Bachelor of Science in Software Engineering

2023-2024

1) General Program Presentation

Graduating with a Bachelor of Science in Software Engineering necessitates the successful completion of a total of 132 credit hours (CH). These credit hours are distributed across different requirements, encompassing courses that are essential as well as those that can be chosen as elective courses. The table below shows how 132 credit hours are distributed across requirements:

Table 1: Program credit hours distribution.

General Education Requirements	36 Credits
College Requirements	55 Credits
Program requirements	41 Credits (Including 6 CH electives)
Total Credits Hours	132 Credits

2) General Education (36 Credits)

Students here are required to complete 36 credit hours distributed over five sections as follows:

Communication (9 Credits)

Table 2: General education communication courses.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
ENL101	English for Academic Studies	(3 credits)	3		ICT095*
ENL102	English Composition	(3 credits)	3	ENL101	
ENL201	Writing and Research	(3 credits)	3	ENL102	

*Preparatory Program: ICT 095 Information Technology Basics.

Innovation and Creativity (6 Credits)

Table 3: Innovation and Creativity Ethics compulsory course.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
GEN150	Professionalism and Ethics	(3 credits)	3		

Table 4: General education innovation and creativity elective courses (students should select one course from the following list).

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
GEN131	Creativity and Problem Solving	(3 credits)	3		
BUS101	Entrepreneurship Essentials	(3 credits)	3		
ENI110	Intro. to Innovation and Creativity	(3 credits)	3		
ENI140	Design Thinking	(3 credits)	3		
ENI150	Innovation in Business Models	(3 credits)	3		
ENI160	Innovation and Globalization	(3 credits)	3		

Global Citizen (6 Credits)

Table 5: General education global citizen compulsory course.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
INF120	Computers and Information Systems	(3 credits)	3	ICT095	

Table 6: General education global citizen elective courses (students should select one course from the following list).

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
GEN201	Globalization and Sustainability	(3 credits)	3		
GEN202	Global Citizenship in Digital Age	(3 credits)	3		
BUS201	Global Economics and Trade	(3 credits)	3		

Art and Humanities (9 Credits)

Table 7: General education art and humanities compulsory course.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
HST 101	Islamic Culture and Values	(3 credits)	3		

Table 8: General education art and humanities elective course group I (students should select one course from the following list).

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
HST102	Kuwait History	(3 credits)	3		
ARB101	Arabic Communication skills	(3 credits)	3		
ART101	Art Appreciation	(3 credits)	3		
ART102	Intro. To Media and Communication	(3 credits)	3		

Table 9: General education art and humanities elective course group II (students should select one course from the following list).

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
PHL101	Introduction to Philosophy	(3 credits)	3		
LAW101	Law and Society	(3 credits)	3		
PSY 101	Introduction to Psychology	(3 credits)	3		
SOC 101	Introduction to Sociology	(3 credits)	3		

Math and Science (6 Credits)

Table 10: General education math and science courses (6 credits).

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite	Note

MAT101	Calculus I	(3 credits)	3	IMP099* or Equivalent	
PHY101	Physics I	(3 credits)	3	MAT101	

*Preparatory Program: IMP099 Precalculus.

3) College Requirements (55 Credits)

- **Math and Science (23 Credits)**

Table 11: Math and Science courses.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
PHY105	Physics Lab I	(1 credit)	3		PHY101
MAT102	Calculus II	(3 credits)	3	MAT101	
MAT120	Discrete Mathematics	(3 credits)	3		
MAT221	Number Theory	(3 credits)	3	MAT102	
BIO101 or **CHM101**	Biology I or Chemistry I	(3 credits)	3		
BIO105 or **CHM105**	Biology I Lab or Chemistry I Lab	(1 credit)	3		BIO101 / CHM101
MAT202	Linear Algebra	(3 credits)	3	MAT101	
MAT240	Differential Equations	(3 credits)	3	MAT102	
ENG304	Engineering Probability & Statistics	(3 credits)	3	MAT102	

- **Engineering requirements (32 Credits)**

Table 12: Engineering courses.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
CCS120	Computational Thinking & Programming	(3 credits)	3	MAT120	
CCS121	Computational Thinking & Programming Lab	(1 credit)	3		CCS120
CCS200	Digital Logic and Design	(3 credits)	3	PHY101	
CCS220	Object-Oriented Design & Programming	(3 credits)	3	CCS120	
CCS221	Object-Oriented Design & programming Lab	(1 credit)	3		CCS220
CCS230	Fundamentals of Database Systems	(3 credits)	3	CCS220 MAT120	
CCS231	Fundamentals of Database Systems Lab	(1 credit)	3		CCS230
CCS241	Fundamentals of Computer Networks	(3 credits)	3	INF120	
CCS270	Data Structures and Algorithms	(3 credits)	3	CCS220	

CCS271	Data Structures and Algorithms Lab	(1 credit)	3		CCS270
ENG308	Numerical Methods	(3 credits)	3	MAT240	
CCS320	Fundamentals of Operating Systems	(3 credits)	3	CCS270	
CCS330	Web Engineering	(3 credits)	3	CCS230	
CCS331	Web Engineering Lab	(1 credit)	3		CCS330

4) Program Requirements (41 Credits):

- **Program Requirements (35 Credits)**

Table 13: Program courses.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
SWE301	Software Process and Methodologies	(3 credits)	3	CCS270	
SWE305	Software Requirements Engineering	(3 credits)	3	CCS230	
SWE306	Software Requirements Engineering Lab	(1 credit)	3		SWE305
SWE310	Human-Computer Interaction	(3 credits)	3	SWE301	
SWE311	Human-Computer Interaction Lab	(1 credit)	3		SWE310
SWE340	Software Design and Architecture	(3 credits)	3	SWE305	
SWE341	Software Design and Architecture Lab	(1 credit)	3		SWE340
SWE345	Software Modelling and Analysis	(3 credits)	3	SWE301	
SWE420	Software Construction and Evolution	(3 credits)	3	SWE340	
SWE421	Software Construction and Evolution Lab	(1 credit)	3		SWE420
SWE430	Software Testing and Quality Assurance	(3 credits)	3	SWE340	
SWE431	Software Testing and Quality Assurance Lab	(1 credit)	3		SWE430
SWE440	Software Security and Analysis	(3 credits)	3	SWE430	
SWE490	Capstone Design 1	(3 credits)	3	Program Approval	
SWE491	Capstone Design 2	(3 credits)	3	SWE490	

- **Program Electives (6 Credits)**

Table 14: Program elective courses.

Course Code	Course Title	Credit hours	Contact hours	Pre-requisite	Co-requisite
SWE480	Internship	(3 credits)	3	Program Approval	
SWE441	Software Reliability and Software Quality	(3 credits)	3	SWE340	

SWE442	Software Engineering Ethics	(3 credits)	3	SWE305
SWE443	Software Project Management	(3 credits)	3	SWE340 & SWE345
SWE444	Modern Software Methodologies	(3 credits)	3	SWE345
SWE445	Software Development and Maintenance	(3 credits)	3	SWE340
SWE447	Cloud Computing	(3 credits)	3	CCS330
SWE495	Special topics in Software Engineering	(3 credits)	3	Program Approval

- Students can take up to three credits of technical electives from another program or institution.