine learning and biologically inspired computation. It aims to understand how designing a smart system for solving daily life problems. After completing the module, the student should be able to tackle complex problems that are difficult for traditional computing methods. Machine Learning Course aims to equipe students with a solid foundation of learning algorithms concepts and theories, including supervised and unsupervised learning. Students are expected to have a comprehensive understanding of the fundamental concepts and techniques of machine learning, regression modules, naive bayes, and more advance concepts including support vector machine and neural networks.			

Module 42

Code	Course/Module Title	ECTS	Semester
CSDC423	Web Development	6	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
2	4	93	57
Description			

This module refers to the coding and programming side of website production. It covers the main tools and languages which are used for Website development: Hypertext Markup Language (HTML), Cascading Style Sheets (CSS) and JavaScript. It aims to:

1. Introduction to the design, creation, and maintenance of web pages and websites.
2. How to critically evaluate website quality.
3. Learn to create and manipulate images.

After completing the module, the student ability should be Enhanced:

1. Students will be able to use a variety of strategies and tools to create websites.
2. Students will develop awareness and appreciation of the myriad ways that people access the web and will be able to create standards-based websites that are accessible and usable by a full spectrum of users.

Module 43

Code	Course/Module Title	ECTS	Semester
UOA020	Project	8	8
Class (hr/w)	**Lect/Lab./Prac./Tutor**	**SSWL (hr/sem)**	**USSWL (hr/w)**
0	8	123	77
Description			
The project in computer science aims to leverage software and artificial intelligence techniques and data analysis to identify areas of code that can be optimized and provide intelligent recommendations for improvement. The expected outcomes of the project include improved code quality, enhanced software performance, and increased efficiency in software development.			

Contact

Program Manager:

Esam Taha Yassen | Ph.D. in Computer Science | Prof.

Email: co.esamtaha@uoanbar.edu.iq

Mobile no.: 078153403674

Program Coordinator:

Waleed Kareem Awad Salim | Msc in computer science | Lecturer

Email: waleed.kareem@uoanbar.edu.iq

Mobile no.: 07700005824

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Computer Technology***			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CSDC110***				
ECTS Credits	***6***				
SWL (hr/sem)	***150***				
Module Level		UGI	**Semester of Delivery**		One
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail: arwa.alqudsi@uoanbar.edu.iq	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- Provide a basic knowledge of computer hardware and software - Introduce the business areas to which computers may be applied. - Provide an introduction to business organization and information systems. - Develop the skills in network & communication , which play an important part in business computing and information processing
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- The student should understand the architecture of any IT systems. - The student should understand the parts of hardware. - The student should understand the system software. - The student should understand the architecture of networks ,protocols and communications devices.
Indicative Contents المحتويات الإرشادية	Data Conversion • D/A converters • A/D converters • Sample and Hold circuits Digital Component Operations • Multiplexing • Data storage • Integrated Circuits Digital Technology • Memory Technology • Circuit Board Technology • Nano-Technology

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- The student should use utilities in the lab to apply scientific experiment

	- The ability to execute the applications software .

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction of Computers and Programming
Week 2	Brief history of computer
Week 3	Generation of Computers & Computer hierarchy
Week 4	Basic Computer Components
Week 5	Computer function (fetch cycle, interrupt cycle, I/O function
Week 6	Semiconductor main memory (RAM, ROM, CACHE)
Week 7	Midterm Exam
Week 8	Computer Software(application software)
Week 9	External & Internal memory
Week 10	Telecommunications system & Network
Week 11	Topology of a network
Week 12	Layering model
Week 13	Protocols
Week 14	addressing communications
Week 15	All Topics
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	Basic Computer Components
Week 2	Computer function (fetch cycle, interrupt cycle, I/O function
Week 3	Semiconductor main memory (RAM, ROM, CACHE)
Week 4	Computer Software(application software)
Week 5	External & Internal memory
Week 6	Telecommunications system & Network
Week 7	Topology of a network
Week 8	Layering model
Week 9	Protocols
Week 10	addressing communications

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1.Computing Essentials Making IT work for you 2017 by Timothy J. O'Leary. 2.Computer Organization and Architecture Designing for Performance (8th Edition).	No
Recommended Texts		No
Websites		

