



School of Computational Sciences

Program:	BS Software Engineering
Short Title:	BS SE
Duration:	8 Semesters (4 years)
Credit Hours:	133
Eligibility:	FSc Pre Engineering or ICS with minimum 50% marks or equivalent

Program Description:

Software engineering is the discipline of creating high-quality software systems in a systematic, controlled and efficient manner. It involves the application of engineering concepts, techniques, and methods to the design, development, deployment and maintenance of software systems. A software engineering program develops professionals who have a mastery of principles, theory, practices, and processes necessary to produce quality software systems.

Program Objective:

The objective of the program is to prepare students for professional careers and for graduate studies in software

engineering. With a balance between computing theory and practical application of software engineering concepts including software project management, methodologies, tools and technologies in the modern software development environments. Graduates of such a program will be able to function as proficient software developers and effective team members. They will have grounding in communication, mathematics and science, and the cultural, historical, and social issues that influence and effect or relate to the development of high quality software systems. They will have knowledge of and experience with software product engineering and engineering management and an understanding of professional issues and practices. Graduates will be able to understand and assess their own software engineering capabilities and performance.

BS Software Engineering

Scheme of Studies

Semester I

Course Code	Course Title	Credit Hours
ENG-111	Functional English-I	3(3-0)
IT-113	Introduction to Computing	4(3-1)
CS-114	Programming Fundamentals	4(3-1)
CS-121	Discreet Structures	3(3-0)
PHY-111	Physics	3(3-0)
Credit Hours :		17

Semester II

Course Code	Course Title	Credit Hours
MATH-123	Calculus and analytical geometry	3(3-0)
CS-123	Object Oriented Programming	4(3-1)
MATH-122	Advanced Calculus (supporting Elective-I)	3(3-0)
SCI-121	Sociology (GE/Uni Elective-I)	3(3-0)
ENG-121	Functional English-II(Communication Skills)	3(3-0)
IS-112	Islamic Studies/Ethics	2(2-0)
Credit Hours :		18

Semester III

Course Code	Course Title	Credit Hours
EE-215	Data Structure and Algorithms	4(3-1)
CE-222	Software Engineering	3(3-0)
EE- 221	Digital Logic Design	4(3-1)
MATH-214	Linear algebra	3(3-0)
CS-225	Operating System	4(3-1)
Credit Hours :		18

Semester IV

Course Code	Course Title	Credit Hours
SE-221	Object Oriented Software Engineering	4(3-1)
MATH-222	Numerical and Symbolic Computing (Supporting Elective-II)	3(3-0)
MGT-223	Principles of Management (GE/Uni Elective-II)	3(3-0)
CS-313	Introduction to Database system	4(3-1)
PS-121	Pakistan Studies	2(2-0)
Credit Hours :		16

Semester V

Course Code	Course Title	Credit Hours
SE-311	Software Requirement and Specifications	3(3-0)
SE-312	Stochastic Processes (Supporting Elective-III)	3(3-0)
SE-313	Software Engineering Economics (SE Elective-I)	3
SE-314	Computer Communication and Networks	4(3-1)
SE-315	Information System Audit (SE Elective-II)	3(3-0)
STAT-311	Probability and Statistics	3(3-0)
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Semester VI

Course Code	Course Title	Credit Hours
CS-321	Human Computer Interaction	3(2-1)
PSY-322	Psychology (GE/Uni Elective III)	3
SE-323	Software Verification and Validation	3(2-1)
SE-324	Software Architecture and Design	3(3-0)
SE-325	Enterprise Systems Engineering (SE Application Domain-I)	3
ENG-211	English-III(Tech n Report Writing)	3
Credit Hours :		18

Semester VII

Course Code	Course Title	Credit Hours
SE-411	Final Year Project	3
SE-412	Software Project Management	3(3-0)
HU-326	Professional Practice	3(3-0)
SE-414	Fault Tolerant and Survivable Systems (SE Application Domain II)	3(3-0)
ECO-414	Economics (GE/Uni Elective IV)	3(3-0)
Credit Hours :		15

Semester VIII

Course Code	Course Title	Credit Hours
SE-421	Final Year Project	3
SE-422	Business Process Re-engineering (SE Elective-III)	3
CS-314	Distributed Computing (SE Elective-IV)	3
SE-424	Introduction to Soft Computing (SE Elective-V)	3(3-0)
Credit Hours :		12
Total Credit Hours		133