

ABOUT ELECTRICAL DEPARTMENT

Department of Electrical Engineering is one of the oldest departments established in 1957 with an intake of 40. Currently, the department is offering undergraduate, postgraduate, and doctorate programs in various disciplines of Electrical Engineering. Presently the total intake of the B.Tech program is 120 and the M.E. in “**Industrial Systems & Drives**” program is with the intake of 35. A new B.Tech program in “**Internet of Things**”, with an intake of 60 has been started in 2020 by the department.

The thrust areas of the department are Power System, Power Electronics, Control and Biomedical Instrumentation. The department educates the students to take up challenging jobs in a wide range of industries and engage themselves in research & development activities for the betterment of the society. The syllabi of the courses are continuously updating and the laboratories are modernized to reflect the rapid changes in technology.

MITS, GWALIOR

Madhav Institute of Technology & Science (MITS), Gwalior is Govt. Aided, UGC Autonomous, NAAC Accredited institute situated in Northern part of Madhya Pradesh. The institute is listed in 251-300 band of NIRF-2021 & promising band of ARIIA-2021 and NPTEL local Chapter of the institute has secured AAA rating (listed in the band of 01 -10) during 2021 amongst more than 4,000 Chapters of NPTEL across the nation. The Institute started initially with 3 disciplines: Civil, Mechanical and Electrical Engineering with intake of 40 each. At present, the Institute is offering regular 17 Bachelors, 10 Master’s and Doctoral Degrees Programmes in Engineering & Technology, Architecture & Planning, Computer Application and Management with the strength of more than 5000 students. Many of the programmes are accredited by the National Board of Accreditation (NBA). The Institute is recognized Quality Improvement Programme (QIP) Centre of AICTE for Ph.D. Programme, institute has implemented TEQIP-II and TEQIP-III project successfully and was declared as the best performer in the final performance audit amongst all the TEQIP-III funded institutes of the nation. As per the vision of the institute, "To create world class quality Engineers and Technocrats capable of providing leadership in all spheres of life and society", the institute has implemented Outcome Based Education (OBE) and Flexible curriculum with provision of major / minor degrees. Institute has collaborated with globally recognized organizations and implemented National Educational Policy (NEP2020) for the multidisciplinary education. Institute conducts various activities under the provision of Novel Engaging Courses for the holistic development of students

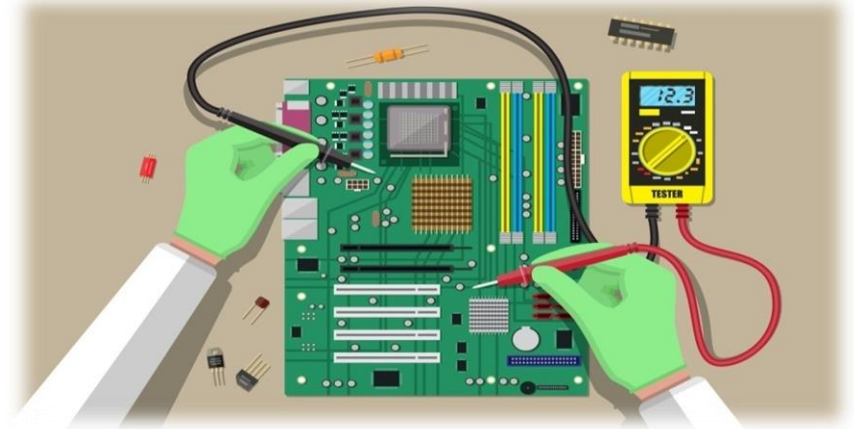
Department Of Electrical Engineering

Courses Offered

B.Tech in Electrical Engineering

B.Tech in Internet of Things

M.E. in Industrial Systems and Drives



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC autonomous & NAAC Accredited institute affiliated to RGPV, Bhopal)
**Race Course Road, Gola Ka Mandir,
Gwalior, M.P. 474005
website: www.mitsgwalior.in**

UG & PG PROGRAMS OFFERED

Undergraduate Programs

Program Title	Intake	Duration
Bachelor of Technology in Electrical Engineering	120	4 Years
Bachelor of Technology in Internet of Things	60	4 Years

Postgraduate Programs

Program Title	Intake	Duration
Master of Engineering in Industrial System & Drives	25	2 Years

B.TECH WITH HONORS SPECIALIZATION

Under the flexible curriculum, from the 2017-18 admitted batch, the Institute has provisioned the award of UG degree with Honors specialization on completion of 20 additional credits for each through SWAYAM/NPTEL/MOOC platform.

B.TECH WITH MINOR SPECIALIZATION

Under the flexible curriculum, from the 2017-18 admitted batch, the Institute has provisioned the award of UG degree with Minor specialization on completion of 20 additional credits for each through SWAYAM/NPTEL/MOOC platform.