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Programming in C++ I**			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CSDC111***				
ECTS Credits	***8***				
SWL (hr/sem)	***200***				
Module Level		UGI	**Semester of Delivery**		one
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Saad Adnan Abed		**e-mail**	E-mail: saad.adnan@uoanbar.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	• Gain a solid understanding of the basic principles, syntax, and structure of the C++ programming language. • Develop the ability to write and compile C++ programs, including understanding the use of variables, data types, and operators. • Learn how to use control structures, including if-else statements, loops (while, for, do-while), and switch statements, to control the flow of a program.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successful completion of the module, students will be able to: • Explain the basic concepts and features of C++. • Describe the underlying memory model and explain the role of the execution stack and the heap. • Make effective use of the C++ Standard Template Library. • Make effective use of the control structures.
Indicative Contents المحتويات الإرشادية	Introduction to computer programming Introduction to C++ Programming C++ Standard Library Control flow in C++ Memory Management in C++ C++ Application Development

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Conceptual Understanding: Hands-on Practice Code Review and Feedback Problem-Solving Exercises

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	**Introduction to computer programming**
Week 2	**Introduction to programming languages and C++**
Week 3	**Variables**
Week 4	**C++ Libraries**
Week 5	**C++ User Input and Output**
Week 6	**C++ Operators (Arithmetic operators, Bitwise operators, logical operators, and Relational operators)**
Week 7	Mid-term Exam
Week 8	**C++ Strings & C++ Math**
Week 9	**C++ Booleans**
Week 10	**C++ conditions**
Week 11	**Switch statement**
Week 12	**While loop**
Week 13	**For loop**
Week 14	**Break and Continue statements**
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	**C++ Libraries**
Week 2	**C++ User Input**
Week 3	**C++ Operators**

Week 4	**If condition**
Week 5	**Switch condition**
Week 6	**Break and Continue**
Week 7	**For loop**
Week 8	**While loop C++**
Week 9	**Do-while loop**
Week 10	**Break and Continue statements**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	The C++ Programming Language (4th Edition) by Bjarne Stroustrup	No
Recommended Texts		
Websites	https://www.learncpp.com/ https://www.w3schools.com/CPP/default.asp	

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: Marks 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.				

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Logic Design I***			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CSDC112***				
ECTS Credits	***6***				
SWL (hr/sem)	***150***				
Module Level		UGI	**Semester of Delivery**		one
Administering Department		CSIT	**College**	Type College Code	
Module Leader	**Wesam Mohammed Jasim Abid Alrawi**		**e-mail**	co.wesam.jasim@uoanbar.edu.iq	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- The student should understand number systems and codes and conversion between them. 2- The student should understand the Boolean expression and how to apply it. 3- The student should recognize among different logic gates and how to use them. 4- The student should understand how to design a logic circuit. 5- The student should understand using K-map for simplification.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Demonstrate a solid understanding of digital logic principles, including Boolean algebra, logic gates, truth tables, and the concept of binary representation.
Indicative Contents المحتويات الإرشادية	Introduction to Digital Logic Combinational Logic Design Arithmetic circuits Sequential Logic Design Circuit Testing and Verification

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Conceptual Understanding Problem-Solving Approach Hands-on Laboratory Experience Design Projects Simulation and Modeling

	Problem-Based Learning

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to number system
Week 2	Conversion between systems
Week 3	Codes and conversion among them
Week 4	Codes and conversion among them1
Week 5	Boolean expression
Week 6	Logic gates
Week 7	Mid-term Exam
Week 8	Logic gates design
Week 9	Circuit Design
Week 10	Second month exam
Week 11	NAND gates
Week 12	NOR gates
Week 13	Sum of product form
Week 14	Product Of sum form
Week 15	K-map
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	Codes and conversion among them
Week 2	Codes and conversion among them1
Week 3	Boolean expression
Week 4	Logic gates
Week 5	Circuit Design
Week 6	Second month exam
Week 7	NAND gates & NOR gates
Week 8	Sum of product form
Week 9	Product Of sum form
Week 10	K-map

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	An Introduction to Logic Technology by Luois Nashlsky	Yes
Recommended Texts	Fundamentals of logic design by J. Roth	No
Websites		

