***Shram Sadhana Bombay Trust’s***

**COLLEGE OF ENGINEERING AND TECHNOLOGY,**

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**Included under section 2 (f) & 12 (B) of the UGC Act, 1956**

**ISO 9001: 2008 certified**

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ISO 9001:2008

**DEPARTMENT OF COMPUTER ENGINEERING**

**Laboratory Manuals**

**Class: B.E. Computer (Term-I)**

**Subject: Computer Design Lab**

**Academic Year: 2022-23**

**Semester: VII**

**Name of the Faculty: Dinesh D. Puri**

**DEPARTMENT OF COMPUTER ENGINEERING**

**Vision of the Department**

To emerge as the leading Computer Engineering department for inclusive development of students.

**Mission of the Department**

To provide student-centered conducive environment for preparing knowledgeable, competent and value-added computer engineers.

**DEPARTMENT OF COMPUTER ENGINEERING**

**Programme Educational Objectives**

**PEO 1. Core Knowledge**

Computer engineering graduates will have the knowledge of basic science and Engineering skills, Humanities, social science, management and conceptual and practical understanding of core computer engineering area with project development.

**PEO 2. Employment**

Computer engineering graduates will have the knowledge of Industry-based technical skills to succeed in entry level engineering position at various industries as well as in academics.

**PEO 3. Professional Competency**

Computer engineering graduates will have the ability to communicate effectively in English, to accumulate and disseminate the knowledge and to work effectively in a team with a sense of social awareness.

**DEPARTMENT OF COMPUTER ENGINEERING**

**Programme Outcomes**

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: 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.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: 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.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
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 multidisciplinary environments.
12. 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)**

Computer Engineering Graduates will be able to:

1. Software Systems Development: Apply the theoretical concepts of computer engineering and practical knowledge in analysis, design and development of software systems.
2. Open Source Software: Demonstrate familiarity and practical competence with a broad range of programming languages and open source platforms.
3. Computer Proficiency: Exhibit proficiency through latest technologies in demonstrating the ability for work efficacy to the industry &society.

**DEPARTMENT OF COMPUTER ENGINEERING**

**Subject Name: Computer Design Lab**

**Course Outcomes**

|  |  |
| --- | --- |
| **CO1** | Demonstrate LEX and YACC tools. |
| **CO2** | Design Lexical Analyzer. |
| **CO3** | Design Syntax Analyzer. |
| **CO4** | Design Code optimization |
| **CO5** | Design Code Generator. |

**CO-PO-PSO Mapping for Computer Design Lab**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| **CO1** | 2 | 1 |  | 1 | 2 |  |  |  |  |  |  | 1 |  | 2 | 2 |
| **CO2** | 3 | 2 | 1 | 2 | 2 | 1 |  | 1 |  | 2 | 1 | 1 | 1 | 2 | 2 |
| **CO3** | 3 | 2 | 1 | 2 | 2 | 1 |  | 1 |  | 2 | 1 | 1 | 1 | 2 | 2 |
| **CO4** | 3 | 2 | 1 | 2 | 2 | 1 |  | 1 |  | 2 | 1 | 1 | 1 | 2 | 2 |
| **CO5** | 3 | 2 | 1 | 2 | 2 | 1 |  | 1 |  | 2 | 1 | 1 | 1 | 2 | 2 |
|  | 2.8 | 1.8 | 1 | 1.8 | 2 | 1 |  | 1 |  | 2 | 1 | 1 | 1 | 2 | 2 |

**B.E. Computer Sem-VII**

**Academic Year 2022-23**

**Computer Design Lab**

**List of Experiment**

|  |  |
| --- | --- |
| **Sr. No.** | **Title** |
| 1 | Implement a lexical analyser for a subset of C |
| 2 | Implement a lexical analyser of identification of numbers |
| 3 | Implement a Calculator using LEX and YACC. |
| 4 | Implementation of Context Free Grammar |
| 5 | Implementation of code generator |
| 6 | Implement Deterministic Finite Automata |