Mosul University

جامعة الموصل

Bachelor's degree (B.Sc.) – Software

بكالوريوس علوم - البرمجيات

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1.   Mission & Vision Statement

Vision Statement

Striving for the Software Department to be a scientific platform through the services it provides to the university and the community in the field of analysis, design and implementation of medium and large software.

Mission Statement

1- Acquiring the student concepts, techniques and software methods in building and maintaining medium, large and complex software systems and the tools used in building that software and the subsequent study to ensure the quality and reliability of the software and keep pace with the scientific and technological development in this field.

2- Keeping up with the technological impact on the work environment.

3- Carrying out scientific, academic and applied research in the exact disciplines of software engineering and publishing them in reputable international journals.

4- Allowing students to study various and modern topics to keep abreast of developments in the specialization through the test subjects in the course system.

2.   Program Specification

Program code:	BSc-SW	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

Software engineering has a particular focus on programming and development methodologies, software tools and technology, software integration and configuration, software automation and testing techniques, software quality and reuse and software security aspects. As a result of the massive software revolution and the dependence of many institutions of all sizes on software systems, there is an urgent need in the labour markets for specialists and researchers in the field of software engineering with high efficiency and the ability to analyze complex problems and provide software solutions to them.

Level 1 introduces students to the fundamentals of software science and is suitable for progression in all programs within the Software Program group. Program-specific core topics are covered at Level 2 to prepare for the research-led specialist modules at Levels 3 and 4. The university's software graduate is thus trained to appreciate how research informs teaching, according to the university's mission statements.

At Levels 2, 3 and 4, students are free to choose more than half of their unit credits provided they choose a combination of units that reflect the complexity of software construction, through techniques, tools and code requirements, to ensure the breadth of knowledge expected from a graduate with a Software Science degree. This allows students to develop their broad interests in software engineering. Decisions about what to study are made with input from personal teachers.

The spirit of research is developed and reinforced from the outset through practical procedures, which are either integrated into lecture units or taught in dedicated practical units, research seminars and tutorials. There is a compulsory field course at Level 3, which students must pass to progress to Level 4, and optional field courses at Levels 2, 3 and 4. At Level 4 all students undertake 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 some 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.

International years and Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

3.   Program Objectives

1- Preparing scientific cadres in the field of designing and building large and large software.

2- Developing the student's abilities to participate in community service.

3- Giving the student the skills to solve the problem in the subject of the study.

4- Preparing the student to start interaction and communication through participation in field training.

5- Building applications for programs in various fields and community requirements.

6- Pursuing the quality of the academy's engineering programs to raise the level of the department and the authority of the International Telecommunication Union.

4. Student Learning Outcomes

One of the research interests in the Software program is a variety of topics and problems that are considered fundamental to the field of software engineering. Computer hardware and software, software equipment, software applications and applications, software applications, systems, systems, systems, distribution, distribution, and volatilization.
On the whole, this software is for the software industry.

Outcome 1
Identification of Complex Relationships
Graduates will be able to explain the structure and function of the main components of the calculator and its programs and explain how they interact in solving problems in all areas of life and employing them to serve society.

Outcome 2
Oral and Written Communication
Graduates will be able to formally communicate the results of system software and practical investigations using oral and written communication skills.

Outcome 3
Laboratory
Graduates will be able to perform laboratory experiments and build the big software, by using scientific tools and computer technology while observing appropriate safety protocols.

Outcome 4
Scientific Knowledge
Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5
Data Analyses
Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6
Critical Thinking

Graduates will be able to use critical thinking and problem-solving skills to develop a research project and/or paper.

5. Academic Staff

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6.   Credits, Grading and GPA

Credits

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

Grading

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

GRADING SCHEME				
مخطط الدرجات				
Group	**Grade**	**التقدير**	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work is required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number of 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's total ECTS.