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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Mathematics I***			**Module Delivery**	
Module Type	***B***			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CCIT060***				
ECTS Credits	***6***				
SWL (hr/sem)	***150***				
Module Level		UGI	**Semester of Delivery**		one
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Abdul-Adheem Zaily Hameed		**e-mail**	ab72d74@uoanbar.edu.iq	
Module Leader's Acad. Title		Lecturer	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Core Mathematical Knowledge: The course aims to provide students with a solid foundation of core mathematical concepts and theories. This includes topics such as algebra, calculus, geometry, discrete mathematics, probability, and statistics. The aim is to ensure that students have a comprehensive understanding of fundamental mathematical principles.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students should be able to: -Understand and use basic mathematical terminology. - Understand the role of formal definitions and proofs and be able to apply them in problem solving. - Understand the basics of propositional and predicate logic. - Understand the basics of elementary set theory. - Understand the basics of mathematical relations and functions. - Understand the basics of graph theory.
Indicative Contents المحتويات الإرشادية	Calculus Linear Algebra Discrete Mathematics Probability and Statistics Differential Equations

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Hands-on Practical Exercises Case Studies and Real-World Examples Collaborative Learning

	Continuous Assessment and Feedback

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Functions: Function Definition, Domain and range of functions, Graphing of function
Week 2	Limits: Definition of limits, Theorems of limits, Type of limits
Week 3	The Definition and Interpretation of the Derivative
Week 4	Properties of Derivative , Some laws of derivatives
Week 5	Derivatives of the six trig functions
Week 6	Exponential Functions, Logarithm Functions
Week 7	Mid-term Exam
Week 8	Inverse Sine, Inverse cosine
Week 9	Inverse tangent, Alternate Notation
Week 10	The six hyperbolic trigonometric functions I
Week 11	The six hyperbolic trigonometric functions II
Week 12	The two forms of the chain rule
Week 13	Using the chain rule
Week 14	first derivative, second derivative, third derivative.
Week 15	the properties of logarithms
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Calculas , Thomas ,1990,5th edition	Yes
Recommended Texts	Howard Anton, Irl Bivens, Stephen Davis, CALCULUS, 10th Edition, John Wiley & Sons, Inc., 2012.	No
Websites		

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***English I***			**Module Delivery**	
Module Type	***S***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ***Practical** ☐ **Seminar**	
Module Code	***UOA003***				
ECTS Credits	**2**				
SWL (hr/sem)	***50***				
Module Level		UGI	**Semester of Delivery**		one
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Kibrea Abdul-kadhim		**e-mail**	E-mail: kibrea.a.jasimi@uoanbar.edu.iq	
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**		Ass.lec.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. Teaching students to enhance their understanding of the English language and connect it to the concepts of computer science, while developing their listening and speaking abilities. 2. Reviewing the student's acquired English language skills and incorporating new vocabulary and skills that benefit the student in their academic studies and in enhancing their linguistic abilities.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Reviewing the fundamental rules of the English language. 2. Developing the student's skills in formal and informal writing in the English language. 3. Adding new vocabulary from the language. 4. Improving reading skills 5. Writing in English formally and informally. 6. Improving speaking skills in the English language. 7. Enhancing English grammar skills.
Indicative Contents المحتويات الإرشادية	**Indicative content includes the following:** **<u>English Language</u>** **Reading Comprehension:** we will explain (Literal comprehension, Inferential comprehension, Critical analysis of texts and Vocabulary development) to improving the student language.[11] **Writing Skills:** we will be showing all types of writing in English language to enhance the student level in writing. There are some methods of writing like (Sentence structure and grammar, Paragraph writing, Essay writing, Creative writing Formal and informal writing styles, Letter and email writing and speaking).[11 hrs] **Listening:** explain all methods of listening such as (Listening comprehension Conversational skills , Pronunciation and intonation, Presentation skills and Group discussions and debates). [11 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	1. Lectures. 2. Discussions. 3. Solving grammar exercises. 4. Reading and discussion. 5. Writing exercises. 6. Memorizing Technical terms 7. Passage includes technical terms. 8. Homework assignment

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10

Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Tenses
Week 2	Auxiliary verbs 1
Week 3	Auxiliary verbs-negative form
Week 4	Memorizing Technical expressions
Week 5	Making a question
Week 6	Answering a question
Week 7	1st written exam
Week 8	English Articles
Week 9	Writing a letter or email 1
Week 10	Reading passage
Week 11	2nd written exam
Week 12	Speaking practice 1
Week 13	Speaking practice 2
Week 14	Review 1
Week 15	Review 2

Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New Headway Plus Intermediate, Liz and John Soars, Oxford University Press, 2006	Yes
Recommended Texts	New Headway Plus Intermediate, Liz and John Soars,) -Oxford University Press, 2006.	Yes
Websites	https://www.merriam-webster.com/ https://dictionary.cambridge.org/	

