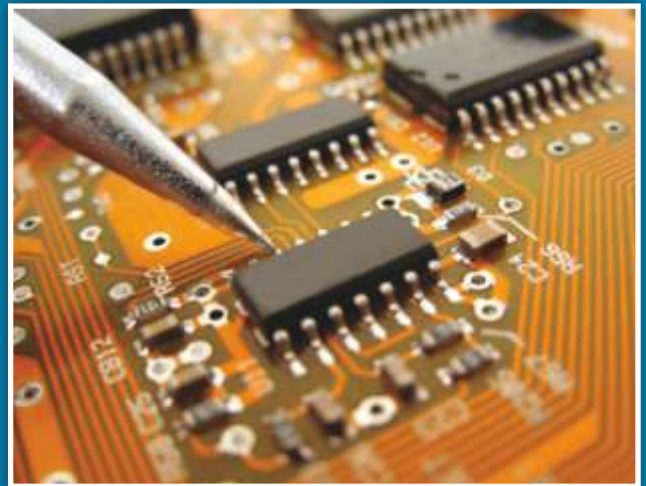
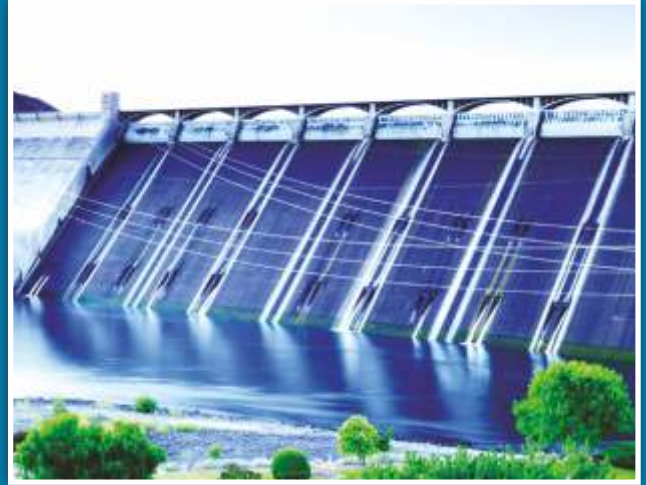


DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING



NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA
SURATHKAL, P.O. SRINIVASNAGAR – 575025
KARNATAKA, INDIA

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

INSTITUTE VISION

To facilitate transformation of students into good human beings, responsible citizens and competent professionals, focusing on assimilation, generation and dissemination of knowledge.

INSTITUTE MISSION

- Impart quality education to meet the needs of profession and society, and achieve excellence in teaching-learning and research.
- Attract and develop talented and committed human resource, and provide an environment conducive to innovation, creativity, team-spirit and entrepreneurial leadership.
- Facilitate effective interactions among faculty and students, and foster networking with alumni, industries, institutions and other stake-holders.
- Practice and promote high standards of professional ethics, transparency and accountability.

ABOUT THE DEPARTMENT

The Department of Electrical and Electronics Engineering was established right from the inception of the institute i.e., on August 6, 1960, with the under-graduate programme. The post-graduate programme in Power and Energy Systems was started in the year 1992. Formal research activities leading to a doctoral degree (PhD) were introduced in the year 2003. The department has always exerted the best of its effort to meet the objectives of achieving technical excellence in the areas of Electrical and Electronics Engineering such as power systems, power electronics & drive systems, energy systems, instrumentation, control, industrial automation, analog & digital electronics, signal processing and microprocessor & microcontrollers.

The department has well-equipped state-of-the-art laboratories to complement the theoretical coursework. The faculty of the department have been involved in several research projects in cutting-edge technologies and have publications in many international journals & conferences. The department also undertakes many consultancy projects from industry and other organisations. There are several full-time Ph. D. scholars pursuing research in the department, in addition to the part-time registrants. Some of the advanced equipments were procured and maintained under TEQIP-I and TEQIP-II programmes. The testing and consulting service provided by the department faculty to the nearby industries and other Govt. organizations has placed the Industry-Institute collaboration at a higher platform. The faculty members are actively engaged in the Research and Development activities with externally sponsored projects from various funding agencies like CPRI, MoPs, MoCIT, KSCST, DELL, Schneider Electric, L&T, Robert Bosch to name a few.

