### PROPOSED

### UPDATED COURSE CURRICULUM

### (To be effective from Spring semester, 2013)

**FACULTY OF MODERN SCIENCE**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (CSE)**

**UNDERGRADUATE PROGRAM**

Bachelor of Science in Computer Science & Engineering (B.Sc. in CSE)

### LEADING UNIVERSITY

### S Y L H E T

### 

### Submitted To:

### University Grants Commission (UGC)

**Leading University, Sylhet**

Department of Computer Science and Engineering

**Computer Science & Engineering Program**

**Curriculum for B. Sc. in Computer Science & Engineering (Proposed)**

**Summary of Courses**

(To be effective from Spring semester, 2013)

|  |  |  |
| --- | --- | --- |
| **Types of Courses** | **No. Of Courses** | **Credit Hours** |
| English Courses | 02 | 06 |
| GED courses | 05 | 15 |
| Basic Science Courses | 02 | 07 |
| Mathematics Courses | 05 | 15 |
| Inter-disciplinary Engineering Courses | 07 | 25 |
| Program core courses | 21 | 74 |
| Option I (Specialized courses) | 01 | 03 |
| Option II (Specialized courses) | 01 | 03 |
| Project / Thesis | 02 | 04 |
| **Total** | **46** | **152** |

**List of Courses**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Interdisciplinary Courses** | | | | | | |
| **Course Code** | **Course Title** | | **Credit Hours** | **Contact Hours / Week** | **Prerequisite Courses** | |
| **English Courses (Two courses - 6 credit hours)** | | | | | | |
| ENG-1111 | English Reading and Speaking | | 3 | 3 | N/A | |
| ENG-1311 | English Writing and Listening | | 3 | 3 | ENG-1111 | |
| **Total** | | | **6** | **6** |  | |
| **General Education Courses (Any five courses - 15 credit hours)** | | | | | | |
| ART-1111 | | Bangladesh Studies | 3 | 3 | N/A | |
| ECON-2211 | | Principals of Economics | 3 | 3 | N/A | |
| ART- 2213 | | Professional Ethics | 3 | 3 | N/A | |
| ART-2311 | | Introduction to Sociology | 3 | 3 | N/A | |
| MGT-2315 | | Introduction to Business | 3 | 3 | N/A | |
| ACC-2111 | | Principles of Accounting | 3 | 3 | N/A | |
| MGT-3211 | | Industrial Management | 3 | 3 | N/A | |
| ART-1215 | | Public Administration | 3 | 3 | N/A | |
| ART-1217 | | Political Science | 3 | 3 | N/A | |
| **Basic Science Courses (Two courses - 7 credit hours)** | | | | | | |
| PHY-2211 | General Physics | | 3 | 3 | N/A | |
| PHY-2212 | General Physics Sessional | | 1 | 2 | N/A | |
| CHEM-2311 | Chemistry | | 2 | 2 | N/A | |
| CHEM-2312 | Chemistry: Sessional | | 1 | 2 | N/A | |
| **Total** | | | **07** | **09** |  | |
| **Mathematics Courses (5 courses - 15 credit hours)** | | | | | | |
| MATH-1111 | | Differential and Integral Calculus | 3 | 3 | N/A | |
| MATH-1213 | | Linear Algebra & Complex Analysis | 3 | 3 | N/A | |
| MATH-1315 | | Differential Equations and Fourier Analysis | 3 | 3 | MATH-1111 | |
| MATH-2111 | | Co-Ordinate Geometry and Vector Analysis | 3 | 3 | N/A | |
| MATH-2213 | | Probability and Statistics | 3 | 3 | N/A | |
| **Total** | | | **15** | **15** |  | |
| **Other Engineering Discipline Courses (25 credit hours)** | | | | | | |
| **Course Code** | **Course Title** | | **Credit Hours** | **Contact Hours / Week** | **Prerequisite Courses** | |
| EEE-1111 | Electrical Circuits I | | 3 | 3 | N/A | |
| EEE-1112 | Electrical Circuits I Sessional | | 1 | 2 | N/A | |
| EEE-1213 | Electrical Circuits II | | 3 | 3 | N/A | |
| EEE-1214 | Electrical Circuit Simulation Laboratory | | 1 | 2 | N/A | |
| EEE-1315 | Electronics I | | 3 | 3 | | EEE-1213 | |
| EEE-1316 | Electronics I Sessional | | 1 | 2 | | EEE-1214 | |
| CE-2110 | Engineering Drawing | | 1.5 | 3 | | N/A | |
| EEE-2317 | Digital Electronics | | 3 | 3 | | N/A | |
| EEE-2318 | Digital Electronics Sessional | | 1.5 | 3 | | N/A | |
| EEE-3211 | Microprocessor, Assembly Language and Computer Interfacing | | 3 | 3 | | N/A | |
| EEE-3212 | Microprocessor, Assembly Language and Computer Interfacing Sessional | | 1 | 2 | | N/A | |
| EEE-4127 | VLSI I | | 2 | 2 | | CSE-2317 | |
| EEE-4128 | VLSI I Sessional | | 1 | 2 | | CSE-2318 | |
| **Total** | | | **25** | **33** | |  | |