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Democracy and Human Rights***			**Module Delivery**	
Module Type	***S***			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***UOA005***				
ECTS Credits	***2***				
SWL (hr/sem)	***50***				
Module Level		UGI	**Semester of Delivery**		one
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Saad Ibrahim Ahmed Hussein		**e-mail**	Saad.ibrahim@uonbar.edu.iq	
Module Leader's Acad. Title		Asst. Prof.	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	. أ . تعليم الطلبة على أساسيات حقوق الإنسان وقوانينها . ب. التعرف على الحقوق وأهم الإشكاليات والتحديات التي تواجهها
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- أن يعرف الطالب مفهوم الحقوق وقوانينها وتطبيقاتها . 2- أن يعرف الطالب كيفية المشاركة في نشر الحقوق وتطبيقها بالعمل الواقعي الحقيقي. 3- القدرة على استخدام الحقوق وسيلة من أجل التعايش السلمي بين مكونات المجتمع وجميع المخلوقات . 4- القدرة على مشاركة الآخرين في نشر هذه الحقوق .
Indicative Contents المحتويات الإرشادية	الحقوق لأساسية وغير الأساسية الحقوق المدنية الحقوق السياسية حقوق الانسان والقانون الدولي الانساني

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1- المشاركة بالتحضير في قاعة الدرس 2- طريقة الأسئلة والأجوبة في قاعة الدرس 3- الواجبات 4- التقارير

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1		Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	تعريف الحقوق
Week 2	أنواع حقوق الانسان
Week 3	الحقوق لأساسية وغير الأساسية
Week 4	الحقوق المدنية

Week 5	الحقوق السياسية
Week 6	الحقوق الاقتصادية والاجتماعية والثقافية
Week 7	امتحان
Week 8	الحقوق الفردية والحقوق الجماعية
Week 9	طائفة الحقوق الجديدة
Week 10	حقوق الانسان والقانون الدولي الانساني
Week 11	العلاقة بين حقوق الانسان والقانون الدولي الانساني
Week 12	أوجه الشبه والاختلاف بين حقوق الانسان والقانون الدولي الانساني
Week 13	المراحل التي مرت بها حقوق الانسان
Week 14	الاهتمام الدولي والاقليمي بحقوق الانسان
Week 15	مصادر حقوق الانسان
Week 16	الامتحان النهائي

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts		
Recommended Texts	.	
Websites	**http://ghrorg-learning.blogspot.com**	

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Microprocessors***			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CSDC120***				
ECTS Credits	***6***				
SWL (hr/sem)	***150***				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	CSIT		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1. The student will be able to understand and understand the mechanics of their algorithmic data repair problems in terms of their degree of complexity. 2. Trees, how to build them in C++, self-recall, and how to deal with them 3.. that the student be able to understand the working mechanics of algorithms for data structures 4.sorting algorithm
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	This article is based on knowledge Learn to program in C++ in a professional way
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Understand code and algorithms and implement them in different ways and new steps

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem)	**100**		

الحمل الدراسي الكلي للطالب خلال الفصل	

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to micro processor
Week 2	Evolution from 8080/8085 to 8086
Week 3	Pipelining, Registers
Week 4	ADD instruction:, mov instruction:
Week 5	INTRODUCTION TO PROGRAM SEGMENTS
Week 6	Data segment,
Week 7	Mid-term Exam

Week 8	Extra segment (ES) , Memory map of the IBM PC, What is a stack
Week 9	A few more words about segments in the 80x86 , Overlapping, Flag register
Week 10	Flag register con., Flag register and ADD instruction Use of the zero flag for looping
Week 11	Use of the zero flag for looping con., 80x86 Addressing Modes A,B,C,D
Week 12	80x86 Addressing Modes E,F,G, Segment overrides
Week 13	CONTROL TRANSFER INSTRUCTIONS, FAR and NEAR
Week 14	Unconditional jumps, statements
Week 15	CALL & Assembly language subroutines
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Eum8086-1
Week 2	Eum8086-2
Week 3	MOV + ADD instruction
Week 4	SUB instruction
Week 5	Push +POP instruction
Week 6	Flag register ,jump
Week 7	Flag register
Week 8	**Arduino uno board**
Week 9	**Arduino** uno PORT

