Department of Electrical Engineering

भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

Power Electronics and Power Systems (PEPS)

CURRICULUM

POWER ELECTRONICS

1. Analysis, Design and Control of Power Electronics Converters
2. Multilevel Inverters
3. Grid Integration of PV systems
4. Power Converters for Renewable Energy Applications
5. Power Electronics Lab

POWER SYSTEMS

1. Steady-State Power System Analysis
2. Power System Protection
3. Power System Dynamics and Control
4. PMU and WAMS
5. HVDC and FACTS
6. Smart Grid
7. Power Systems Lab

DRIVES

1. Modeling and Control of Electric Drives
2. Electrical Machine Analysis and Control

INDUSTRIAL LECTURES

- Practical aspects of digital relays, Protection logic design and latest advancements
- Role of Power electronics in Electric vehicles
- Evolution of EV industry
- Operation and control of Indian National Grid-An overview
- Smart Grid technologies and standards
- Deregulated Electricity Markets-An overview
- Design and Development of grid connected converters as per industry standards
- Overview and roadmap for autonomous asset management for electrical protection system
- Electrical Actuation system for aerospace applications

ON GOING RESEARCH

Power Systems

- Protection of Distribution Systems integrated with PV.
- SmartGrid.
- Campus Energy data analytics.
- Cost benefit analysis of V2B framework.
- Self-healing capabilities of distribution system using AI and ML applications.
- PMU and WAMS.

Power Electronics

- Modeling and Control of Dual Active Bridge Converter.
- Hybrid DC bus design Grid tied four leg Inverter.

ON GOING RESEARCH

Drives

- Fault Tolerant Techniques for Multiphase machines.
- Poly-phase modulation of multiphase machines.
- Performance improvement ofmultiphase machines.
- PMSM and BLDC Modeling and control.

Renewables

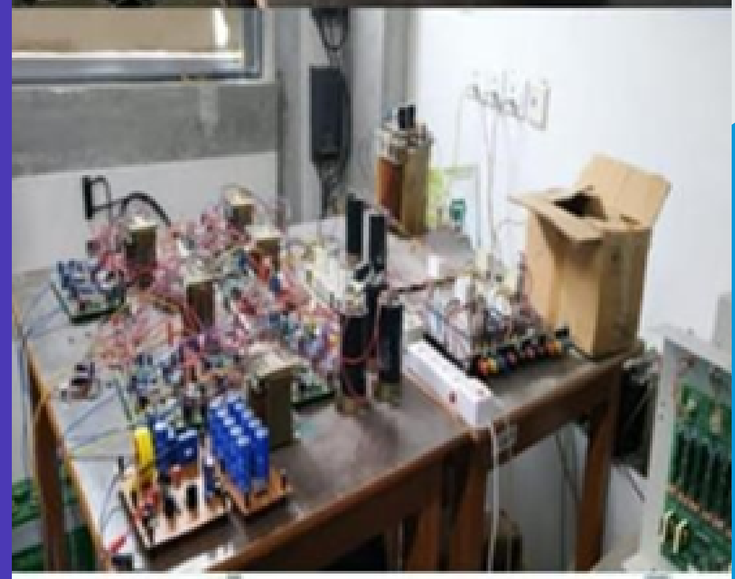
- DFIG based closed loop voltage control.
- Soft computing optimization for accurate RPPT/LPPT
- Micro-grid protectionsystem

LAB FACILITIES

- Power Electronics and Drives Lab.
- Power Electronics and Power Systems Lab.
- Smart Grid Lab.
- Renewable Energy Lab.
- Smart Power Applications and Renewable control Lab.
- Applied Power ElectronicsLab.

ADVANCED CONTROLLERS/ SOFTWARE

- DS1104 R&D Controller Board-dSPACE.
- National Instruments-N19205.
- MicroLabBox-Dspace.
- OPAL-RT.
- Ansys.
- DSP-TMS320F28069.
- MATLAB/Simulink.
- Control Desk Dspace.
- PSCAD,
- PSSE.
- kiCAD.



STUDENTS

Research Assistant

1. G Uma Maheswari
2. Vrishabh Randive

Teaching Assistant

1. Basude Harish Kumar
2. Arnab Mondal
3. Geetla Sindhu
4. Danthaluru Venkata Uday Kumar Reddy

Self Sponsered

1. Sandepudi Keerthana
2. Vipul Vilas Nandedkar
3. Krishna Mohan Sharma
4. Animesh Nayak

FACULTY

DR. K. SIVAKUMAR
ASSOCIATE PROFESSOR

Areas of Interest :

Multilevel inverters, open-end winding induction motor drives, Switched Mode Power Conversion, microgrids, Power quality, and control.

Email: ksiva@ee.iith.ac.in

DR. VASKAR SARKAR
ASSOCIATE PROFESSOR

Areas of Interest :

Power system restructuring, voltage stability, transmission expansion planning, microgrids, distribution system analysis, power quality.

Email:vaskar@ee.iith.ac.in

DR. RAVIKUMAR BHIMASINGU
ASSOCIATE PROFESSOR

Areas of Interest :

Computer-aided power system analysis and modeling, AI techniques applications for power systems security, Power System protection and optimization Distribution system automation, Wide Area Monitoring, Protection and Control.

Email: ravikumar@ee.iith.ac.in

DR. PRADEEP KUMAR YAMULA
ASSOCIATE PROFESSOR

Areas of Interest :

Smart Grids, Power System Control Centers, Information Technology Architectures, Ontologies for Power System Events, Common Information Model (CIM), Interoperability and Standards.

Email: ypradeep@ee.iith.ac.in

DR. SESHADRI SRAVAN KUMARV
ASSISTANT PROFESSOR

Areas of Interest :

Grid-Connected Renewable Energy Systems, Micro Grids, Wide Area Monitoring & Control.

Email: seshadri@ee.iith.ac.in

DR. RUPESH WANDHARE
ASSISTANT PROFESSOR

Areas of Interest :

Power Electronics, Electric Drives, Renewable Energy Sources, Distributed Energy Generation, Standalone and Hybrid Energy Generation, Micro-grid, Design of Power Conditioning Units for Solar Photovoltaic, Fuel Cell, and Wind Energy Generation.

Email: rupesh@ee.iith.ac.in

Contact Us

Student Coordinators

G UMA MAHESWARI

ee19mtech01009@iith.ac.in

Mob.+91- 8639979045

VRISHABH RANDIVE

ee19mtech01011@iith.ac.in

Mob.+91- 7724068717

MAIL

office.placement@iith.ac.in

Dr. Amit Acharyya

amit_acharyya@iith.ac.in

Department Advisor

Dr. Abhinav Kumar

abhinavkumar@iith.ac.in

Faculty In-charge for placements