

University of Management & Technology, Lahore

Office of the Registrar, Johar Town C-II Lahore, Ph. #: 042-35212820



Roadmap

Program Name: BS Software Engineering

Program Scheme of Studies

Structure of the Scheme	
Courses Credit Hours	1 – 4
Computing Core Courses: (Credit Hours)	14 : (47)
Domain Core Courses: (Credit Hours)	6 : (18)
Technical Electives Courses: (Credit Hours)	7 : (21)
General Education Courses: (Credit Hours)	16 : (36)
Supporting & Math Courses: (Credit Hours)	4 : (12)
Elective Supporting Course: (Credit Hours)	1 : 3
Undergraduate 2.0 Courses: (Credit hours)	Distributed Above
Total Credit Hours:	137

Program Road Map

Applicable to:

Batch No.:

Session: FALL 2025

1 st Year							
1 st Semester				2 nd Semester			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs.	Prerequisite
CC120	Application of Information & Communication Technologies	2	-	CC111	Programming Fundamentals	3	-
CC120L	Application of Information & Communication Technologies Lab	1	-	CC111L	Programming Fundamentals Lab	1	-
CC141	Discrete Structures	3	-	MA150	Probability and Statistics	3	-
MA107	Calculus and Analytic Geometry	3	-	MA108	Multivariable Calculus	3	MA107
EN110	English-I	3	-	NS125	Applied Physics	2	-
ISL112	Islamic Thought and Perspectives	2	-	NS125L	Applied Physics Lab	1	-
POL121	Pakistan: Ideology, Constitution, and Society	2	-	EN123	English-II	3	EN110
					University Elective I (Arts & Humanities)	2	-
					Fehm-e-Quran 1	1	
Semester Credit Hours		16		Semester Credit Hours		19	

2 nd Year							
3 rd Semester				4 th Semester			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs.	Prerequisite
CC112	Object Oriented Programming	3	CC111 CC111L	CC213	Data Structures	3	-
CC112L	Object Oriented Programming Lab	1	CC111 CC111L	CC213L	Data Structures Lab	1	-
MA210	Linear Algebra	3	-	SE282	Software Requirement Engineering	2	CC281
CC281	Software Engineering	3	-	SE282L	Software Requirement Engineering Lab	1	CC281
CC121	Digital Logic Design	2	-	CC222	Computer Organization and Assembly Language	2	CC121 CC121L
CC121L	Digital Logic Design Lab	1	-	CC222L	Computer Organization and Assembly Language Lab	1	CC121 CC121L
CC251	Computer Networks	2	-	HU201	Professional Practices	2	-
CC251L	Computer Networks Lab	1	-		Technical Elective I	3	-
SD210	Civics and Community Engagement	2			University Elective II (Social Science)	3	-
	Fehm-e-Quran 2	1					
Semester Credit Hours		19		Semester Credit Hours		18	

3rd Year

5 th Semester				6 th Semester			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs.	Prerequisite
CC230	Database Systems	3	-	SE384	Software Construction and Development	2	CC281
CC230L	Database Systems Lab	1	-	SE384L	Software Construction and Development Lab	1	CC281
CC371	Artificial Intelligence	3	-	CC323	Operating Systems	3	-
CC342	Analysis of Algorithms	3	CC213 CC213L	CC323L	Operating Systems Lab	1	-
SE383	Software Design and Architecture	2	CC281	CC361	Information Security	3	-
SE383L	Software Design and Architecture Lab	1	CC281	EN220	Technical and Business Writing	3	EN125
SD100	English Immersion	0	EN125		Technical Elective III	3	-
	Technical Elective II	3	-		Technical Elective IV	3	-
MG224	Innovation and Entrepreneurship	2	-				
Semester Credit Hours		18		Semester Credit Hours		19	

4 th Year							
7 th Semester				8 th Semester			
Code	Course Title	Cr. Hrs.	Prerequisite	Code	Course Title	Cr. Hrs.	Prerequisite
CC491	Final Year Project I	2	-	CC492	Final Year Project II	4	CC491
SE486	Software Project Management	3	CC281		Technical Elective VII	3	-
CC425	Parallel and Distributed Computing	3	CC323 CC323L		Technical Elective VI	3	-
SE385	Software Quality Engineering	2	CC281		*COOP(Optional)	6*	
SE385L	Software Quality Engineering Lab	1	CC281				
	Technical Elective V	3	-				
	Think AI	2					
	Pakistan Studies	2					
Semester Credit Hours		18		Semester Credit Hours		10	

* COOP means an industry-based project.

Total Credit Hours: 137(143*)

(Non-exhaustive) List of Technical Electives:

Course Code	Course	Cr. Hr.
SE489	Software Verification and Validation (Testing & QA)	3
SE394	Object Oriented Analysis and Design	3
CS245	Computer Architecture	3
CS341	Theory of Automata	3
CS324	HCI and Computer Graphics	3
IT291	Web Technologies	2+1
CS431	Advanced Database Management	2+1
SE493	Web Engineering	2 +1
DS291	Introduction to Data science	2+1
SE488	Software Re-Engineering	3
SE491	Mobile Application Development	2+1
SE492	Open Source Software Development	3
SE496	Operation Research	3
SE387	Formal Method in Software Engineering	3
SE495	Game Design and Development	2+1
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University Elective 1 (2 Credit Hours) (From Arts and Humanities)

Arts and Humanities (2 Credit Hours) Min One Course

Course Code	Course	Cr. Hr.
SD221	Life and Learning	2
SD222	Foreign Language	2
SD223	Logical Reasoning	2

University Elective 2 course (3 Credit Hours) (From Social Sciences)

Social Sciences (3 Credit Hours) Min One Course

Course Code	Course	Cr. Hr.
HWB101	Health and Wellbeing	3
SOC102	Understanding Society and Sociocultural Dynamics	3
PSY110	Psychology of Mind and Behaviour	3
ECO202	Economics	3
MK210	Principles of Marketing	3
MG120	Principles of Management	3

Compliance Certificate for UG 2.0

○ **It is hereby certified** that the General Education Courses have been incorporated into the roadmap of BSSE in accordance with the Undergraduate 2.0 Policy, duly approved by the Academic Council vide Meeting No. 41 dated 11/08/2025.

○ **The General Education Courses are not compliant** with the Undergraduate 2.0 Policy due to the requirements of the respective Accreditation Council, as detailed below:

UG 2.0			Deviation		Reason
Sr	Course Title	Cr Hrs	Course Title	Cr Hrs	
1	Computer Applications	3	Application of Information & Communication Technologies	2+1	Compliance with the Accreditation Council
2	Everyday Science	3	Applied Physics	2+1	Compliance with the Accreditation Council
3	Social Science Elective	2	Social Science Elective	3	Compliance with the Accreditation Council
4	Calculus	3	Calculus and Analytic Geometry	3	Compliance with the Accreditation Council
5	Quantitative Skills and Reasoning	3	Multivariable Calculus	3	Compliance with the Accreditation Council

Chairperson of Department

Dean concerned

Director AAQIC

Registrar