Parala Maharaja Engineering College, Berhampur, Sitalapalli, Odisha, 761003

Summer Internship-2025

On

"**Design of Electrical Systems using MATLAB**"

Organized By

Department of Electrical Engineering

23rd June - 22nd July 2025

Head of Department

Prof. (Dr.) Bhagabat Panda

Faculty Coordinator

Dr. Ritanjali Behera

Assistant Professor

About PMEC

Parala Maharaja Engineering College (P.M.E.C), Berhampur came into existence in the year 2009 on 26th April, as a constituent Government Engineering College of Biju Patnaik University of Technology (BPUT), Odisha, India with an area of nearly 80 acres. Now this college acts as a Government Autonomous college affiliated to BPUT, Odisha from the year 2021. It has 8 B.Tech programmes and 5 M.Tech programmes with 10 departments. It is also acting as Nodal Centre of Research under BPUT to conduct Ph.D. programmes.

About EE

The Electrical Engineering at PMEC was founded in 2009 under the aegis of the Government of Odisha. The student intake capacity in B.Tech program is 120, the Post Graduate program in Power System Engineering is 18 and also offering Ph.D. programme. The department focuses on utilizing its resources to craft creative minds for searching solutions to the real-world problems. The Department has qualified faculty members engaged in teaching and research with the aim of achieving excellence in the field of electrical Engineering. The department has set up state of the art laboratories like Power Electronics and Drives Lab., Power System Lab., Control and Instrumentation Lab., Basic Lab., MATLAB etc.

About the Internship

This internship program is to provide participants with comprehensive knowledge and hands-on experience in the design, modeling, and simulation of electrical systems using MATLAB and Simulink. The program aims to bridge the gap between academic concepts and industry practices by equipping students with the skills necessary to analyze, simulate, and optimize electrical circuits, Power electronics, power systems, and control systems. Through practical sessions, real-time case studies, and mini-projects, the program will enhance participants' problem-solving abilities and prepare them for careers in core electrical engineering, automation, renewable energy, and electric vehicle industries.

Eligibility Criteria

- Students pursuing/completed Degree/Diploma in Electrical Engineering or ITI are eligible to participate.

Registration & Selection Process

- The interested & eligible participants must register in the prescribed online Google form.
- The number of seats is limited and the selection list will be based on First-cum-First Serve (FCFS) basis.
- Certificate of internship will be provided based on satisfactory attendance and performance.

Important Dates

- Deadline for submission of online registration form: **22-06-2025 (On-spot registration is available for vacant seats on 23-06-2025)**
- **Internship start date: 23-06-2025**
- **Internship end date: 22-07-2025**
- **Mode:** Offline
- **Timing:** 10:00 AM – 05:00 PM

Registration Fee

- For all participants: **Rs. 1000/-.** The bank details for submitting the registration fee are given below.
- Candidates are requested to bring the payment slip at the time of enrolment.

Account Name	HOD EE PMEC
Account Number	110161964014
Bank Name	Canara Bank
Branch	Sitalapalli, PMEC Campus
IFSC Code	CNRB0017998

Course Plan

Week 1:

Fundamentals of MATLAB and Electrical System Basics:

•Introduction to Electrical Systems, MATLAB and SIMULINK
•Modeling of Electrical Circuits
•Hands-on Training: live demonstrations and guided lab work in MATLAB/Simulink.
•Mini Task: Simulate a Electric circuit
•Progress check & Feedback

Week 2:

Introduction to Power Electronics and Control Systems:

•Introduction to Power Electronic Devices
•Modeling Rectifiers, Inverters, and DC-DC Converters
•Transfer Functions and Block Diagrams
•Open-loop and Closed-loop Control Systems
•PID Controller Design and Simulation
•Mini Task: Design a controlled DC-DC buck converter system
•Hands-on Training: live demonstrations and guided lab work in MATLAB/Simulink.
•Progress check & Feedback

Week 3:

Power Systems and Circuit Simulation:

•Introduction to AC circuit Modeling, Power Factor, Real and Reactive Power Calculations
•Introduction to ETAP Software
•Load Flow Analysis (MATLAB / ETAP)
•Fault Analysis: Symmetrical and Unsymmetrical Faults
•Mini Task: Load Flow and Fault Simulation in a Small Grid
•Progress check & Feedback

Week 4:

Advanced Applications, Project Work, and Report:

•Apply concepts to real-world applications in EVs and renewable energy.
•Modeling of Solar PV and Wind Turbine Systems
•Project Report Using LATEX and MS Office, PPT
•Final Presentation and Report Submission
•Evaluation and Certificate Distribution

Link for online registration form:

https://docs.google.com/forms/d/e/1FAIpQLSdiYlBXQqchcm_OAt6lDEnmjJHW2N__NicejKUKMosDdLIeDA/viewform?usp=header

For any queries, contact :

Dr. Bhagabat Panda, Professor (HOD), EE
Mob. No- 9337175186
Dr. Ritanjali Behera, Assistant Professor, EE
Mob. No-6371308830