List of Core Courses

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Code** | **Course Title** | **Credit Hours** | **Contact Hours / Week** | **Prerequisite Courses** |
| CSE-1111 | Introduction to Computers | 2 | 2 | N/A |
| CSE-1112 | Introduction to Computers Sessional | 1 | 2 | N/A |
| CSE-1213 | Computer Programming | 3 | 3 | N/A |
| CSE-1214 | Computer Programming Sessional | 1 | 2 | N/A |
| CSE-1215 | Discrete Mathematics | 3 | 3 | N/A |
| CSE-1315 | Data Structures | 3 | 3 | CSE-1213 |
| CSE-1316 | Data Structures Sessional | 1 | 2 | CSE-1214 |
| CSE-2117 | Computer Algorithms and Complexity | 3 | 3 | CSE-1315 |
| CSE-2118 | Computer Algorithms and Complexity Sessional | 1 | 2 | CSE-1316 |
| CSE-2213 | Object Oriented Programming | 3 | 3 | CSE-1213 |
| CSE-2214 | Object Oriented Programming Sessional | 1 | 2 | CSE-1214 |
| CSE-2319 | Database Management System | 3 | 3 | N/A |
| CSE-2320 | Database Management System Sessional | 1 | 2 | N/A |
| CSE-3111 | Numerical Methods | 3 | 3 | N/A |
| CSE-3112 | Numerical Methods Sessional | 1 | 2 | N/A |
| CSE-3113 | Operating System | 2 | 2 | N/A |
| CSE-3114 | Operating System Sessional | 1 | 2 | N/A |
| CSE-3115 | Computer Networks | 3 | 3 | N/A |
| CSE-3116 | Computer Networks Sessional | 1 | 2 | N/A |
| CSE-3117 | Computer Architecture and Design | 3 | 3 | N/A |
| CSE-3213 | Data Communication | 3 | 3 | N/A |
| CSE-3227 | Theory of Computation | 3 | 3 | N/A |
| CSE-3311 | System Analysis, Design and Development | 3 | 3 | N/A |
| CSE-3312 | System Analysis, Design and Development Sessional | 1 | 2 | N/A |
| CSE-3315 | Compiler Design and Construction | 3 | 3 | CSE-3227 |
| CSE-3316 | Compiler Design and Construction Sessional | 1 | 2 | N/A |
| CSE-3317 | Java Programming | 3 | 3 | CSE-2213 |
| CSE-3318 | Java Programming Sessional | 1 | 2 | CSE-2214 |
| CSE-3321 | Software Engineering | 2 | 2 | N/A |
| CSE-4111 | Management Information System | 3 | 3 | N/A |
| CSE-4113 | Computer Graphics | 3 | 3 | CSE-1213 |
| CSE-4114 | Computer Graphics Sessional | 1 | 2 | CSE-1214 |
| CSE-4119 | Artificial Intelligence | 3 | 3 | N/A |
| CSE-4211 | Web Technologies | 3 | 3 | CSE-2319 |
| CSE-4212 | Web Technologies Sessional | 1 | 2 | CSE-2320 |
| CSE-4800 | Project/Thesis (Part-I) | 1 | 2 |  |
| CSE-4801 | Project/Thesis (Part-II) | 3 | 6 |  |
| **Total** | | **78** | **96** |  |

**List of Specialized Elective Courses**

**Option-I for Eleventh Semester** (Any one course and Sessional (if any), to be taken)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course Code** | **Course Title** | **Credit Hours** | **Contact Hours / Week** | **Prerequisite Courses** |
| CSE-4213 | Optical Fiber Communication | 3 | 3 | CSE-3213 |
| CSE-4215 | Distributed Systems | 2 | 2 |  |
| CSE-4216 | Distributed Systems: Sessional | 1 | 2 |  |
| CSE-4217 | Open Source Tools & Techniques | 2 | 2 |  |
| CSE-4218 | Open Source Tools & Techniques: Sessional | 1 | 2 |  |
| CSE-4219 | Object Oriented Software Development Using UML | 2 | 2 |  |
| CSE-4220 | Object Oriented Software Development Using UML: Sessional | 1 | 2 |  |
| CSE-4221 | Simulation & Modeling | 2 | 2 |  |
| CSE-4222 | Simulation & Modeling: Sessional | 1 | 2 |  |
| CSE-4223 | Neural Network & Fuzzy Logic | 3 | 3 |  |
| CSE-4225 | Advanced Algorithms | 3 | 3 |  |
| CSE-4227 | Graph Theory & Applications | 2 | 2 |  |
| CSE-4228 | Graph Theory & Applications: Sessional | 1 | 2 |  |
| CSE-4229 | Computer Aided Design & Manufacturing | 2 | 2 |  |
| CSE-4230 | Computer Aided Design & Manufacturing | 1 | 2 |  |
| CSE-4231 | Data Warehousing & Data Mining | 2 | 2 |  |

**Option-II for Twelfth Semester** (Any one course and Sessional (if any), to be taken)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course No.** | **Course Title** | **Credit Hours** | **Contact Hours / Week** | **Prerequisite Courses** |
| CSE-4311 | Cellular Mobile & Satellite Communication | 3 | 3 |  |
| CSE-4313 | Image Processing and Computer Vision | 2 | 2 |  |
| CSE-4314 | Image Processing and Computer Vision Sessional | 1 | 2 |  |
| CSE-4315 | Computer Security & Cryptography | 3 | 3 |  |
| CSE-4317 | Human Computer Interaction | 3 | 3 |  |
| CSE-4319 | Advanced Operating Systems | 2 | 2 |  |
| CSE-4320 | Advanced Operating Systems: Sessional | 1 | 2 |  |
| CSE-4321 | Decision Support Systems | 2 | 2 |  |
| CSE-4322 | Decision Support Systems: Sessional | 1 | 2 |  |
| CSE-4323 | Introduction to Robotics | 2 | 2 |  |
| CSE-4324 | Introduction to Robotics: Sessional | 1 | 2 |  |
| CSE-4325 | Multimedia Communications | 3 | 3 |  |

Prepared by

Academic Committee

Department of Computer Science and Engineering

Leading University