WHY BE AN ELECTRICAL ENGINEERING

Infinite opportunity to change the world by exploring concepts like Computer architectures and embedded systems, Control and robotics, electronic devices, circuits, and systems, Energy distribution, motors/generators, power electronics, energy marketing, Microwave/RF/photonic devices and systems, Networks and distributed computing, Signal processing and Embedded software. The only branch of engineering which touches very tiny microprocessors to dynamic world of supercomputers. The only branch of engineering touching on everything from tiny

ELECTRICAL ENGINEERING SECTORS

- Power Generation and Transmission
- Industrial Instrumentation
- Government Departments and Agencies
- Electrical & Electronics Equipment
- Consulting – Technologies and Management
- Automation Aviation Broadcast/Sound Engineering
- Robotics engineering
- Electric Vehicle designers

ACHIEVEMENTS

Patents Filed & Published	10
PhD Thesis Supervised (Awarded)	25
PhD Thesis Submitted/Ongoing	19
Research Publications (last five years)	98
Book Chapters (last three years)	32
Students Qualified GATE (last three years)	68
Students/Faculty Performance in NPTEL 2021-2022	493
Student Internship with Stipend 2022	18
Maximum stipend received- Rs.25000/month	

CAREER IN GOVERNMENT/PUBLIC SECTOR

- Power Grid Corporation of India Limited
- Bharat Heavy Electricals Limited (BHEL)
- National Thermal Power Corporation Limited (NTPC)
- National Hydroelectric Power Corporation
- Engineers India Ltd (EIL)
- National Fertilizers Limited (NFL)
- Bharat Electronics Limited (BEL)
- Centre for Development of Advanced Computing (CDAC)
- Council of Scientific & Industrial Research (CSIR)
- Central Power Research Institute (CPRI)
- National Mineral Development Corporation
- Indian Oil Corporation Ltd (IOCL)
- Indian Railways - RRB
- National Hydroelectric Power Corporation (NHPC)
- Rural Electrification Corporation (REC)
- North Eastern Electric Power Corporation (NEEPCO)
- Power Finance Corporation (PFC)
- Power Grid Corporation of India (POWER GRID)
- SJVN - A Mini Ratna Company
- Madhya Pradesh Power Generation Company Limited
- Madhya Pradesh Power Transmission Company Limited
- Madhya Pradesh Poorv Kshetra Vidyut Company Limited
- Madhya Pradesh Madhya Kshetra Vidyut Vitaran Company Limited
- Madhya Pradesh Paschim Kshetra Vidyut Vitaran Company Limited
- Madhya Pradesh Power Management Company Limited
- Madhya Pradesh Electricity Regulatory Commission
- Uttar Pradesh Rajya Vidyut Utpadan Nigam (UPRVUN)
- Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL),
- Uttar Pradesh Power Corporation Limited (UPPCL),
- UP Power Transmission Corporation Limited (UPPTCL),
- UP Jal Vidyut Nigam Limited (UPJVNL).
- Nuclear Power Corporation of India

PRIVATE COMPANIES

- Nokia
- Boeing Aerostructures
- ChevronDeloitte
- Ericsson
- IBM
- Jacobs Engineering
- Microsoft
- Origin Energy
- Siemens
- Crompton Greaves Power and Industrial Solutions Ltd
- Bajaj Electricals Ltd (BEL)
- Tata Steel
- Tata Motors
- Schweitzer Engineering Laboratories
- Jindal Steel & Power Ltd.
- Spectrum Power Generation Limited
- HBL Power Systems Limited
- Reliance power
- Adani Transmission Limited (ATL)
- Adani Power
- Torrent Power
- Adani Green Energy Limited
- Exide Industries Ltd.
- Finolex Cables Ltd.
- Havells India Ltd.
- Polycab India Ltd.
- Surya Roshni Ltd.
- Cummins Electronic
- Dongfang Electric (India) Private Limited
- Emersons
- Eon Electric
- Techno Electric & Engineering Company Limited
- Telco Construction Equipment Corporation Limited (Telcon)
- Thermax Limited

LABORATORIES

BASIC ELECTRICAL & ELECTRONICS ENGINEERING (BEEE) LAB

Undergraduate First Year Lab: Major experiments are related to verification of KCL, KVL, Superposition theorem; Determination of choke coil inductance and resistance; Determination of efficiency and regulation of single phase transformer, SC and OC test on single phase transformer; DC Machine overview, use of Multimeter; Determination of Diode characteristics; Verification of truth table.