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

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

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW1101	**Democracy and Human Rights**	33	17	2.00	B	-
UOMCSSW1102	**Logic design**	78	122	8.00	C	-
UOMCSSW1103	**Computer**	48	27	3.00	B	-
UOMCSSW1104	**Discrete Structures**	33	67	4.00	C	-
UOMCSSW1105	**Algorithms and Structured Programming (1)**	78	122	8.00	C	-
UOMCSSW1106	**Mathematics**	48	77	5.00	S	-
	Total	318	432	30		

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW1201	**Algorithms and Structured Programming (2)**	78	122	200	8.00	C
UOMCSSW1202	**Computer Organization**	78	122	200	8.00	C
UOMCSSW1203	**Introduction of Statistics and Probability**	33	67	100	4.00	S
UOMCSSW1204	**assembly language**	63	87	150	6.00	C
UOMCSSW1205	**English Language (1)**	33	17	50	2.00	B
UOMCSSW1206	**Arabic language**	33	17	50	2.00	B
	Total	318	432	750	30.00	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW2101	**Object-Oriented Programming (1)**	78	122	8.00	C	Algorithms and Structured Programming (2)
UOMCSSW2102	**Software Engineering (1)**	63	87	6.00	C	-
UOMCSSW2103	**Microprocessors and assembly language**	63	87	6.00	C	-
UOMCSSW2104	**Numerical Methods**	33	17	2.00	S	-
UOMCSSW2105	**Computability Theory**	33	17	2.00	C	Discrete Structures
UOMCSSW2106	**Data Structure (1)**	63	87	6.00	C	Algorithms and Structured Programming (2)
	Total	333	417	30.00		

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW2201	**Software Engineering (2)**	63	87	6.00	C	Software Engineering (1)
UOMCSSW2202	**Object Oriented Programming (2)**	63	87	6.00	C	Object-Oriented Programming (1)
UOMCSSW2203	**Database**	63	37	4.00	C	-
UOMCSSW2204	**Data Structure (2)**	63	87	6.00	C	Data Structure **(1)**
UOMCSSW2205	**Software Systems**	63	87	6.00	C	Microprocessors and assembly language
UOMCSSW2206	**English Language(2)**	33	17	2.00	B	English Language (1)
	Total	348	402	30.00		

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW3101	**Artificial Intelligence**	63	87	6.00	C	Data Structure **(2)**
UOMCSSW3102	**Compilers Design**	63	87	6.00	C	Computability Theory
UOMCSSW3103	**Software Project Management**	33	67	4.00	C	Software Engineering (2)
UOMCSSW3104	**Software Requirement**	63	87	6.00	C	Software Engineering (2)
UOMCSSW3105	**Computer Architecture**	63	87	6.00	C	Microprocessors and assembly language
UOMCSSW3106	**English Language(3)**	33	17	2.00	B	English Language (2)
	Total	318	432	30.00		

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW3201	**Intelligent techniques**	63	87	6.00	C	Artificial Intelligence
UOMCSSW3202	**Software engineering tools**	63	87	6.00	C	Software engineering(2)
UOMCSSW3203	**Software fault tolerance**	63	87	6.00	C	Software engineering(2)
UOMCSSW3204	**Operating Systems**	63	87	6.00	C	Computer Architecture
UOMCSSW3205	**Network and Websites Engineering**	63	87	6.00	C	Computer Skill (2)
	Total			30		

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW4101	**Information Security**	63	87	6.00	C	Object Oriented Programming (2)
UOMCSSW4102	**Software development techniques**	33	67	4.00	C	Software Engineering (2)
UOMCSSW4103	**Image and signal processing(1)**	78	122	8.00	C	Mathematics
UOMCSSW4104	**Design of Real-Time Systems**	78	122	8.00	C	Operating Systems
UOMCSSW4105	**Software Support**	33	17	2.00	C	Software Engineering (2)
UOMCSSW4106	**English Language(4)**	33	17	2.00	B	English Language(3)
	Total	318	432	30.0		

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
UOMCSSW4201	**Computer Network Security**	63	87	6.00	C	Information Security
UOMCSSW4202	**Software Quality Assurance**	33	17	2.00	C	Software Engineering (2)
UOMCSSW4203	**Image and signal processing(2)**	63	87	6.00	C	Image and signal processing(1)
UOMCSSW4204	**Elective**	33	67	4.00	E	Object Oriented Programming (2)
UOMCSSW4205	**Internet of Things**	63	87	6.00	C	Design of Real-Time Systems
UOMCSSW4206	**Project**	33	117	6.00	C	Students can do a project after he (she) completed all subjects from Semester 1 to Semester 6
	Total	288	462	30.0		

Elective: Mobile Programming, Social Media Networking, Open Source Software, software reliability.

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