



BACHELORS OF SCIENCE IN SOFTWARE ENGINEERING-BS(SE)

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| Structure of BS(SE) Program Total Credit Hours: 136 Total Courses: 44 Semesters: 8 Duration: 4 Years | Category: Courses (Credit Hours) General Education: 12 (30) Major courses: 18 (64) + 7 (21) Allied/interdisciplinary courses: 5 (15) Internship/field experience: N/A Capstone project: 2 (6) Total: 44 (136) |
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SCHEME OF STUDIES

| S # | COURSE CODES | CLASS | COURSE TITLE | CREDIT HOURS | PRE-REQ | CO-REQ |
|-------------------|--------------|-------|---|------------------|----------|----------|
| SEMESTER 1 | | | | | | |
| 1 | CMC111 | CORE | Programming Fundamentals | 3 + 0 | - | CMC111-L |
| | CMC111-L | CORE | Programming Fundamentals (Lab) | 0 + 1 | | |
| 2 | GER111 | GER | Application of Information & Communication Technologies | 2 + 0 | - | GER111-L |
| | GER111 | GER | Application of Information & Communication Technologies (Lab) | 0 + 1 | | |
| 3 | GER152 | GER | Natural Science (Applied Physics) | 2 + 0 | - | GER152-L |
| | GER152-L | GER | Natural Science (Applied Physics (Lab)) | 0 + 1 | | |
| 4 | GER131 | GER | Calculus and Analytic Geometry | 3 + 0 | - | |
| 5 | GER121 | GER | Functional English | 3 + 0 | - | |
| | | | | 13+3 (16) | | |
| SEMESTER 2 | | | | | | |
| 1 | CMC112 | CORE | Object Oriented Programming | 3 + 0 | CMC111 | CMC112-L |
| | CMC112-L | CORE | Object Oriented Programming (Lab) | 0 + 1 | CMC111-L | |
| 2 | GER132 | GER | Discrete Structures | 3 + 0 | GER131 | |
| 3 | CMC122 | CORE | Digital Logic Design | 2 + 0 | GER152 | CMC122-L |
| | CMC122-L | CORE | Digital Logic Design (Lab) | 0 + 1 | GER152-L | |
| 4 | GER142 | GER | Ideology and Constitution of Pakistan | 2 + 0 | - | |
| 5 | GER122 | GER | Expository Writing | 3 + 0 | GER121 | |
| 6 | MTE111 | MATHS | Multivariable Calculus | 3 + 0 | GER131 | |
| | | | | 16+2(18) | | |

| SEMESTER 3 | | | | | | |
|------------|----------|-------------|---|----------|----------|----------|
| 1 | CMC251 | CORE | Data Structures | 3 + 0 | CMC112 | CMC251-L |
| | CMC251-L | CORE | Data Structures (Lab) | 0 + 1 | CMC112-L | |
| 2 | CMC222 | CORE | Computer Organization & Assembly Language | 3 + 0 | CMC122 | CMC222-L |
| | CMC222-L | CORE | Computer Organization & Assembly Language (Lab) | 0 + 1 | CMC122-L | |
| 3 | SEC211 | DOMAIN CORE | Introduction to Software Engineering | 3 + 0 | GER132 | |
| 4 | CMC261 | CORE | Computer Networks | 3 + 0 | CMC122 | CMC261-L |
| | CMC261-L | CORE | Computer Networks Lab | 0 + 1 | CMC122-L | |
| 5 | MTE212 | MATHS | Probability & Statistics | 3 + 0 | MTE111 | |
| | | | | 15+3(18) | | |
| SEMESTER 4 | | | | | | |
| 1 | CMC241 | CORE | Operating Systems | 3 + 0 | CMC251 | CMC241-L |
| | CMC241-L | CORE | Operating Systems (Lab) | 0 + 1 | CMC251-L | |
| 2 | SEC231 | DOMAIN CORE | Software Requirement Engineering | 3 + 0 | SEC211 | |
| 3 | MTE213 | MATH | Linear Algebra | 3 + 0 | MTE111 | |
| 4 | CMC252 | CORE | Analysis of Algorithms | 3 + 0 | CMC251 | |
| 5 | MTE221 | GER | Technical & Business Writing | 3 + 0 | GER122 | |
| 6 | GERXXX | GER | Social Science I | 2 + 0 | MTE221 | |
| | | | | 17+1(18) | | |
| SEMESTER 5 | | | | | | |
| 1 | SEC321 | DOMAIN CORE | Software Quality Engineering | 3 + 0 | SEC211 | |
| 2 | CMC362 | CORE | Information Security | 3 + 0 | CMC261 | CMC362-L |
| | CMC362-L | CORE | Information Security (Lab) | 0 + 1 | CMC261-L | |
| 3 | CMC331 | CORE | Database Systems | 3 + 0 | CMC241 | CMC331-L |
| | CMC331-L | CORE | Database Systems (Lab) | 0 + 1 | CMC241-L | |
| 4 | SEEXXX | DOMAIN ELEC | Domain Elective 1 | 3 + 0 | - | |
| 5 | SEC311 | DOMAIN CORE | Software Design & Architecture | 3 + 0 | SEC231 | |
| | | | | 15+2(17) | | |