Students from the department are recruited by multinational Core-companies as well as IT-companies. A large number of students have been obtaining admissions into various reputed institutions in USA, Australia, Canada, Singapore, and the European Union for higher studies. Presence of our alumni at various Industries and reputed universities across the globe has helped our graduates to plan their post graduate and doctoral studies.

VISION OF THE DEPARTMENT

The Department of Electrical and Electronics Engineering strives to be a Centre of Excellence in education, training and research, producing high quality engineers and researchers. In this endeavour, the Department will continually develop knowledge and quality of staff, upgrade and create new laboratory facilities, revise the teaching program, acquire adequate new equipment to keep abreast, contribute and progress in the emerging technologies and committed for rendering the best service to the society.

MISSION OF THE DEPARTMENT

- To produce graduates with a strong foundation in the basic sciences and mathematics that will enable them to identify and solve electrical engineering problems.
- Provide students with a solid foundation in Electrical Engineering that prepares them for life-long careers and professional growth in fields of their choice.
- Provide our students with the basic skills to communicate effectively and to develop the ability to function as members of multi-disciplinary teams.
- Provide our students with a broad-based education so that they can appreciate diversity of opinion, better understand ethical issues, and develop a more global perspective.
- Provide our students with a relevant engineering design experience that is integrated across the four-year curriculum. Through those experiences we will develop in our students an understanding of the relationships between theory and practice

PROGRAMMES OFFERED

UNDER GRADUATE: The programme accreditation by NBA for full 5 years in 2015.

B.Tech. in Electrical and electronics engineering	Annual intake: 111
Admission through DASA in last five years	40

POST GRADUATE:

- M.Tech. in Power and Energy Systems Annual intake: 27
- M.Tech. (By Research) Annual intake: 01
- Admission through ICCR in last five years 07
- Department is recognised centre for QIP and QIP-Polytechnic
- Department is part of the M.Tech. programme Construction Technology and management in collaboration with L & T (list in Civil engineering department).

DOCTORAL :

Annual Intake: 09

The Department offers Ph.D. Program in areas like applications of Power Electronics to Renewable Energy Sources, Application of Soft Computing Techniques, Circuit Theory, Control Systems, Distributed Generation, Electrical Field Computations, Energy Management, Energy Systems, High Voltage Engineering, Insulation Engineering And Diagnostics, Optimization, Power Distribution System Management, Power Electronics And Drives, Power System Dynamics And FACTS Application To Powers Systems, Power System Operation And Control, Power System Restructuring And Deregulation Power System Protection, Signal Processing, Wireless Networks, Smart Grid Technologies, SMPS, System Identification And Control.

Department is recognised centre for QIP and QIP-Polytechnic.

FACULTY MEMBERS INFORMATION



Dattaraya N. Gaonkar, Ph.D. (IIT-R)

Associate Professor

Research Interest: Power System Operation and Control,
Distributed Generation, Power Electronics

<http://www.eee.nitk.ac.in/faculty/dng>

Debasisha Jena, Ph.D. (NIT-Rourkela)

Associate Professor

Research Interest: System Identifications, Neural networks
And Evolutionary Computations

<http://www.eee.nitk.ac.in/faculty/dj>



Girisha Navada H., M.Tech. (NIT-Calicut)

Assistant Professor

Research Interest: Control Systems

<http://www.eee.nitk.ac.in/faculty/hgn>

Jora M Gonda, M.E. (IISc), Ph.D. (NITK)

Associate Professor

Research Interest: Power Systems, Signal Processing,
Power Electronics and Drives

<http://www.eee.nitk.ac.in/faculty/jmg>





Kalpana R., Ph.D. (IIT-D)

Assistant Professor

Research Interest: Power Quality Improvements in SMPS

<http://www.eee.nitk.ac.in/faculty/rk>

Karthikeyan A. , Ph.D. (NIT-Trichy)

Assistant Professor

Research Interest: Power Electronics Applications to
Renewable Energy Systems

<http://www.eee.nitk.ac.in/faculty/rk>



Krishnan C.M.C, Ph.D. (Ghent University, Belgium)

Assistant Professor

Research Interest: Parametric Macromodeling of complex systems,
Predictive modelling / behavior modeling methods for
electrical energy systems

<http://www.eee.nitk.ac.in/faculty/cmck>

Manjunatha Shrama K, Ph.D. (NITK)

