**Project Work**

On completion of project work the student will be able to

CO1. Demonstrate in-depth knowledge on the project topic (PO1)

CO2. Identify, analyze and formulate complex problem chosen for project work to attain substantiated conclusions. (PO2)

CO3. Design solutions to the chosen project problem. (PO3)

CO4. Undertake investigation of project problem to provide valid conclusions. (PO4)

CO5. Use the appropriate techniques, resources and modern engineering tools necessary for project work. (PO5)

CO6. Apply project results for sustainable development of the society. (PO6)

CO7. Understand the impact of project results in the context of environmental sustainability. (PO7)

CO8. Understand professional and ethical responsibilities while executing the project work. (PO8)

CO9. Function effectively as individual and a member in the project team. (PO9)

CO10. Develop communication skills, both oral and written for preparing and presenting project report. (PO10)

CO11. Demonstrate knowledge and understanding of cost and time analysis required for carrying out the project. (PO11)

CO12. Engage in lifelong learning to improve knowledge and competence in the chosen area of the project. (PO12)

**Evaluation Rubrics for Project work:**

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| --- | --- | --- | --- |
| **Rubric (CO)** | **Excellent (Wt = 3)** | **Good (Wt = 2)** | **Fair (Wt = 1)** |
| **Review-1** | | | |
| ***Selection of Topic (CO1)*** | Selected a latest topic through complete knowledge of facts and concepts | Selected a topic through partial knowledge of facts and concepts | Selected a topic through improper knowledge of facts and concepts |
| ***Analysis and Synthesis (CO2)*** | Thorough comprehension through analysis/ synthesis | Reasonable comprehension through analysis/ synthesis | Improper comprehension through analysis/ synthesis |
| ***Literature Survey (CO4)*** | Extensive literature survey with standard references | Considerable literature survey with standard references | Incomplete literature survey with substandard references |
| ***Ethical Attitude (CO8)*** | Clearly understands ethical and social practices. | Moderate understanding of ethical and social practices. | Insufficient understanding of ethical and social practices. |
| ***Independent Learning (CO9)*** | Did literature survey and selected topic with little guidance | Did literature survey and selected topic with considerable guidance | Selected a topic as suggested by the supervisor |
| ***Oral Presentation (CO10)*** | Presentation in logical sequence with key points, clear conclusion and excellent language | Presentation with key points, conclusion and good language | Presentation with insufficient key points and improper conclusion |
| ***Report Writing (CO10)*** | Status report with clear and logical sequence of chapters using excellent language | Status report with logical sequence of chapters using understandable language | Status report not properly organized |
| ***Continuous Learning (CO12)*** | Highly enthusiastic towards continuous learning | Interested in continuous learning | Inadequate interest in continuous learning |
| **Review-2** | | | |
| ***Analysis and Synthesis (CO2)*** | Thorough comprehension through analysis/ synthesis | Reasonable comprehension through analysis/ synthesis | Improper comprehension through analysis/ synthesis |
| ***Problem Solving (CO3)*** | Thorough comprehension about what is proposed in the literature papers | Reasonable comprehension about what is proposed in the literature papers | Improper comprehension about what is proposed in the literature |
| ***Literature Survey (CO4)*** | Extensive literature survey with standard references | Considerable literature survey with standard references | Incomplete literature survey with substandard references |
| ***Usage of Techniques & Tools (CO5)*** | Clearly identified and has complete knowledge of techniques & tools used in the project work | Identified and has sufficient knowledge of techniques & tools used in the project work | Identified and has inadequate knowledge of techniques & tools used in the project work |
| ***Project work impact on Society (CO6)*** | Conclusion of project work has strong impact on society | Conclusion of project work has considerable impact on society | Conclusion of project work has feeble impact on society |
| ***Project work impact on Environment (CO7)*** | Conclusion of project work has strong impact on Environment | Conclusion of project work has considerable impact on environment | Conclusion of project work has feeble impact on environment |