Week 10	**Arduino** C Language & Instruction
Week 11	led Blinking
Week 12	Led Blinking& PUSH button
Week 13	Potentiometer
Week 14	Photo resistor as light sensor

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to 8086 Assembly Language Programming , Joe Carthy, UCD	Yes
Recommended Texts		
Websites		

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	*Discrete Structures*			**Module Delivery**	
Module Type	***B***			☒ **Theory** ☒ **Lecture** ☐ **Lab** ☒ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	*CCIT061*				
ECTS Credits	***6***				
SWL (hr/sem)	***150***				
Module Level		UGI	**Semester of Delivery**		2
Administering Department		CSIT	**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title		Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name		Name	**e-mail**	E-mail	
Scientific Committee Approval Date		01/06/2023	**Version Number**		1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	1- To Describe the aim of study discrete mathematics 2- To Understand what difference between ordinary math and discrete math. 3- To Understand what the relation between computer science and math 4- To Learn the operation between the difference objects of math. 5- To Apply the relation between this objects
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	. A- Knowledge and Understanding 1. Understand the concept of ordinary and partial 2. Understand the set theory 3. Understand the logic math 4. Understand the relation of two sets 5. Understand the graph theory
Indicative Contents المحتويات الإرشادية	• **Sets and Graphs** Sets and subsets: definitions, examples, Set operations, basic identities, power of a set, Cartesian product of sets, relations on sets, Basic graph terminology. • **Recurrence relations (Difference Equations)** Definition of a recurrence relation (difference equations), Homogeneous and inhomogeneous difference equations, Nonlinear difference equations: $x_{n+1} = g(x_n)$, Fixed points, linearisation, stability of fixed points. Applications: the Newton and Secant Methods to solve non-linear equations $f(x) = 0$, Programming: Short introduction to Matlab, Numerical algorithms for difference equations: Newton′s method, Fibonacci sequences, Recursion.

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	. - By solving many exercises - Daily and weekly quizzes. - Guiding the student to some electronic websites.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	72	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**100**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11

assessment	**Assignments**	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	5% (5)	Continuous	All
	Report	1	5% (5)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Abstract of discrete mathematics
Week 2	Set theory
Week 3	Solve some example
Week 4	Logic
Week 5	Solve some example
Week 6	Functions
Week 7	Mid-term Exam
Week 8	Relation
Week 9	Some examples
Week 10	Graph theory
Week 11	Some example
Week 12	Tree

Week 13	Solve example
Week 14	Solve example
Week 15	Review
Week 16	**Preparatory week before the final Exam**

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Concrete Mathematics: A Foundation for Computer Science	No
Recommended Texts		
Websites		

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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded

(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Programming in C++ II***			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☒ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	***CSDC121***				
ECTS Credits	***8***				
SWL (hr/sem)	***200***				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	CSIT		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CSDC111	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Learn how to use the Advanced Tools helps programmers write fast, portable programs The main principles of programming and the development of programming languages Learn the principles of Structure programming
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Upon the completion of this module, students will be able to - Define and customize functions - Access and manipulate array elements - Read and write files
Indicative Contents المحتويات الإرشادية	Introductions to C++ Programming; Introductions to functions and modifiers. Also, introduction to arrays of one and two dimensions. Additionally, students will learn about creating and accessing files.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- Daily and weekly quizzes. - Class room activities. - Guiding the student to some websites.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	123	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	8
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Function
Week 2	Passing Parameters. Passing by Value. Passing by Reference.
Week 3	Pointers
Week 4	Arrays. Array of One Dimension: Declaration of Arrays.
Week 5	Initializing Array Elements
Week 6	Accessing Array Elements

Week 7	Mid-term Exam
Week 8	Read / Write / Process Array Elements.
Week 9	Array of Two Dimension: Declaration of 2D-Arrays
Week 10	Read / Write / Process Array Elements.
Week 11	Member Function of String stdlib Library.
Week 12	Structures.
Week 13	Array of Structures.
Week 14	Files
Week 15	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Function
Week 2	Passing Parameters. Passing by Value. Passing by Reference.
Week 3	Pointers
Week 4	Arrays. Array of One Dimension: Declaration of Arrays.
Week 5	Initializing Array Elements
Week 6	Accessing Array Elements
Week 7	Array of Two Dimension: Declaration of 2D-Arrays
Week 8	Read / Write / Process Array Elements.
Week 9	Array of Structures.
Week 10	The Files

