

Sardar Patel University, Balaghat (M.P.)



Curriculum

For

M.Tech.

Industrial Management Engineering

From Session: 2024-25



SARDAR PATEL UNIVERSITY, BALAGHAT (MP)

School of Engineering and Technology

Syllabus

Subject Name: Dissertation Part-II Subject Code :MIM041

Course: M.Tech. Branch: Industrial Management and Engineering Semester: IV

Academic Session: 2024-25

Course Objectives

1. Equip students with the ability to apply advanced research methodologies and techniques to address complex problems in their chosen field of study.
2. Foster skills for conducting independent research, allowing students to formulate, design, and implement a significant research project.
3. Teach students effective data collection methods and analytical techniques to support their research objectives and ensure validity and reliability.
4. Guide students in synthesizing existing literature to position their research within the current body of knowledge and identify gaps.

Course Contents

1. Advanced Research Methodologies:
 - Application of advanced industrial engineering tools and techniques.
 - Development of models for optimization, simulation, and decision-making.
 - Integration of software tools like MATLAB, Python, R, etc., where relevant.
2. Data Collection & Analysis:
 - Collection and validation of data (quantitative and qualitative methods).
 - Use of statistical tools and advanced analytics (SPSS, MINITAB, etc.).
 - Design of experiments (DOE) and case studies relevant to the topic.
3. Problem-Solving and Innovation:
 - Application of industrial engineering principles to solve complex problems in areas like production systems, supply chain management, operations research, and human factors.
 - Proposal of innovative solutions for real-world industrial management challenges.
4. Project Planning & Execution:
 - Structuring of research work into achievable milestones.

- Monitoring and timely reporting of progress to the supervisor.
 - Documenting project development through detailed progress reports.
5. Dissertation Writing:
- Compilation of research work into a comprehensive dissertation.
 - Technical writing skills including referencing, citation styles, and formatting (LaTeX/Word).
 - Ensuring coherence between literature review, problem statement, methodology, results, discussion, and conclusions.
6. Presentation & Defense:
- Preparation of a final presentation summarizing research findings.
 - Public defense in front of an academic panel, showcasing problem-solving techniques, results, and contributions to the field of industrial engineering.
 - Addressing questions and feedback from the panel and peers.

Reference Materials:

- Journals, research papers, and technical reports relevant to the topic.
- Software manuals and textbooks on industrial engineering tools used.
- Industry case studies and benchmarking reports.

Course Outcomes

1. Students will successfully conduct independent research, demonstrating the ability to formulate, design, and implement a substantial project in their field of study.
2. Students will effectively collect and analyze data using appropriate methodologies, ensuring the reliability and validity of their findings.
3. Students will critically synthesize and integrate relevant literature, situating their research within the existing body of knowledge and identifying gaps.
4. Students will produce a well-structured and coherent dissertation that adheres to academic standards, clearly communicating their research objectives, methods, and results.