SYLLABUS
for
8th SEMESTER

B.TECH. DEGREE

in

MECHANICAL ENGINEERING

(Applicable from the academic session 2024-2025)
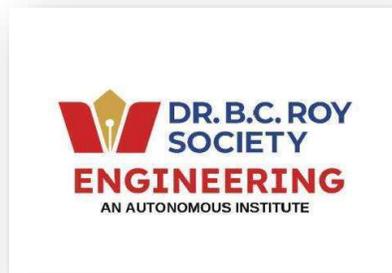
Dr. B. C. Roy Engineering College

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 -V

Course Code: ME-423

(Semester VIII) Category: Major

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1. Course Prerequisite:

Skills up to the previous semester level in Mechanical Engineering, Programming skill

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-V

Course Code: ME-423

Hours per Week: 0L:0T:24P

Credits: 12

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

5. Results and Discussion
   - Present the results of the data analysis
   - Discuss the implications of the findings
   - Identify the limitations of the study
	4 weeks

6. Conclusion and Recommendations
   - Summarize the main findings of the study
   - Provide recommendations for future research
	2 weeks

-Identify the contributions of the study to the field	

7. Report Writing
   - 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)

8. Presentation
   - 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/Statement	Action Verb	Knowledge Level
ME-423.1	Apply knowledge of research methodology to identify a research problem and develop a research proposal	Apply	Apply
ME-423.2	Conduct independent research and collect data	Conduct	Analyze
ME-423.3	Communicate research findings effectively through a thesis	Communicate	Understand
ME-423.4	Apply critical thinking and problem-solving skills To analyze complex data	Apply	Analyze
ME-423.5	Demonstrate expertise in a specialized area of research	Demonstrate	Evaluate
ME-423.6	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	PO1 0	PO1 1
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)

	PSO1	PSO2
CO1	3	2
CO2	3	2
CO3	3	1
CO4	3	1
CO5	3	1
CO6	3	1

End of Syllabus