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Mastering C++, shomme's series	yes
Recommended Texts		
Websites		

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Logic Design II***			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CSDC122***				
ECTS Credits	***6***				
SWL (hr/sem)	***150***				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	CSIT		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	CSDC112	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- The student should understand encoder , decoder and multiplexers - The student should understand synchronous logic circuit - The student should understand flip-flops and how to use them - The student should understand registers and their types - The student should understand counters and their types - The student should understand ROM and PLA implementation
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- The student should understand encoder, decoder and multiplexers - The student should understand flip-flops and how to use them. - The student should understand registers and their types. - The student should understand counters and their types. - The student should understand ROM and PLA implementation.
Indicative Contents المحتويات الإرشادية	This course covers the logic design advanced concepts. It starts with combinational logic circuit design. From these designs are adder and subtractor. This course also covers the explanation of different circuit such as decoder, encoder and multiplexers. At the end of course, the flip-flop, latches and counter are covered

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- The student should use utilities in the lab to apply scientific experiment - The ability to design a logic circuit.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	93	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**150**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Synchronous logic gates
Week 2	Adder and subtractor circuits

Week 3	Comparator circuits
Week 4	Encoders
Week 5	Multiplexers
Week 6	Flip-flops
Week 7	Mid-term Exam
Week 8	SR flip flop and j k flip flop
Week 9	T flip flop and D flip flop
Week 10	Second month exam
Week 11	Registers design
Week 12	Counters design
Week 13	ROM
Week 14	PLA
Week 15	State plan
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Synchronous logic gates
Week 2	Adder and subtractor circuits
Week 3	Comparator circuits
Week 4	Encoders

Week 5	Multiplexers
Week 6	Flip-flops
Week 7	SR flip flop and j k flip flop
Week 8	T flip flop and D flip flop
Week 9	Second month exam
Week 10	Registers design
Week 11	Counters design
Week 12	ROM
Week 13	PLA
Week 14	State plan

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	- "Digital Design" 4th Edition by M. Morris Mano and Michael D. Ciletti - Fundamentals of logic design by J. Roth	No
Recommended Texts		
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors

(50 - 100)	**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	**FX –** Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
(0 – 49)	**F –** Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**اللغة العربية**			**Module Delivery**	
Module Type	***S***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***UOA001***				
ECTS Credits	***2***				
SWL (hr/sem)	***50***				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	CSIT		**College**	Type College Code	
Module Leader	Name		**e-mail**	E-mail	
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- تعليم الطلبة عل أساسيات اللغة العربية وقواعدها - تعليم الطلبة عل كيفية ألاعراب -
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	- أن يتعرف الطالب على قواعد اللغة العربية - أن يعرف الطالب كيفية بناء الجمل واستخراجها للعنوان المطلوب - القدرة على استعمال العبارات الصحيحة - القدرة على مشاركة آلخرين في الحوار الصحيح
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- مشاركة بالتحضير في قاعة الدرس - طريقة ألاسئلة وآلجوبة في قاعة الدرس - ادارة المحاضرة عل نحو تطبيقي مرتبط بواقع الحياة اليومية - تكليف الطالب ببعض ألانشطة والواجبات

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**200**		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.				
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	Midterm Exam	2hr	20% (20)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	العدد تذكيره وتأنيثه
Week 2	االعدادالمفردةوالمركبة
Week 3	ألفاظ العقود و االعداد (مئة ، ألف ، مليون)
Week 4	تعريف العدد وتنكيره
Week 5	ما يصاغ من العدد على وزن فاعل
Week 6	كتابة الهمزة المتوسطة والمتطرفة
Week 7	امتحان
Week 8	كتابة االلف اللينة
Week 9	كتابة التاء المربوطة والمبسوطة

Week 10	كتابة الضاد والظاء
Week 11	الالمات وأنواعها
Week 12	الهاءات وأنواعها
Week 13	النونات وأنواعها
Week 14	استعمالات (ما ، من) ، والفرق بين (أما ، إما)
Week 15	استعمالات (أن ، إن)
Week 16	الامتحان النهائي

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	- قواعدًاللغةًالعربيةً، يوسفً الصيداويً	لا
Recommended Texts		
Websites		

