University of Technology-Iraq

Computer Science Department

Software Branch's Guideline

Contenets

Establishment of the Computer Science Department

The University of Technology -Iraq established in 1983 the computer science department to keep pace with developments in the field of computer science and employ them in applied fields and prepare students to be specialists in this vital field to serve our beloved country in all sectors that need this important specialization. The department grants bachelor's degrees (BSc), diploma (DIP), master's degrees (MSc) and doctorate degrees (PhD) in computer science specializations. Since the establishment of the department, its most important goal has been to work towards scientific specialization. Currently, the department grants bachelor's degrees in six specializations: Software, Information Systems, Artificial Intelligence, Computer and Cyber Security, Network Management and Multimedia. Students study the theoretical and applied aspects of these sciences during their academic stages, noting that the practical aspect is an important part of the study requirements. The department provides specialized consultations in the field of computers to all state institutions. It also has tangible activity with employees in state departments by holding annual courses specialized in computer sciences. These courses are organized at the Continuing Education Center.

Vision

The vision of the Computer Science Department in the predictable term is to follow up the rapid developments in the field of computer science and its applications in the curriculum of the department and to graduate qualified and efficient staffs in the field of computer science and sustainable development in line with community service and Job marketing needs.

Missions

The Computer Science Department seeks to develop new branches that simulate development in the field of computer science applications and determine the specifications of the graduate in line with the requirements of the field of work in all scientific and educational aspects, which creates a sustainable environment that

serves students and society at both levels of primary and postgraduate studies, master's and doctorates.

The department's mission is based on the precise specializations of computer science, as the department has six branches, which are:

- Software branch
- Information Systems branch
- Artificial Intelligence branch
- Computer and Cyber Security branch
- Networks Management branch
- Multimedia branch

Objectives

1- Graduating students with the subspecialties of computer science in its subspecialty branches.

2- Preparing advanced and specialized academic staff in postgraduate studies for master's and PHD degrees in computer science to meet the needs of society and state departments and institutions in the public and private sectors of specialists in this field.

3- Practical application in the department's laboratories of the various concepts that are addressed during theoretical lectures.

4- The department works on developing the syllabus of theoretical and practical lectures in line with the marketing needs and global

5- The student of the Department of Computer Science should be active and efficient through his contribution to the various university events such as sports, artistic and scientific and his participation in volunteer work.

6- The Computer Science Department meets the needs of society and the marketing needs through the establishment of workshops, seminars, courses and conferences related to

computer science, modern technology and other areas of interest to society.

7- Provide support to students through educational counseling.

8- The Computer Science Department surveys the opinions of all beneficiary parties through questionnaires or involves them in boards and committees.

9- The use of electronic technologies and electronic software in the internal transactions of the department as an effective part in the field of sustainable development.

10- Building and developing strategic relationships and partnerships with various companies and other institutions, which serve the community in many ways.

11- The department's website contains all interesting things to its students, owners, graduates and employers of the technology companies, and is linked to social media in order to deliver its content to a larger number of followers.

12- Obtaining advanced positions in Arabic, local and international classifications and working to spread the culture of quality.

Council of Computer Science Department

1)	Prof. DR. Ala Kadhim Farhan	Faculty dean of Computer science department
2)	Asst. Prof. Dr. Mustafa Jasim Hadi	Assistant dean for Academic Affairs
3)	Asst. Proof. Dar. Bashar Sadan Mahdi	Assistant dean for Administrative Affairs
4)	Prof. Dr. Ahmed T. Sadiq	Faculty Representative
5)	Assoc. Prof. Dr. Ayad Hazim Ibrahim	Head of Software branch
6)	Asst. Prof. Dr. Athraa Jasim Mohammed	Head of Information Systems branch
7)	DR. Dena Kadhim Mohsen	Head of Artificial Intelligence branch
8)	Dr. Rana Mohammed Hassan	Head of Computer and Cyber Security branch
9)	Dr. Saif Bashar Nema	Head of Networks Management branch
10)	Dr. Nada Hussain Ali	Head of Multimedia branch
11)	Dr. Mustafa Tareq Eid	Department decision

Software Branch

Establishment of the Software Branch:

The software branch was established since the establishment of the department in 1983, where it was previously called the computer branch, and the name of the branch was changed to the software branch in 2004, a graduate of the software branch works in the field of analysis, design and development of computer software and has experience in the field of data, methods of storing and transferring it, implementing calculation algorithms, object-oriented programming methods, network concepts, processing various digital data, in addition to building specialized software systems that serve the scientific and practical sector and the labor market.

Software Branch's Vision

The Software Branch seeks to provide a distinguished educational curriculum in the field of software development aimed at enhancing students' ability in the field of research and innovation in order to meet the needs of society and industry, build an effective partnership with the public and private sectors and provide them with technical cadres.