| SEMESTER 6 | | | | | | |
|------------|----------|-------------|---|----------|----------------------|----------|
| 1 | CMC381 | CORE | Artificial Intelligence | 3 + 0 | CMC252 | CMC381-L |
| | CMC381-L | CORE | Artificial Intelligence (Lab) | 0 + 1 | CMC253-L | |
| 2 | SEC312 | DOMAIN CORE | Software Construction & Development | 2 + 0 | SEC311 | SEC312-L |
| | SEC312-L | DOMAIN CORE | Software Construction & Development (Lab) | 0 + 1 | - | |
| 3 | SEEXXX | DOMAIN ELEC | Domain Elective 2 | 2 + 1 | - | |
| 4 | ESCXXX | GER | Social Science II | 3 + 0 | - | |
| 5 | SEC322 | DOMAIN CORE | Software Project Management | 2 + 0 | SEC211 | SEC322-L |
| | SEC322-L | DOMAIN CORE | Software Project Management (Lab) | 0 + 1 | SEC211-L | |
| 6 | GER141 | GER | Islamic Studies | 2 + 0 | - | |
| | | | | 14+4(18) | | |
| SEMESTER 7 | | | | | | |
| 1 | CMC491 | CORE | Final Year Project - I | 0 + 3 | CMC381/SEC322/CMC331 | |
| 2 | SEEXXX | DOMAIN ELEC | Domain Elective 3 | 2 + 1 | - | |
| 3 | SEEXXX | DOMAIN ELEC | Domain Elective 4 | 2 + 1 | - | |
| 4 | SEEXXX | DOMAIN ELEC | Domain Elective 5 | 2 + 1 | - | |
| 5 | CSC442 | DOMAIN CORE | Parallel & Distributed Computing | 3 + 0 | CMC241 | CSC442-L |
| | CSC442-L | DOMAIN CORE | Parallel & Distributed Computing (LAB) | 0 + 1 | - | |
| 6 | GER462 | GER | Technopreneurship | 2 + 0 | - | |
| | | | | 11+7(18) | | |
| SEMESTER 8 | | | | | | |
| 1 | CMC492 | CORE | Final Year Project - II | 0 + 3 | CMC491 | |
| 2 | GER463 | GER | Professional Practices | 2 + 0 | - | |
| 3 | GER443 | GER | Civics and Community Engagement | 2 + 0 | - | |
| 4 | SEEXXX | DOMAIN ELEC | Domain Elective 6 | 2 + 1 | - | |
| 5 | SEEXXX | DOMAIN ELEC | Domain Elective 7 | 2 + 1 | - | |
| | | | | 8+5(13) | | |
| | | | TOTAL CREDIT HOURS | 136 | | |

**Campus will decide to offer a course.