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: Marks 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.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	***Communication skills***			**Module Delivery**	
Module Type	***C***			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	***CSDC123***				
ECTS Credits	***2***				
SWL (hr/sem)	***50***				
Module Level	UGI		**Semester of Delivery**	Two	
Administering Department	CSIT		**College**	Type College Code	
Module Leader	Name		**e-mail**		
Module Leader's Acad. Title	Professor		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	- Develop Effective Communication Strategies: Learn how to adapt communication styles for different audiences, situations, and purposes. - Enhance Written Communication: Improve the ability to express thoughts and ideas clearly and concisely in written form, including emails, reports, and other written documents. - Improve Presentation Skills: Learn how to prepare and deliver effective presentations, including structuring content, using visual aids, and engaging an audience.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successful completion of the module, students will be able to: - Articulate their thoughts and ideas clearly and concisely, with improved vocabulary and grammar. - Produce well-structured, error-free written documents, such as emails, reports, and other written materials. - Adapt their communication style to suit different audiences, situations, and purposes. - Prepare and deliver engaging and informative presentations, utilizing appropriate structure, visual aids, and audience engagement techniques.
Indicative Contents المحتويات الإرشادية	Introduction to communication skills Study skills Library skills Listening skills Presentation skills

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	- The student should use utilities in the lab to apply scientific experiment - The ability to execute the applications software.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	**50**		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

Week 1	INTRODUCTION TO COMMUNICATION SKILLS
Week 2	Verbal Communication
Week 3	Communication cycle
Week 4	Study skills
Week 5	Presentation of Work
Week 6	Planning work
Week 7	Mid-term exam
Week 8	Library skills
Week 9	Academic library
Week 10	Research libraries
Week 11	LISTENING SKILLS
Week 12	Why You Need Good Listening Skills
Week 13	Barriers to effective listening
Week 14	READING SKILLS
Week 15	Types and methods of reading

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Communication skills vol.I Wambui et al.	No
Recommended Texts		No
Websites		

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: Marks 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.

University of Anbar
Diploma Supplement

Anbar, Ramadi, Iraq
Phone No.:
e-mail: Contact@uoanbar.edu.iq
URL: https://www.uoanbar.edu.iq/

This Diploma Supplement follows the model developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all sections should be provided. Where information is not provided, an explanation should give the reason why.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

1.1 First Name:
1.2 Second Name:
1.3 Third Name:
1.4 Date of Birth:
1.5 Place of Birth:
1.6 Student Identification Number:
1.7 National ID number:

2. INFORMATION IDENTIFYING THE QUALIFICATION

2.1 Name of the Qualification:
2.2 Main Field of the Study of the Qualification:
2.3 Name and Status of the Awarding Institution:
2.4 Language of Instruction/ Examination:

3. INFORMATION ON THE LEVEL OF QUALIFICATION

3.1 Level of Qualification

First Cycle (Bachelor's Degree)

3.2 Official Length of the Programme

4 years – 8 Semesters

3.3 Access Requirements

High School Diploma – Placement through the National Central Admission Requirements

4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

4.1 Study System:

Bologna process

4.2 Mode of Study

First Cycle (Bachelor's Degree)

4.3 Program Requirements

A Student is required to have a minimum CGPA of 50% and no falling grades

4.4 Minimum Credits for Semester, Year and Graduation (ECTS)

30 ECTS/Semester | 60 ECTS/Year | 240 ECTS/Programme | 1 ECTS = 25 hrs

4.5 Student Learning Outcomes

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

4.6 Programme Details and the Individual Grade/Marks Obtained

Module Code	Module Name	Type	Mark Grade ECTS	
Semester 1				
CSDC110	Computer Technology	Core		6
CSDC111	Programming in C++ I	Core		8
CSDC112	Logic Design I	Core		6
CCIT060	Mathematics	Basic		6
UOA003	English Language I	Support		2
UOA005	Democracy and Human Rights	Support		2
Grade Point Average (GPA) = (–)			Total ECTS	30
Semester 2				
CSDC120	Microprocessors	Core		6
CCIT061	Discrete Structures	Basic		6
CSDC121	Programming in C++ II	Core		8
CSDC122	Logic Design II	Core		6
UOA001	Arabic Language I	Support		2
CSDC123	Communication Skills	Core		2
Grade point Average (GPA) = (–)			Total ECTS	30
Semester 3				
CSDC210	Database	Core		7
CSDC211	Object Oriented Programming	Core		8
CSDC212	Data Structures	Core		7
CSDC213	Advanced Mathematics	Core		4
UOA006	The crimes of the defunct Ba'ath party	Support		2
UOA002	Arabic Language II	Support		2
Grade Point Average (GPA) = (–)			Total ECTS	30
Semester 4				
CSDC220	Computational Theory	Core		5
CSDC221	python	Core		7
CSDC222	Algorithms	Core		6
CCIT062	Numerical Analysis	Basic		4
CCIT063	Computer Networks	Support		6
UOA004	English Language 2	Support		2
GPA = (–)			Total ECTS	30
Semester 5				
CSDC310	Visual Programming	Core		6
CSDC311	Computer Graphics	Core		6
CSDC312	Computer Architecture	Core		6
CSDC321	Wireless Networks	Core		6
CSDC323	Mobile Applications Programming	Core		6
Grade Point average (GPA) = (–)			Total ECTS	30

