

**SCHOOL OF COMPUTER SCIENCE AND ENGINEERING**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**COURSE HAND-OUT**

**Minor Project:**  **CS3270 | 3 Credits||3 0 0 3**

**Session: JAN 23 – MAY 23 | Faculty Coordinator: Dr. Sunita Singhal and Shikha Mundra**

1. **Introduction:** In this practical course, each group consisting of two/three members is expected to design and develop practical solutions to real life problems related to industry, institutions and computer science research. Software life cycle should be followed during the development. The theoretical knowledge, principles and practices gained from various subjects would be applied to develop effective solutions to various computing problems. The knowledge gained to work with various software tools, designing tools, programming languages, operating systems, etc. would be utilized in various stages of project. Structured/ Object Oriented design techniques may be used for the project. Software Requirements Specification (SRS), Modelling Techniques, Design and Testing strategies would be part of document of the work. A committee consisting of minimum three faculty members shall perform internal assessment of the minor projects. A report on minor project would be submitted for evaluation, Project work would be presented and demonstrated before the panel of examiners.
2. **Course Outcomes:** At the end of the course, students will be able to

**[CS-3270.1]** Identify the basic concepts of selected topics of the project and also identify the open issues.

**[CS-3270.2]** To identify the depth of the problem and propose the solution.

**[CS-3270.3]** Use software tools for analysis, reporting and implementation.

**[CS-3270.4]** Solve real time problem and contribute to a community with ethical values by understanding systematic study.

**[CS-3270.5]** Work in a team with proper contribution from individual and managing lifelong learning.

**[CS-3270.6]** Learning software development skills and practices**.**

1. **PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES**

**PO**1. **Engineering knowledge**: Apply the knowledge of mathematics, computer science, and communication engineering fundamentals to the solution of complex engineering problems.

**PO**2. **Problem analysis**: The sophisticated curriculum would enable a graduate to identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using basic principles of mathematics, computing techniques and communication engineering principles.

**PO**3. **Design/development of solutions**: Upon analysing, the B Tech CSE graduate will be able to devise solutions for complex engineering problems and design system components or processes that meet the specified requirements with appropriate consideration for law, safety, cultural & societal obligations with environmental considerations.

**PO**4. **Conduct investigations of complex problems**: To imbibe the inquisitive practices to have thrust for innovation and excellence that leads to use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO**5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

**PO**6. **The engineer and society**: The engineers are called society builders and transformers. B. Tech CSE graduate will be able to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO**7. **Environment and sustainability**: The zero effect and zero defect is not just a slogan, it is to be practised in each action. Thus a B Tech CSE will understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO**8. **Ethics**: Protection of IPR, staying away from plagiarism are important. Student will be able to apply ethical principles and commit to professional ethics, responsibilities and norms of the engineering practice.

**PO**9. **Individual and teamwork**: United we grow, divided we fall is a culture at MUJ. Thus, an outgoing student will be able to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO**10. **Communication**: Communicate effectively for all engineering processes & activities with the peer engineering team, community and with society at large. Clarity of thoughts, being able to comprehend and formulate effective reports and design documentation, make effective presentations, and give and receive clear instructions.

**PO**11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in varied environments.

**PO12. Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**Program Specific Outcomes (PSOs)**

At the end of the B Tech CSE program, the student:

1. Will be able to design, develop and implement efficient software for a given real life problem.
2. Will be able to apply knowledge of AI, Machine Learning and Data Mining in analysing big data for extracting useful information from it and for performing predictive analysis.
3. Will be able to design, manage and secure wired/ wireless computer networks for transfer and sharing of information.

**Assessment Plan:**

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| --- | --- | --- |
| **Sr. No.** | **Component** | **Marks** |
| 1 | Synopsis | 10 |
| 2 | Guide Marks | 20 |
| 3 | Diary Marks | 10 |
| 3 | Mid Term Presentation | 30 |
| 4 | End Term Presentation | 30 |

1. **Lesson Plan:**

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| --- | --- | --- | --- | --- |
| **S. No** | **Evaluation** | **Phase** | **Outcome/Deliverable** | **Assessment** |
| 1. | First | Discussion with guide | Synopsis | Synopsis |
| 2. | Second | Presentation | Project Version 1.0 | Mid Term Presentation |
| 3. | Third | Final Presentation and Report Writing | Project final Version/ Report | Final Presentation |

1. **Course Articulation Matrix: (Mapping of COs with POs)**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CO** | **STATEMENT** | **CORRELATION WITH PROGRAM OUTCOMES** | | | | | | | | | | | | CORRELATION WITH PROGRAM SPECIFIC OUTCOMES | | | |
| PO 1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 | PO 12 | PSO 1 | PSO 2 | PSO 3 |
| [CS1634.1]: | Identify the basic of the concepts related to the selected topics of the project and also identify the open issues. | 1 |  | 1 | 1 |  | 1 |  |  |  |  |  |  | 1 | 1 |  |
| [CS1634.2]: | To identify the depth of the problem and to propose the solution. |  | 1 | 1 | 2 |  | 1 |  |  |  |  |  |  | 1 |  |  |
| [CS1634.3]: | Use of software tools for analysis, reporting and implementation. |  |  |  |  | 2 |  |  |  |  |  |  |  |  | 2 |  |
| [CS1634.4]: | Solve real time problem and contribute to open community with ethical values by understanding systematic study |  |  | 1 |  |  | 1 |  | 1 |  |  |  |  | 1 |  | 1 |
| [CS1634.5]: | Work in team with proper contribution from individual and managing lifelong learning. |  |  |  |  |  |  |  |  | 1 | 1 | 1 | 1 |  |  |  |
| [CS1634.6]: | Learning software development skills and practices. |  |  |  |  |  |  |  |  |  |  | 2 | 2 |  | 1 | 1 |

**1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

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