Associate Professor

Research Interest: Distribution System Automation and
Distributed Generation

<http://www.eee.nitk.ac.in/faculty/kms>



Nagendrappa H. Ph.D. (Univ. Of Victoria, Canada)

Assistant Professor

Research Interest: Power Electronics and Renewable Energy

<http://www.eee.nitk.ac.in/faculty/hn>

Panduranga Vittal K, Ph.D. (NITK)

Professor

Research Interest: Power System Protection and Adaptive Relaying,
Transient Behavioural Modelling of Power Apparatus & FACT devices,
Smart Grid Environment, Embedded System Application to Energy Systems

<http://www.eee.nitk.ac.in/faculty/kpv>





Parthiban P., Ph.D. (IIT-R)

Assistant Professor

Research Interest: Power Electronics and Drives

<http://www.eee.nitk.ac.in/faculty/pp>

Punekar G.S. Ph.D. (IIT-Kgp)

Professor

Research Interest: High Voltage Engineering, Electric Field Computations, Condition Monitoring & Diagnostics, Power System Protection & Safety.

<http://www.eee.nitk.ac.in/faculty/gsp>



Rzagopala K, M.Tech. (IIT-Kgp)

Associate Professor

Research Interest: Power Systems

<http://www.eee.nitk.ac.in/faculty/krg>

Rao I R, M.Tech. (Ph.D., NITK)

Assistant Professor

Research Interest: Circuit Theory, System Analysis

<http://www.eee.nitk.ac.in/faculty/irr>



Sheron Figarado Ph.D. (IISc.) (on Lien to IIT, Goa)

Assistant Professor

Research Interest: Multilevel Inverters, Induction Motor Drives, PWM Techniques

<http://www.eee.nitk.ac.in/faculty/cmck/sf>

Shubhanga K N, Ph.D. (IIT-B)

Professor

Research Interest: Power System Dynamics and FACTS devices

<http://www.eee.nitk.ac.in/faculty/kns>





Tukaram Moger, M.Tech. (IIT-K), Ph.D. (IISc)

Assistant Professor

Research Interest: Grid integration of renewable energy, power system planning and operation, Power system deregulation

<http://www.eee.nitk.ac.in/faculty/tm>

Udayakumar R Y, Ph.D. (IIT-B)

Professor(on deputation to MNIT Jaipur as Director)

Research Interest: Energy Systems, Smart Grid, Renewable Energy Resources, Power Electronics, Energy Management

<http://www.eee.nitk.ac.in/faculty/ury>



Venkatesaperumal B., Ph.D. (IIT-D)

Associate Professor & Head

Research Interest: Power Electronics and Drives, PV applications to power generation, GATE Driver for High Power Devices.

<http://www.eee.nitk.ac.in/faculty/bvp>

Vinatha U, Ph.D. (NITK)

Associate Professor

Research Interest: Power Electronics and Renewable Energy Systems

<http://www.eee.nitk.ac.in/faculty/uv>



Yellasiri Suresh, Ph.D. (NIT-Rourkela)

Assistant Professor

Research Interest: Power Electronics, Drives and Power Quality.

<http://www.eee.nitk.ac.in/faculty/ys>

Yashwant Kashyap, Ph.D (IIT- Mandi)

Assistant Professor

Research Interest: Renewable Energy Analysis, Solar Radiation Estimation and Forecasting, Soft Computing Techniques (ANN, KF, ARMA), Numerical Prediction Models.

<http://www.eee.nitk.ac.in/faculty/yashwant-kashyap>



Technical and Office Staff:

Sl. No.	Name of the Staff	Designation
Technical Staff		
1	Aruna Kumar Shetty B.	Assistant Engineer
2	Basavarajaiah A G.	Technician
3	B.S. Karunakar	Sr. Technical Assistant
4	Indiresha	Sr. Attendant
5	Jagadish S. Hegde	Sr. Technician
6	K. M. Naik	Assistant Engineer (S.G.II)
7	Santhosh Kumar S. Anchan	Technician SG - II
8	Umesha P.	Assistant Engineer
Office Staff		
9	Gangadhar S. Amin	Attendant
10	Kasturi Rohidas	Sr. Assistant

Funded Projects:

	2011-12	2012-13	2013-14	2014-15
Amount in lakhs	40 Lakhs	20 Lakhs	25.07 Lakhs	339.7 Lakhs

Project Topics

<ul style="list-style-type: none">● FPGA based Implementation of MPPT for PV System
<ul style="list-style-type: none">● Control Strategies for DVR under Distorted Grid Conditions
<ul style="list-style-type: none">● Renewable Energy Source Integrated Smart Grid Technology
<ul style="list-style-type: none">● i. Sensing Technique● ii. Super-Efficient Motor Control
<ul style="list-style-type: none">● Investigation On The Operation & Control Of Multiple Distributed Generation Resources In A Microgrid (Phase-I),sponsored by Ministry of Power Government of India through CPRI Bangalore
<ul style="list-style-type: none">● Virtual Laboratory on substation automation and industrial drives
<ul style="list-style-type: none">● FPGA Implementation of Maximum power point tracking system using Neural Networks

Technical Events Conducted [workshop/Seminar]- 2014-15: 10 Nos.

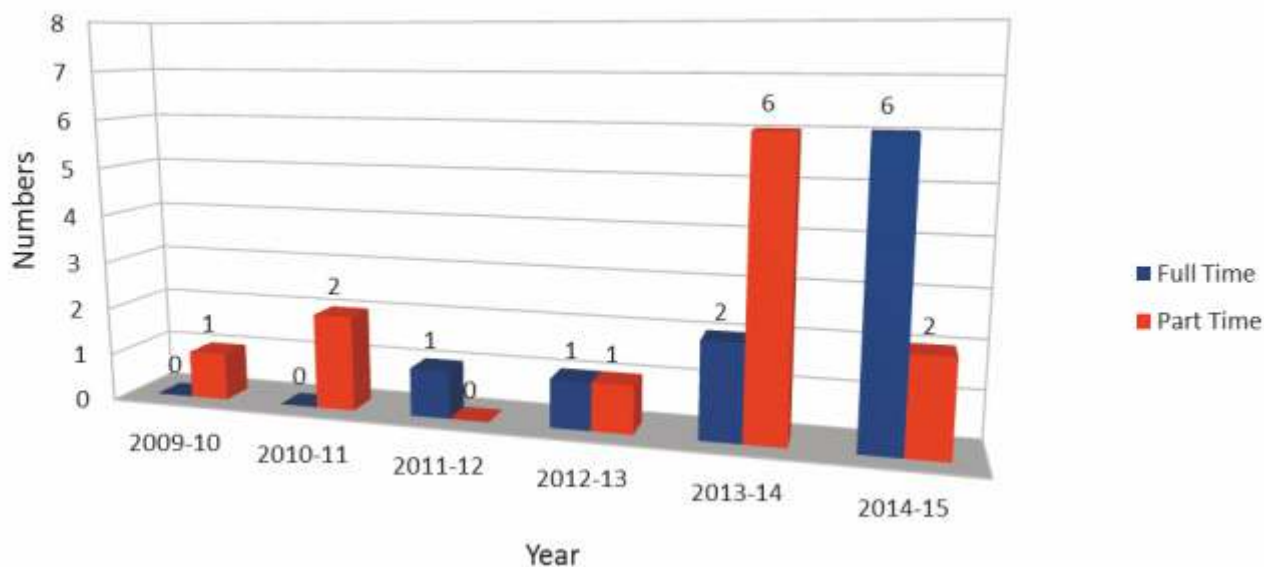
Number of M.Tech Best Thesis POSOCO National Awards (PPSA from Power Grid Corporation):

- 2013: 1
- 2014: 4
- 2015: 5

Ph.D. / M. Tech. (R) On-going – 2014-15:

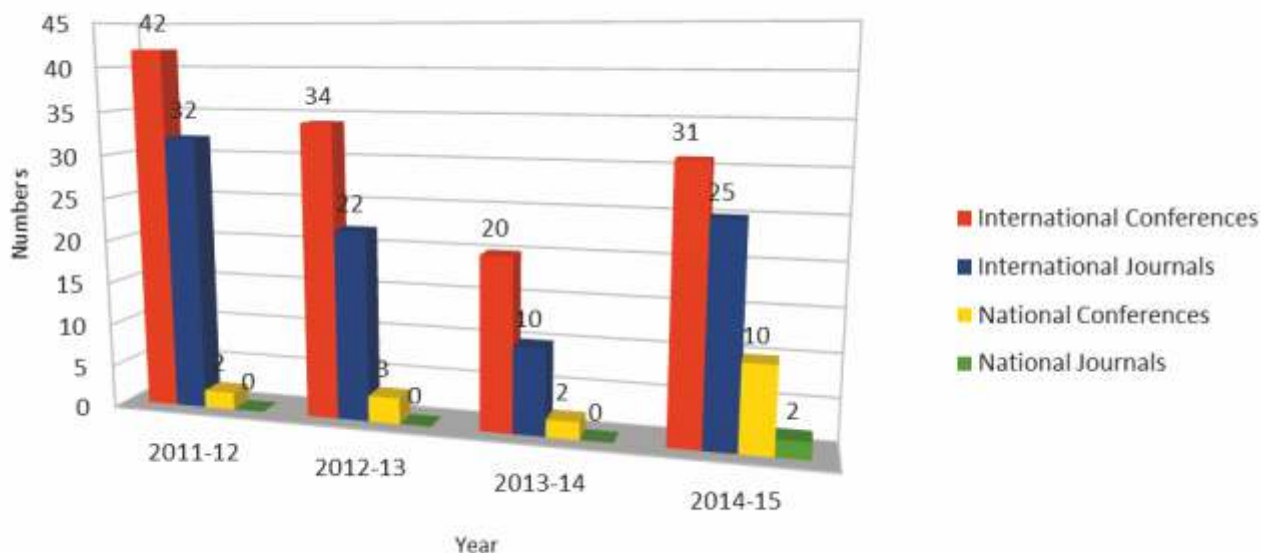
Ph.D. / M. Tech.(R)	Full Time	Part Time	Total
On-going	29	5	34

Ph.D. Awarded [2009-10 to 2014-15]



Facilities in the Department

Research Publications 2011-12 to 2014-15



- Digital Implementation Using Microprocessors/microcontrollers/DSC,DSP and FPGA hardware and software facilities from Xilinx, Micro sim, free scale semiconductors and Texas instruments.
- Energy Audit Equipment's.
- Real Time Hardware emulating Flat-forms; dSPACE.
- Wind solar Hybrid microgrid system.
- High voltage lab with 100kV 100 mA HV ac source and associated DC and impulse

voltage test facility. Insulation Tester. Insulation oil Test kit, 35pF, 100kV standard capacitor, AEPD analyser.

- Digital earth resistance test kit.
- VSC models developing-house, testing/performance evaluation of power converters.
- Scale down model of 4 machine power systems, power system simulation lab within house developed simulation packages.
- Departmental computational facilities catering for signals and systems, power system dynamics, control systems and digital signal processing laboratory.

UG Programme: Electrical & Electronics Engineering

Description: (a) Started with an intake of 90 in 1960.
(b) Intake increased to 111 in 2010.
(c) Accredited in 1996, 2001, 2008 and 2015.

Programme Educational Objectives (PEOs)

PEO-1: To train students into professional who can hold appropriate positions in the area of (i) Electrical Power (ii) Generation of electrical power in conventional method for bulk use (iii) Generation Non-conventional for tiding over the crisis (iv) Utilization of power: Efficiency, Reliability, Conservation, Availability, Quality.(v) Transmission Distribution and control (vi) Protection and safety (vii) Costing and audit (viii) Systems approach (ix) Electronics (x) Data processing and computing.

PEO-2: To train students for Engineering professions of the kind (i) Operational (ii) Maintenance (iii) Research and innovation (iv) Design (v) Manufacturing (vi) Services (vii) Testing (viii) Installation (ix) Planning (x) Academics (xi) Inter-disciplinary (xii) Defence (xiii) Management (xiv) Entrepreneurship (xv) Further studies; Core-Technical (xvi) Further studies: Management (xv) Further studies: Software.

PEO-3: Objective is to develop students into good human beings, useful to the society through their core expertise (PEO-1 and PEO-2), with good human values and professional ethics.

PEO-4: Objective is to develop them for lifelong learning process in the core area (PEO-1, PEO-2), by giving them the state of the art technology and the learning process.

Expected Programme Outcomes(POs)

PO-1: Fundamental knowledge and exposure to basic sciences to support the core (Electrical) engineering stream.