| ***Ethical attitude (CO8)*** | Clearly understands ethical and social practices. | Moderate understanding of ethical and social practices. | Insufficient understanding of ethical and social practices. |
| ***Independent Learning (CO9)*** | Did literature survey and selected topic with little guidance | Did literature survey and selected topic with considerable guidance | Selected a topic as suggested by the supervisor |
| ***Oral Presentation (CO10)*** | Presentation in logical sequence with key points, clear conclusion and excellent language | Presentation with key points, conclusion and good language | Presentation with insufficient key points and improper conclusion |
| ***Report Writing (CO10)*** | Status report with clear and logical sequence of chapters using excellent language | Status report with logical sequence of chapters using understandable language | Status report not properly organized |
| ***Time and Cost Analysis (CO11)*** | Comprehensive time and cost analysis | Moderate time and cost analysis | Reasonable time and cost analysis |
| ***Continuous learning (CO12)*** | Highly enthusiastic towards continuous learning | Interested in continuous learning | Inadequate interest in continuous learning |
| **External Examination** | | | |
| ***Selection of Topic (CO1)*** | Selected a latest topic through complete knowledge of facts and concepts | Selected a topic through partial knowledge of facts and concepts | Selected a topic through improper knowledge of facts and concepts |
| ***Analysis and Synthesis (CO2)*** | Thorough comprehension through analysis/ synthesis | Reasonable comprehension through analysis/ synthesis | Improper comprehension through analysis/ synthesis |
| ***Problem Solving (CO3)*** | Thorough comprehension about what is proposed in the literature papers | Reasonable comprehension about what is proposed in the literature papers | Improper comprehension about what is proposed in the literature |
| ***Literature Survey (CO4)*** | Extensive literature survey with standard references | Considerable literature survey with standard references | Incomplete literature survey with substandard references |
| ***Usage of Techniques & Tools (CO5)*** | Clearly identified and has complete knowledge of techniques & tools used in the project work | Identified and has sufficient knowledge of techniques & tools used in the project work | Identified and has inadequate knowledge of techniques & tools used in project work |
| ***Project work impact on Society (CO6)*** | Conclusion of project work has strong impact on society | Conclusion of project work has considerable impact on society | Conclusion of project work has feeble impact on society |
| ***Project work impact on Environment (CO7)*** | Conclusion of project work has strong impact on Environment | Conclusion of project work has considerable impact on environment | Conclusion of project work has feeble impact on environment |
| ***Ethical attitude (CO8)*** | Clearly understands ethical and social practices. | Moderate understanding of ethical and social practices. | Insufficient understanding of ethical and social practices. |
| ***Independent Learning (CO9)*** | Did literature survey and selected topic with little guidance | Did literature survey and selected topic with considerable guidance | Selected a topic as suggested by the supervisor |
| ***Oral Presentation (CO10)*** | Presentation in logical sequence with key points, clear conclusion and excellent language | Presentation with key points, conclusion and good language | Presentation with insufficient key points and improper conclusion |
| ***Report Writing (CO10)*** | Status report with clear and logical sequence of chapters using excellent language | Status report with logical sequence of chapters using understandable language | Status report not properly organized |
| ***Time and Cost Analysis (CO11)*** | Comprehensive time and cost analysis | Moderate time and cost analysis | Reasonable time and cost analysis |
| ***Continuous learning (CO12)*** | Highly enthusiastic towards continuous learning | Interested in continuous learning | Inadequate interest in continuous learning |

**Outcome Attainment Levels:**

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| --- | --- | --- | --- |
| **Review – 1**  **Review – 2**  **End Exam** | Fair | **Level 1** | If Student scored less than 70% of the total mark allotted. |
| Good | **Level 2** | If Student scored greater than 70 % and less than 90% of the total mark allotted. |
| Excellent | **Level 3** | If Student scored greater than 90% of the total mark allotted. |