

SYLLABUS
for
8th SEMESTER
B.TECH. DEGREE
in
CSE(Data Science)

(Applicable from the academic session 2024-2025)



Dr. B. C. Roy Engineering College

An Autonomous Institution

*Approved by: All India Council for Technical Education (AICTE) Affiliated
to: Maulana Abul Kalam Azad University of Technology, West
Bengal (Formerly Known as -WBUT)*

Jemua Road, Durgapur, West Bengal, India,713206



Course Name: PROJECT

Course Code: DS-881

(Semester VIII) Category: Major

1. Course prerequisite:

Programming skills acquired up to the previous semester level in Computer Science and Engineering (Data Science)

2. Course learning objectives:

It is a research-based project that requires students to apply the knowledge and skills they have acquired during their course-work to a real-world problem or research question. The project and thesis are designed to help students develop their research skills, critical thinking, and problem-solving abilities.

- To apply the knowledge and skills acquired during the coursework to a real-world problem or research question
- To develop research skills, including literature review, research design, data collection, data analysis, and interpretation
- To develop critical thinking and problem-solving abilities
- To produce a high-quality thesis that demonstrates the student's ability to conduct independent research
- To develop communication skills, including written and oral presentation

3. Teaching methodology and evaluation system for the course:

- Regular Meetings: Regular meetings between the student and supervisor to discuss progress, provide feedback, and set goals.
- Progress Reports: The student submits regular progress reports, outlining their progress, challenges, and plans for the next stage of the project.
- Peer Review: The student's work is reviewed by peers, providing feedback and suggestions for improvement.
- Workshops and Seminars: The student participates in workshops and seminars, learning about research methods, academic writing, and presentation skills.
- Online Resources: The student has access to online resources, such as research articles, tutorials, and videos, to support their learning.
- Guest Lectures: Guest lectures from industry experts or researchers, providing insights into real-world applications and current research trends.
- Research Conferences: The student attends research conferences, presenting their research and learning from others in the field.
- Academic Writing Support: The student receives support and guidance on academic writing, including structure, style, and grammar.
- Time Management: The student receives guidance on time management, including setting goals, prioritizing tasks, and managing deadlines.
- Feedback and Evaluation: The student receives regular feedback and evaluation, including constructive criticism and suggestions for improvement.

Total Marks: 100

Passing criteria: 50% and above

- Literature review (10%)
- Research proposal (10%)
- Data collection and data analysis (15%)
- Results and discussion (15%)
- Conclusion and recommendations (10%)
- Thesis writing (20%)
- Thesis defense (20%)

4. **Course Content:**

Course Name: Project

Course Code: DS-881

Hours per Week: 0L:0T:20P

Credits: 10

| Description | Tentative Timeline(overlapped) |
|--|--------------------------------|
| 1. Literature Review - Conduct a comprehensive literature review on the research topic - Identify the research gap and formulate a research question - Develop a research proposal | 4weeks |
| 2. Research Design - Develop a research design, including data collection and data analysis methods - Identify the sampling strategy and sample size - Develop a data collection plan | 4weeks |
| 3. Data Collection - Collect data using the methods identified in the research design - Ensure that the data is accurate, reliable, and valid | 8 weeks |
| 4. Data Analysis - Analyze the data using the methods identified in the research design - Identify the trends, patterns, and relationships in the data | 8 weeks |

| | |
|--|---------|
| <p>5. Results and Discussion</p> <ul style="list-style-type: none"> - Present the results of the data analysis - Discuss the implications of the findings - Identify the limitations of the study | 4 weeks |
| <p>6. Conclusion and Recommendations</p> <ul style="list-style-type: none"> - Summarize the main findings of the study - Provide recommendations for future research | 2 weeks |

| | |
|---|-----------|
| -Identify the contributions of the study to the field | |
| <p>7. Report Writing</p> <ul style="list-style-type: none"> - Write a high-quality thesis that demonstrates the student's ability to conduct independent research - Ensure that the thesis is well-organized, well- written, and free of errors | 12 weeks) |
| <p>8. Presentation</p> <ul style="list-style-type: none"> - Defend the thesis in front of a panel of examiners - Answer questions and provide clarification on the research | 2 weeks |

5. Course outcomes

| Course Outcomes | Details/Statements | Action Verb | Knowledge Level |
|-----------------|---|-------------|-----------------|
| DS-881.1 | Apply knowledge of research methodology to identify a research problem and develop a research proposal | Apply | Apply |
| DS-881.2 | Conduct independent research and collect data | Conduct | Analyze |
| DS-881.3 | Communicate research findings effectively through a thesis | Communicate | Understand |
| DS-881.4 | Apply critical thinking and problem-solving skills To analyze complex data | Apply | Analyze |
| DS-881.5 | Demonstrate expertise in a specialized area of research | Demonstrate | Evaluate |
| DS-881.6 | Integrate knowledge and skills to produce a high-quality thesis that contributes to the body of knowledge | Integrate | Create |

6. Mapping of the course outcomes to program outcomes

| | PO1 | PO 2 | PO 3 | PO 4 | PO 5 | PO 6 | PO 7 | PO 8 | PO 9 | PO 10 | PO 11 |
|-----|-----|------|------|------|------|------|------|------|------|-------|-------|
| CO1 | 1 | 1 | 1 | 1 | 1 | - | 1 | 3 | 2 | - | 1 |
| CO2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 3 | 1 | 1 | 2 |
| CO3 | 2 | 1 | 1 | 2 | - | 1 | 1 | 3 | 1 | 1 | 1 |
| CO4 | 2 | 1 | 1 | 1 | 1 | - | 1 | 3 | 1 | - | 2 |
| CO5 | 1 | 1 | 2 | 1 | - | 1 | 1 | 3 | 1 | - | 2 |
| CO6 | 1 | 1 | 1 | 1 | - | - | 1 | 3 | 1 | - | 2 |

7. Mapping to program specific outcome (PSO)

| | PSO 1 | PSO 2 | PSO 3 | PSO 4 |
|-----|-------|-------|-------|-------|
| CO1 | 3 | 2 | 2 | -- |
| CO2 | 3 | 2 | 2 | -- |
| CO3 | 3 | 1 | 1 | -- |
| CO4 | 3 | 1 | 1 | -- |
| CO5 | 3 | 1 | -- | 2 |
| CO6 | 3 | 1 | -- | -- |

End of Syllabus