

# Department of Computer Science

## 0246 BS Software Engineering

Shift : Morning

Duration : 4 years, 8 semesters, 133 credit hours

Eligibility : Intermediate with Mathematics or equivalent qualification with at least 50% marks from any recognized Board

### 1st Semester

Course	Course Title	Credit Hours
CSC-101	Introduction to Computing	3
CSC-101(L)	Introduction to Computing	1
CSC-110	Fundamentals of Programming	3
CSC-110 (L)	Fundamentals of Programming	1
ENG-121	English Composition & Comprehension	3
HUM-101	Islamic Studies	2
MTS-122	Calculus & Analytical Geometry	3

### 2nd Semester

Course	Course Title	Credit Hours
CSC-205	Object Oriented Programming	3
CSC-205(L)	Object Oriented Programming	1
CSC-111	Basic Electronics	2
CSC-111(L)	Basic Electronics	1
ENG-102	Technical Report Writing	3
HUM-102	Pakistan Studies	2
MTS-102	Discrete Structures	3
MTS-214	Linear Algebra	3

### 3rd Semester

Course	Course Title	Credit Hours
CSC-201	Digital Logic Design	3
CSC-201(L)	Digital Logic Design	1
CSC-216	Data Structures & Algorithms	2
CSC-216(L)	Data Structures & Algorithms	1
CSC-403	Software Engineering	3
ENG-101	Communication Skills	3
-----	University Elective-I	3

### 4th Semester

Course	Course Title	Credit Hours
CSC-202	Database Systems	3
CSC-202(L)	Database Systems	1
CSC-312	Object Oriented Software Engineering	3
MTS-217	Multi Variate Calculus	3
MTS-307	Probability and Statistics	3
-----	SE Elective-I	3
-----	SE Elective-II	3

### 5th Semester

Course	Course Title	Credit Hours
CSC-217	Operating Systems	3
CSC-317(2)	Data Communication & Computer Network	2
CSC-317(L)	Data Communication & Computer Network	1
CSC-322	Software Requirements & Specifications	3
CSC-426	Software Design & Architecture	3
-----	SE Elective-III	3

### 6th Semester

Course	Course Title	Credit Hours
CSC-316	Formal Methods	3
CSC-323	Software Verification & Validation	3
-----	SE Elective-IV	3
-----	SE Elective-V	3
-----	University Elective-II	3
-----	University Elective-III	3

### 7th Semester

Course	Course Title	Credit Hours
CSC-308	Software Project Management	3
CSC-313	Human Computer Interaction	3
CSC-4xx	Operation Research	3
-----	University Elective-IV	3
-----	SE Elective-VI	3
CSC-499	Project	3

### 8th Semester

Course	Course Title	Credit Hours
CSC-438	Numerical Computing	3
-----	SE Elective-VII	3
CSC-499	Project	3

# Department of Computer Science

Course	Course Title	Credit Hours
<b>University Elective Courses:</b>		<b>12</b>
ACC-201	Fundamentals of Accounting	3
HRM-201	Organizational Behaviour	3
MGT-101	Principles of Management	3
MGT-302	Entrepreneurship	3
MGT-408	Leadership	3
MKT-203	Marketing Management	3
PSY-101	Fundamentals of Psychology	3

Course Title	Credit Hours	Course	Course Title	Credit Hours
<b>Software Engineering Elective Courses:</b>		<b>Software Engineering Elective Courses:</b>		<b>21</b>
CSC-207	System Analysis & Design	CSC-XXX	Information System Audit	3
CSC-314	Web - Engineering	CSC-XXX	Agent Based Computing	3
CSC-320	Artificial Intelligence	CSC-XXX	Cloud Computing	3
CSC-420	Web Engineering - II	CSC-XXX	Introduction to Soft Computing	3
CSC-430	Data Warehousing & Data Mining	CSC-XXX	Real-Time Systems	3
CSC-433	Data Mining	CSC-XXX	Data Security & Encryption	3
CSC-434	Mobile Application Development	CSC-XXX	Secure Software Development	3
CSC-436	Data Warehousing	CSC-XXX	Business Process Engineering	3
CSC-XXX	Software Engineering Economics	CSC-XXX	Advance Database Management Systems	3
CSC-XXX	Functional Programming	CSC-XXX	Introduction to Bioinformatics	3
CSC-XXX	Aspect Oriented Software Design	CSC-XXX	Bioinformatics Software Engineering	3