PO-2: Skill development and knowledge to use the mathematics and other basic sciences as a tool for the core (Electrical) engineering program.

PO-3: Knowledge and exposure to other engineering sciences and social sciences,

aiding the programme core (Electrical) with due consideration to interdisciplinary intricacies.

PO-4: Based on the above PO (1 to 3) to develop skills to analyse the core (Electrical) engineering problems, through experimentation and analysis.

PO-5: To develop the “understanding and the skills” needed to analyse core (Electrical) engineering problems which are complex and need to be learnt through scaled down lab-models, or simulations (Computer based). Development of soft skills to aid the core engineering discipline.

PO-6: To give basic understanding of economic, social, legal and safety issues associated with core (Electrical) engineering discipline.

PO-7: To impart knowledge related to renewable energy sources and energy conservation issues, point towards sustainable development, though the core (Electrical) engineering discipline.

PO-8: To impart knowledge related to professional practices applicable to engineering practices.

PO-9: Personality development to work in groups required for the system science related complex problems with multidisciplinary knowledge requirement through the program specific electives.

PO-10: To impart knowledge required for effective professional communications through technical writing, reports and presentations.

PO-11: Skill development and knowledge in the area of core engineering activates (Electrical, Electronics, Power and Control) specific to the program.

PO-12: To impart education to learn over and above the planned curriculum leading self and lifelong learning habits.

PG Programme: Power and Energy Systems.

Description: (a) Started with an intake of 13 in 1992
(b) Intake increased to 27 in 2010.
(c) Accredited in 1996, 2001, 2008, 2017.

Programme Educational Objectives (PEOs)

PEO-1: To train students into professionals who can hold appropriate positions in the area of Power and Energy Systems with specific advanced topics in (i) Electrical Power (ii) Generation of electrical power in conventional method for bulk use (iii) Generation Non-conventional for tiding over the crisis (iv) Utilization of power: Efficiency, Reliability, Conservation, Availability, Quality. (v) Transmission Distribution and control (vi) Power equipment testing (vii) Protection and safety (viii) Costing and audit (ix) Systems approach (x) Electronics (xi) Computing.

PEO-2: To train students in the area of Power and Energy Systems for Engineering professions of the kind (i) Operations (ii) Maintenance (iii) Research and innovation (iv) Design (v) Fabrication (vi) Testing (vii) Planning (viii) Analysis (ix) Academics (x) Inter-disciplinary (xi) Further studies in Core Technical.

PEO-3: Objective is to develop students into good human beings, useful to the society through their core expertise (PEO1 and PEO2), with good human values and professional ethics.

PEO-4: Objective is to develop them for lifelong learning process in the core area (PEO1, PEO2), by giving them the state of the art technology and the learning process.

Expected Programme Outcomes(POs)

PO-1. Ability to apply the knowledge of basic sciences, mathematics and engineering in the broad area Power and Energy Systems.

PO-2. Ability to design, conduct experiments, analyze & interpret data based on the ability of basic science and engineering to inculcate research abilities.

PO-3. Ability to understand the component, system or process to meet desired needs with in realistic constraints such as economic, environmental, and sustainability issues to function in multidisciplinary teams.

PO-4. Based on the above PO (1 to 3) to develop skills to analyse the core (Power and Energy System) related engineering problems, through experimentation and analysis.

PO-5. To develop the “understanding and the skills” needed to analyze power and energy system related problems which are complex and need to be learnt through scaled down lab models, or simulations (Computer based). (This is to development of soft skills to aid the core engineering discipline).

PO-6. To give basic understanding of economic, social, legal and safety issues associated with power and energy systems.

PO-7. To impart knowledge related to renewable energy sources and energy conservation issues, pointing towards sustainable development, in the power and energy discipline.

PO-8. To impart knowledge related to professional practices applicable to engineering practices by ingraining in the courses.

PO-9. Personality development to work in groups required for the system science related complex problems with multidisciplinary knowledge requirement through interconnected project/study activities.

PO-10. To impart knowledge required for effective professional communications through technical writing, reports and presentations.

PO-11. Skill development and knowledge in the area of core engineering activates (Power and Energy Systems) specific to the program.

PO-12. To impart education to learn over and above the planned curriculum leading self and lifelong learning habits.

Contact us:
THE HEAD

**DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
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