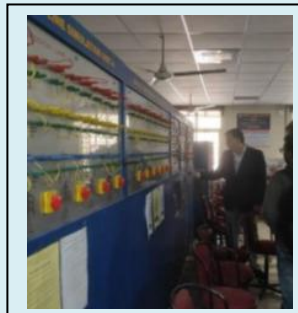
ELECTRICAL MACHINES LAB

Undergraduate Lab: Major experiments are related to parallel operation of two single phase transformer, direct load test on single phase transformer; Determination of internal and external characteristics of DC shunt generator, speed control of DC motor; No load and blocked rotor test on 3-phase squirrel cage and slip ring induction motor;



POWER SYSTEM LAB

Undergraduate Lab: Major experiments are related to the determination of generalized circuit constants for short, medium and long transmission lines of EHV AC transmission lines simulation panel; Study of cables, insulators and line supports used in transmission and distribution system; Stability analysis using Equal area criterion



LABORATORIES

MEASUREMENT AND INSTRUMENTATION LAB

Undergraduate Lab: Major experiments are related to the handling of CRO, multimeter, and function generator; Measurement of low, medium and high resistance; Measurement of inductance and capacitance using AC bridges (Hay's bridge, Maxwell's bridge De Sauty's bridge, Schering bridge); Calibration of single phase AC Energy meter; Power measurement by Two Wattmeter method; Transducer characteristics (RTD, Thermistor, Thermocouple, Load cell, Strain Guage, etc.).



POWER ELECTRONICS AND DRIVES LAB

Undergraduate and Postgraduate Lab: Major experiments are to plot the VI characteristics of different power electronics devices such as SCR, TRIAC, MOSFET, IGBT, UJT etc.; To analyze the dv/dt limitation of SCR with Snubber's circuit, Turn-OFF process of SCR with different force commutation techniques; Effect of PWM techniques on Inverter.



OTHER LABORATORIES

- Analog & Digital Electronics Lab
- Computer/Software Lab
- Renewable Energy Lab
- Control Lab
- Industrial Automation Lab
- Sensor Technology Lab
- Microprocessor & Embedded Systems Lab



ACADEMIC WORK FLOW OF NPTEL

I SEMESTER

Students willingly choose any basic/skill-based course of their own choice from SWAYAM/NPTEL/Any other MOOC platform and earn Certificates from IIT/IISc
(Not Mandatory)

II SEMESTER

Students willingly choose any basic/skill-based course of their own choice from SWAYAM/NPTEL/Any other MOOC platform and earn Certificates from IIT/IISc
(Not Mandatory)

III SEMESTER

Students compulsory have to register in any one (4week/8week) course from SWAYAM/NPTEL offered by respective department against a self-study and seminar as per scheme

IV SEMESTER

Students willingly choose any basic/skill-based course of their own choice from SWAYAM/NPTEL/Any other MOOC platform and earn Certificates from IIT/IISc
(Not Mandatory)

V SEMESTER

1. Permitted to opt for maximum two additional courses for the award of (i) **Honors in parent discipline** or (ii) **Honors with Minor Specialization in engineering discipline other than the parent discipline** from SWAYAM/NPTEL/MOOCs etc for desirous students
2. Students compulsory have to register in any one (4week/8week) course from SWAYAM/NPTEL offered by respective department against a self-study and seminar as per scheme

VI SEMESTER

1. Permitted to opt for maximum two additional courses for the award of (i) **Honors in parent discipline** or (ii) **Honors with Minor Specialization in engineering discipline other than the parent discipline** from SWAYAM/NPTEL/MOOCs etc for desirous students
2. Student must have to choose one Department Elective (DE-2) Course from SWAYAM/NPTEL/ MOOC.

VII SEMESTER

1. Permitted to opt for maximum two additional courses for the award of (i) **Honors in parent discipline** or (ii) **Honors with Minor Specialization in engineering discipline other than the parent discipline** from SWAYAM/NPTEL/MOOCs etc for desirous students
2. Student must have to choose one **Department Elective(DE-4)** Course from SWAYAM/NPTEL/ MOOC.

VIII SEMESTER

1. Permitted to opt for maximum two additional courses for the award of (i) **Honors in parent discipline** or (ii) **Honors with Minor Specialization in engineering discipline other than the parent discipline** from SWAYAM/NPTEL/MOOCs etc for desirous students
2. Student must have to choose one **Department Elective Course (DE-5)** from parent department via SWAYAM/MOOCs
3. Student must have to choose one **Open Category Course (OC-4)** from other than parent department via SWAYAM/NPTEL/MOOCs platform.
4. Student must have to choose one **Open Category Course (OC-5)** from other than parent department via SWAYAM/NPTEL/MOOCs platform.