Software Branch's Missions

The branch works to prepare distinguished cadres in the field of software development through distinguished educational programs that keep pace with the latest programming technologies, through developing learning skills, updating the scientific vocabulary of curricula, promoting student projects and faculty research.

Objectives of the Software Branch

The software branch has a set of important objectives for the graduates of the branch, including:

1- Apply the necessary programming skills to prepare software experts.
2- Establish cooperation with the public and private sectors to provide practical training opportunities and joint research.

3- Mastering software problem solving and developing technical solutions to serve the community and industry.

Software Branch Graduate Specifications:

Graduating qualified students to work in the field of computer software and providing them with the ability to program systems with what they have learned using modern programming languages and applying theoretical principles and using them with advanced topics in solving mathematical problems and designing software systems that supply the labor market and public departments, acquiring skills such as teamwork, acquiring administrative personality, scientific and practical skills.

Fields of work of the graduate of the software branch

After graduation, the student has job opportunities in many fields, including local and international institutions, commercial companies, information technology centers, software analysis and development for software companies and many other areas in which the computer is mainly involved.

Classrooms and laboratories for the software branch

Classrooms: Classrooms have been prepared for the software branch with the provision of the necessary supplies.

Laboratories: preparing specialized laboratories for the software branch, the software b ,ranch equipped with computers with modern specifications

efficiency and high accuracy that support different types of software in addition to physical components that meet the student's need within this accurate scientific specialization.

Software Branch Board

The Software Branch Council includes:

1) Assoc. Prof. Dr. Ayad Hazim Ibrahim	**Chairman**
2) Lecturer. Osama Younis Fadel	**Rapporteur**
3) Prof. Dr. Alia Karim Abdel Hassan	**Member**
4) Prof. Dr. Ayad Rodhan Abbas	**Member**
5) Dr. Ali Adel Saeed	**Member**

Scientific Committee of the Software Branch

1) Prof. Dr.. Abdul Amir Abdullah Karim	**Chairman**
2) Prof. Dr. Alia Karim Abdel Hassan,	**Member**
3) Prof. Dr. Ayad Rodhan Abbas	**Member**
4) Prof. Dr. Yousra Hussein Ali	**Member**
5) Asist. Prof. Khalil Ibrahim Ghathwan	**Memeber and rapporteur**

Educational Guidance Committee for Software Branch

1) Dr. Ragheed Dawood Salem	**Chairman**
2). Dr. Anmar Ali Mohammed	**Member**
3) Lecturer. Osama Younis Fadel	**Member**

The Study System

- **Semester Academic System**

The third and fourth stages in the branch adopt a semester system where the subjects for one stage are divided into two parts and by two semesters for each stage. The courses taken during the semester system of the third and fourth stages are divided into subjects within the requirements of the university, materials within the requirements of the department, and specialized subjects within the requirements of the branch.

Number of semesters for the semester system

The study includes two semesters called the first: the first semester begins according to the university calendar and lasts for 15 weeks and the second is called: the second semester and its beginning is determined by the university calendar and lasts for 15 weeks.

Semester System Subjects Unit

It is a study effort of two hours (theoretically or practically) and is calculated every two or three hours one unit of study and more than that is equal to two units of study and so on.

Number of units for semester system subjects

In order to obtain a bachelor's degree in computer science, a student must accumulate 132 units during the four academic years.

- **Bologna Track System for the first and second stages:**

The first stage in the branch adopts the Bologna system, where the subjects for the first and second stages are divided into two semesters**,** and the subjects taken during the two semesters of the first stage are divided into subjects within the requirements of the university, materials within the

requirements of the department, and specialized materials within the requirements of the branch.

Number of classes for the Bologna Path System

The study within the first and second stages of the Bologna track includes two semesters called the first: the first semester begins according to the university calendar and lasts for 15 weeks and the second is called: the second semester and its beginning is determined according to the university calendar and lasts for 15 weeks.

Module of Bologna Path System Subjects

Each subject has a number of units determined by the scientific department and one unit is equivalent to 25 hours of learning from the student's academic load. Student workload refers to the time it takes for the student to learn in each course, including all activities and assignments that the student achieves inside and outside the classroom.

Number of units for Bologna Track System Materials

In order to obtain a bachelor's degree in computer science, a student must accumulate 240 units during the four academic years.

