

# OBJECT ORIENTED PROGRAMMING LABORATORY

# COURSE TEMPLATE

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | **Department** |  | | | | |
| **2** | **Course code** |  | | | | |
| **3** | **Course title** |  | | | | |
| **4** | **Semester** |  | | | | |
| **5** | **Regulations** |  | | | | |
| **6** | **Structure of course** | **Practical** | | | | |
| Lecture Hours | Practical Hours | | Credits | |
|  |  | |  | |
| 7 | **Course offered** **(Tick one)** | Odd Semester Even Semester | | | | |
| **8** | **Course coordinator** | | | | | |
| **9** | **Date approved** | |  | | | |
| **10** | **Course webpage** | |  | | | |
| **11** | **Course prerequisites** | | **Level**  **(UG / PG)** | **Course Code** | **Course Title** | **Semester** |
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**12. Course overview**

**(Describe course overview)**

**13. Course objectives**

**The students will try to learn:**

|  |  |
| --- | --- |
| I |  |
| II |  |
| III |  |
| IV |  |

**14. Course outcomes**

**After successful completion of the course, students should be able to:**

|  |  |
| --- | --- |
| **S.No** | **Course outcome description** |
| CO 1 |  |
| CO 2 |  |
| CO 3 |  |
| CO 4 |  |
| CO 5 |  |
| CO 6 |  |

**15. Employability skills**

**Example: Communication skills / Programming skills / Project based skills /**

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**16. Content delivery / Instructional methodologies:**

**Tick the appropriate content delivery / instructional methodologies of the following.**

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| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Lab day to day evaluation |  | Demo Video |  | Viva-voce Questions |  | Probing further  Questions |
|  | Competitions |  | Open Ended Experiments |  | Hackathons |  | Certifications |

**17. Evaluation methodology**

Each laboratory will be evaluated for a total of 100 marks consisting of 40 marks for internal assessment and 60 marks for semester end lab examination. Out of 40 marks of internal assessment, continuous lab assessment will be done for 20 marks for the day to day performance including viva voce, 10 marks for the final internal lab assessment and remaining 10 marks for The remaining 10 marks are for Laboratory Report/Project and Presentation, which consists of the Design (or) Software / Hardware Model Presentation (or) App Development (or) Prototype Presentation submission which shall be evaluated after completion of laboratory course and before semester end practical examination.

**Continuous Internal Assessment (CIA):**

CIA is conducted for a total of 40 marks (Table 1), with 20 marks for continuous lab assessment during day-to-day performance including viva voce, 10 marks for final internal lab assessment and remaining 10 marks for Laboratory Report / Project and Presentation.

**Table: 1 CIA marks distribution**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Component | | | | Total Marks  40 |
| Type of Assessment | Day to Day performance and viva voce examination | Final internal lab assessment | Laboratory Report / Project and Presentation |
| CIA marks | 20 | 10 | 10 |

**Continuous Internal Examination (CIE):**

One CIE exams shall be conducted at the end of the 16th week of the semester. The CIE exam is conducted for 10 marks of 3 hours duration.

**1. Experiment based**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Objective** | **Analysis** | **Design** | **Conclusion** | **Viva voce** | **Total** |
|  |  |  |  |  | 20 |

2**. Programming based**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Objective** | **Analysis** | **Design** | **Conclusion** | **Viva voce** | **Total** |
|  |  |  |  |  | 20 |

The Semester End Examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the other colleges which will be decided by the Head of the institution.

**In the Semester End Examination held for 3 hours, total 60 marks are divided and allocated as shown below:**

1. 10 marks for write-up
2. 15 for experiment/program
3. 15 for evaluation of results
4. 10 marks for presentation on another experiment/program in the same laboratory course and
5. 10 marks for viva-voce on concerned laboratory course.

**18. Course content**

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| **Course Outcome: 1**  **(Write Experiments below)** |
| **Course Outcome: 2**  **(Write Experiments below)** |
| **Course Outcome: 3**  **(Write Experiments below)** |
| **Course Outcome: 4**  **(Write Experiments below)** |
| **Course Outcome: 5**  **(Write Experiments below)** |
| **Course Outcome: 6**  **(Write Experiments below)** |

**Note: One Course Outcome may be mapped to multiple number of experiments.**

**19. Course plan**

**The course plan is meant as a guideline. Probably there may be changes.**

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| **S.No** | **Topics to be covered** | **Course Outcome’s** | **Reference** |
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**20. Experiments for enhanced learning (EEL):**

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| --- | --- |
| **S.No** | **Design Oriented Experiments** |
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**21. Program outcomes and Program specific outcomes**

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| --- | --- |
| **Program 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** |  |
| **Program Specific Outcomes** | |
| **PSO1** |  |
| **PSO2** |  |
| **PSO3** |  |

**22. How program outcomes are assessed**

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| --- | --- | --- |
| **Program Outcomes** | **Strength** | **Proficiency Assessed by** |
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**3= High; 2 = Medium; 1 = Low**

**23. How program specific outcomes are assessed:**

|  |  |  |
| --- | --- | --- |
| **Program Outcomes** | **Strength** | **Proficiency Assessed by** |
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**3= High; 2 = Medium; 1 = Low**

**24. Mapping of each CO with PO(s), PSO(s):**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Outcomes** | **Program Outcomes** | | | | | | | | | | | | **PSO’s** | | | |
| **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** |
| CO 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |
| CO 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |
| CO 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| CO 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| CO 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| CO 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

**25. Justifications for CO – PO / PSO mapping - DIRECT:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Course Outcomes** | **PO’S**  **PSO’S** | **Justification for mapping (Students will be able to)** | **No. of Key competencies matched** |
| CO 1 |  |  |  |
| CO 2 |  |  |  |
| CO 3 |  |  |  |
| CO 4 |  |  |  |
| CO 5 |  |  |  |
| CO 6 |  |  |  |

**26. Total count of key competencies for CO – PO / PSO mapping**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Outcomes** | **Program Outcomes / No. of key competencies matched** | | | | | | | | | | | | **PSO’s** | | | |
| **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** |
| CO 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |
| CO 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |
| CO 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| CO 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| CO 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |
| CO 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |

**27. Percentage of key competencies CO – PO / PSO**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Outcomes** | **Program Outcomes** | | | | | | | | | | | | **PSO’s** | | |
| **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** |
| CO 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**28. Course articulation matrix PO / PSO mapping:**

CO’S and PO’S and CO’S and PSO’S on the scale of 0 to 3, 0 being no correlation, 1 being the low correlation, 2 being medium correlation and 3 being high correlation.

* 0 - 0 ≤ C ≤ 5% - No correlation
* 1 - 5 < C ≤ 40% - Low / Slight
* 2 - 40% < C < 60% - Moderate
* 3 - 60% ≤ C < 100% - Substantial / High

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Outcomes** | **Program Outcomes** | | | | | | | | | | | | **PSO’s** | | |
| **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** |
| CO 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CO 6 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Total** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Average** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **29. Assessment methodology – Direct**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CIE Exams |  | SEE Exams |  | Seminars |  |
| Laboratory Practices |  | Student Viva |  | Certification |  |
| Term Paper |  | 5 Minutes Video |  | Open Ended Experiments |  |
| Assignments |  |  |  |  |  |

## **30. Assessment methodology - Indirect**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Assessment of mini projects by experts |  | End Semester OBE Feedback |

**31. Relevance to sustainable development goals (SDGs)**

Write brief description about the course and how its relevance to SDGs.

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**Approved by: Board of Studies in the meeting conducted on -----------------------------.**

**Signature of Course Coordinator HOD**