DEPARTMENT COMMITTEES

SWAYAM Coordinators	Dr.Shishir Dixit Dr.Vikram
Time Table Coordinator	Prof Kuldeep Kumar Swarnkar
SIP Coordinators	Prof.Praveen Bansal Dr.Ankit Tiwari
Feedback Coordinators	Prof.Rakesh Narvey Dr.Yashwant Sawle
Alumni Coordinators	Dr.Vijay Bhuria Prof.Praveen Bansal Prof.Vishal Chaudhary
T&P Coordinators	Prof. Kuldeep Swarnkar
OBE Coordinators	Prof. Kuldeep Kumar Swarnkar Prof. Saurabh Rajput
Website Coordinator	Prof Nikhil Paliwal
NSS Coordinators	Prof. Kuldeep Kumar Swarnkar Prof. Praveen Bansal
Internship Coordinators	Prof Saurabh Kumar Rajput Dr Vikram
Newsletter Coordinator	Prof Vishal Chaudhary
Remedial Class Coordinator	Prof Kuldeep Kumar Swarnkar
GATE Coordinators	Prof. Kuldeep Kumar Swarnkar Prof Nikhil Paliwal
Social Media Coordinators	Prof Vishal Chaudhary Prof Nikhil Paliwal
CLASS COORDINATORS	
B.Tech – I Year - Electrical	Prof Vishal Chaudhary
B.Tech –I Year - IoT	Prof.Kuldeep Kumar Swarnkar
B.Tech – II Year - Electrical	Dr.Vikram
B.Tech –II Year - IoT	Prof.Saurabh Kumar Rajput
B.Tech – III Year - Electrical	Dr.Vijay Bhuria Prof.Nipun Gupta
B.Tech –III Year - IoT	Prof.Praveen Bansal Dr.Bhavna Rathore
B.Tech – IVYear - Electrical	Dr.Himmat Singh Prof. Manoj Kumar
M.E. (ISD)	Prof Rakesh Narvey
PhD Coordinator	Dr Shishir Dixit

CONTACT INFORMATION

Dr. Sulochana Wadhvani

Professor & Head

Department of Electrical Engineering

Madhav Institute of Technology and Science, Gwalior-474 005 (M.P.) India

Mobile: +91 9399766998

Email: sulochana_wadhvani@mitsgwalior.in

FOR MORE INFORMATION (SEE LINKS)

Video: [Click Here](#) | **Electrical**: [Click Here](#) | **IoT**: [Click Here](#)



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR (M.P.), INDIA
माधव प्रौद्योगिकी एवं विज्ञान संस्थान, ग्वालियर (म.प्र.), भारत
 A GOVT. AIDED UGC AUTONOMOUS & NAAC ACCREDITED INSTITUTE, AFFILIATED TO R.G.P.V BHOPAL (M.P)

Mission to
 Innovate
 Technology for
 Society



B.TECH. IN Internet of Things(IoT)

The Internet of things (IoT) describes physical objects with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the internet or other communications networks.

MAJOR RECRUITER



CONTACT US
<https://mitsgwalior.in>



IoT Applications

- Smart Power Grid
- Smart Transport
- Smart Wearables
- Health Monitoring
- Traffic Monitoring
- Agriculture Management
- Environmental Monitoring
- Smart Waste Management
- Surveillance
- Autonomous Driving
- & many more ...

Career Opportunities

- IoT Security Specialist
- IoT Network Engineer
- Cloud Engineer
- Software Developer
- IoT Systems Administrator
- Web Development Engineer
- IoT Embedded Systems Designer
- IoT Solutions Engineer
- IoT Infrastructure Architect

Salary Trends

IoT professionals get a **median** salary of
₹15.2 LPA



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B.TECH IN ELECTRICAL ENGINEERING

Electrical engineering is one of the core branches of engineering, and dates back to the late 19th century. It is the branch of engineering that deals with the technology of electricity. Electrical engineers work on a wide range of components, devices and systems, from tiny microchips to huge power station generators.

MAJOR RECRUITERS



CONTACT US:
[@https://www.mitsgwalior.in/](https://www.mitsgwalior.in/)



APPLICATIONS OF ELECTRICAL ENGG.

- Design, develop, test, and supervise the manufacture of electrical equipment and electrical systems for automobiles and aircraft including:
 - Electric motors
 - Machinery controls
 - Lighting, and wiring in buildings
 - Radar and navigation systems
 - Communications systems; and
 - Power generation, control, and transmission devices used by electric utilities.
- Focus on the generation and supply of power
- Specialize in areas such as
 - Power systems engineering or
 - Electrical equipment manufacturing

CAREER OPPORTUNITIES

- IES (Indian Engineering Services)
- Electric power generating installations.
- Indian Railways.
- Aerospace Manufacture Industry.
- Automobile Industry.
- Airports Authority of India.
- Electricity transmission and distribution organizations.
- Government Electrical Works Department.

SALARIES OFFERED

- ₹8.0 Lakhs per year (₹66.7k per month).