Software Branch Curriculum for the Academic Year 2024-2025

First Year – First Semester "Bologna process"

Code	Title	Hours / Week			
		Lect.	Lab.	Does.	ETCS
PRFU111	Programming Fundamental	4	2	1	8
MATH112	Mathematics	4	2	1	8
STPR113	Statistics and Probability	4		2	6
FUCT114	Fundamental of Computer Technology	2		2	4
DEHR105	Democracy and Human Rights	2			2
WSHS106	Workshop		3		2
Totals		16	5	9	30

First Year – Second Semester "Bologna process"

Code	Title	Hours / Week			
		Lect.	Lab.	Does.	Units
STPR121	Structured Programming	4	2	1	8
DIST122	Discrete Structure	3		1	5
COLD123	Computer Organization and Logic design	3	2	1	6
SODT124	Software Development Techniques	2		2	4
SOEN125	Software Engineering	2	2	1	5
WSHS106	Work shop	-	3	-	2

Total	**14**	**9**	**6**	**30**

Second Year – First Semester "Bologna process"

Code	Title	Hours / Week			
		Lect.	Lab.	Does.	ETCS
OBOP211	Object Oriented Programming	4	2	1	8
DAST212	Data Structures	2	2	1	5
NUAN213	Numerical Analysis	2	2	1	5
ADSE214	Advance Software Engineering	2	2	2	5
ANDA215	Analysis and Design of Algorithms	2	2	1	5
CBRI201	Crimes of the Baath Regime in Iraq	2	-	-	2
Totals		**14**	**10**	**6**	**30**

Second Year – Second Semester "Bologna process"

Code	Title	Hours / Week			
		Lect.	Lab.	Does.	Units
DATA221	DataBase	4	2	-	7
MICR222	Microprocessor	2	2	-	5
SOSA223	Sorting and Searching Algorithms	2	2	-	5
COCO224	Computational Complexity	2		2	4
SOMA225	Software Modelling and analysis	2	2	1	5
ENLA207	English language	2	-	-	2
ARLA204	Arabic language	2	-	-	2
Total		**16**	**6**	**3**	**30**

t	Third Stage – First Semester						
	Lesson Code	Lesson Title	Subject in English	Number of hours per week			
				Theoretical	Practical	Discussion	Units
1.	CSCL3123	Micro treatment	Microprocessor	2	2	1	3
2.	CSCL3125	Computational theory	Computation Theory	2	-	1	2
3.	CSCL3133	English Language 3	English language 3	2	-	-	2
4.	CSCP3107	Learn the machine	Machine learning	2	2	1	3
5.	CSSP3108	Computer Graphics and Vision 1	Computer Graphics and Visualization 1	2	2	1	3
6.	CSSP3110	Parallel programming formats	Parallel Programming Paradigms	2	2	1	3
7.	CSSP3111	Software modeling and analysis	Software Modelling and analysis	2	2	-	3
8.	CSSP3112	Information Retrieval Technology	Information Retrieval Techniques	2	-	-	2
Total				16	10	5	20

t	Third Stage – Second Semester			
				Number of hours per week

	Lesson Code	Lesson Title	Subject in English	Theoretical	Practical	Discussion	Units
1.	CSCL3224	Computer Architecture	Computer Architecture	2	2	1	3
2.	CSCL3226	Design of translators	Compiler Design	2	2	1	3
3.	CSSP3213	Computer Networks 1	Computer Networks 1	2	2	1	3
4.	CSSP3209	Computer Graphics and Vision 2	Computer Graphics and Visualization 2	2	2	1	3
5.	CSSP3214	Data mining and data warehouses	Data Mining and Data Warehousing	2	-	1	2
6.	CSSP3215	Software Design	SoftWare Design	2	-	-	2
7.	CSSP3216	Mobile Application Design	Mobile Application Design	2	2	-	3
Total				14	10	5	19

Fourth Year Syllabus — Fourth Stage Curricula

t	Fourth Stage – First Semester						
	Lesson Code	Lesson Title	Subject in English	Number of Hours / Week			
				Theory	Lab	Tutorial	Units
1.	CSCL4134	Fixed Website Programming	Static Web Programming	2	2	1	3
2.	CSCL4136	Operating Systems 1	Operating System 1	2	2	1	3
3.	CSCL3131	Image processing 1	Image Processing1	2	2	1	3

4.	CSCL4138	Data Wish 1	Data Security 1	2	2	1	3
5.	CSSP4119	Window Programming	Windows Programming 1	2	2	1	3
6.	CSSP4121	Human-machine interaction	Human Computer Interaction	2		1	2
Total				12	8	5	16

	Fourth Stage – Second Semester						
t	Lesson Code	Lesson Title	Subject in English	Number of Hours / Week			
				Theory	Lab	Tutorial	Units
1.	CSCL4235	Mobile Web Programming	Dynamic Web Programming	2	2	1	3
2.	CSCL4237	Operating Systems 2	Operating system 2	2	2	1	3
3.	CSCL3232	Image processing 2	Image Processing 2	2	2	1	3
4.	CSSP4218	Secure Software Engineering	Secure Software Engineering	2	_	-	2
5.	CSSP4220	Programming Windows 2	Windows Programming 2	2	2	1	3
6.	CSSP4222	Smart Research Methods	Intelligent Search Methods	2	2	-	3
7.	CSCL444	project	Project	4	4	-	6
8.	CSCL4142	English Language 4	English Language 4	2	-	-	2
Total				18	14	4	24