

PC503- Programming Lab

Guidelines for mini project for M.Tech. students (Academic Year-2025)

Project Relevance:

- Select a project that aligns with your M.Tech. specialization (e.g., Data Science, Signal Processing, Embedded Systems, IoT, AI/ML).
- The project should solve a practical problem relevant to your domain.

Dataset Requirement:

- Use a publicly available dataset that fits your project objective.
- For Embedded Systems projects, if real sensor data is collected (e.g., IoT sensors), structure it into CSV/Excel formats for analysis with Pandas.

Modular Design:

- Structure the project into distinct modules, for example:
 - Data Acquisition & Pre-processing
 - Feature Extraction
 - Model Training/Inference
 - Visualization & Reporting
 - Embedded Hardware Control Logic (if applicable)

Tools & Libraries:

- You may demonstrate the use of:
 - **NumPy** → For numerical computations (sensor data arrays, signal processing, etc.)
 - **Pandas** → For data manipulation (CSV reading, DataFrames for sensor logs)
 - **Scikit-learn** → For ML algorithms (classification, regression, clustering)
 - **Matplotlib** → For data visualization (sensor trends, model performance plots)

IEEE Conference Paper Format (6 Pages):

Prepare a project report in IEEE conference paper format consisting of:

- Title & Abstract
- Introduction
- Literature Review
- Methodology / Proposed Work
- Experimental Setup and Results / Observations
- Discussion
- Conclusion & Future Work
- References (IEEE Style)

Original Work Disclaimer:

- All submissions must reflect original work.
- Plagiarism or reuse of existing projects will result in zero marks.
- A maximum of 15% plagiarism will be accepted in the paper, provided that all external references are properly cited.

Deliverables (Submission Package):

- Dataset Files (CSV, Images, Sensor Logs, etc.)
- Code Folder:
 - Organized, well-commented Python scripts.
 - A README file with instructions for running the code.
- Project Report (Word/Latex file in IEEE Format)

Submission Deadline:

November 20, 2025