Semester 6					
CSDC320	Multimedia	Core			7
CSDE223	Internet of Things	Elective			6
CSDC322	Compilers	Core			7
CSDC313	Software Engineering	Core			6
UOA019	Research methodology	Basic			4
Grade Point Average (GPA) = (–)				Total ECTS	30
Semester 7					
CSDC410	Operating Systems I	Core			6
CSDC411	Computer Security 1	Core			6
CSDC412	Artificial Intelligence	Core			6
CSDC413	Digital Image Processing	Core			6
CSDE414	Game Programming	Elective			6
Grade Point Average (GPA) = (–)				Total ECTS	30
Semester 8					
CSDC420	Operating Systems II	Core	95	A	5
CSDC421	Computer Security II	Core	87	B	5
CSDC422	Machine Learning	Core	76	C	6
CSDC423	Web Development	Core	65	D	6
UOA020	Project	Basic	65	D	8
Grade Point Average (GPA) = (–)				Total ECTS	30
Cumulative Grade Point Average (CGPA) =				**Programme total ECTS**	**240**

4.7 Grading Scheme and Grade Distribution Guidance

Group	Grade	Marks	Definitions
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)	F - Fail	00 - 49	Considerable amount of work required

Marks with 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.

4.8 Overall Classification of the Qualification

Cumulative Grade Point Average (CGPA) =

Final Grade of Degree relative RANK: 4 of 23

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to Further Study

May apply to second cycle programs

5.2 Professional Status Conferred

The degree enables the graduate to exercise the profession

6. ADDITIONAL INFORMATION

6.1 Additional Information

University of Anbar, College of Computer Science and Information Technology, Department of Computer Science

6.2 Further Information Sources

University Website https://uoanbar.edu.iq/

Registration Office e-mail xxxxx@ uoanbar.edu.iq

7. CERTIFICATION OF THE SUPPLEMENT

7.1 Date **01.10. 2027**

7.2 Name **Full Name**

7.3 Capacity **University General Registrar**

7.4 Signature

7.5 Official Stamp and Seal

Structure and Degree System

The basic structure of the Iraqi National Education System consists of stages of noncompulsory pre-school education; Compulsory primary (elementary and middle school) and secondary (high school) education; and higher education. Primary education begins at the age of 6 years (72 months), lasts nine years and comprises six years of elementary and three years of middle school education. Secondary education is three years and divided into two categories as “General High School Education” and “Vocational and Technical High School Education”. The entry into these categories is through composite scores obtained from centralized exam of secondary schools.

Higher Education System is managed by the Ministry of Higher Education and Scientific Research which is responsible for the planning, coordination, governance and supervision of higher education within the provisions set forth in the Constitution of the Republic of Iraq and Higher Education Law. Both state and private universities are founded by law and subjected to the higher education law and to the regulations enacted in accordance with it.

Higher Education in Iraq comprises all post-secondary higher education programs, consisting of short, first, second and third cycle degrees in terms of the terminology of the Bologna Process. Except for the Architectural Engineering, Pharmacy, Dentistry and Veterinary programs, which are five years (300 ECTS), and Medicine Programme which is six years (360 ECTS), the duration of the fist cycle (Bachelor degree) is a full-time four years (240 ECTS) study. The duration of the short cycle (Technical Diploma) is a full-time two years (120 ECTS) study.

Graduate level of Study consists of second cycle (master) and third cycle (doctorate) degree programs. The second cycle is a master with thesis with duration of two years (120 ECTS). Third cycle (doctorate) degree programs are completed having earned a minimum of 180 ECTS credits., which consists of completion of courses, passing a proficiency examination and doctoral thesis.