



VALLURUPALLI NAGESWARA RAO VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY

An Autonomous, Accredited by NAAC with 'A++' Grade
NBA Accreditation for B.Tech. [CE, EEE, ME, ECE, CSE, EIE, IT](#), Approved by AICTE, New Delhi,
Affiliated to JNTUH, NIRF (2018) 101-150-Rank Band in Engineering Category
College with Potential for Excellence by JIGC, INTUH-Recognized Research [Centres: CE, EEE, ME, ECE, CSE](#)
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Infrastructure

NETWORK ANALYSIS LABORATORY



Background:

The lab provides the foundation for Electrical and Electronics engineering. This lab aims to provide students the knowledge about various analysis on electrical and electronic devices. Students are made familiar with 3-Phase and Single Phase circuits in electrical and electronic circuits and their intended to use in various applications. This Laboratory is primarily aimed to meet the requirements of practical work meant for Active Components basic analysis, designing and testing of Amplifier and Oscillators. All basic on electrical and electronic devices and their characteristics, applications can be studied. Using these devices, small electronic circuits can be constructed and can be checked.

Description:

Network Analysis lab is special and well equipped with the latest signal generators, oscilloscopes, digital trainer kits and measuring instruments. Students of various branches design and test their analog/digital/mixed signals, digital circuits as part of their curriculum.

Guidance is provided to the students by a team of expert faculty and lab technicians. The labs are kept open after the college hours to enable the students to engage themselves in designing /testing the circuits in their leisure hours. This lab is used to train the students to implement the basic of electrical and analog circuits (as a hardware using electronic components) and make experiments to get familiar with the characteristics of electronic components, test the circuit performance and the techniques of making hardware circuits.

Current Equipment:

The laboratory is well equipped with a whole range of Analog and Digital Storage Oscilloscopes, VHF Function Generators, Power supplies of various ranges, Multi-meters, volt meters, ammeters, Decade capacitance, inductance and resistance boxes and PCs for electronic system design Frequency counter and a variety of Active and Passive Components, 3-Phase Load,3-Phase power supply, Single Phase load, etc.

The lab has one black board, instructors table and Chairs, 5 fans, 5 lights, 4 windows for good Air circulation and good lighting facility. There are 18 set ups for doing experiments and two students are allotted for each set up.

Lab investment: Rs. 10,14,856.45/-

Utilization:

This lab is utilized for conducting the following course(s):

A19PC2EC01-Electronic Devices and Circuits Laboratory

A19PC2EC05-Analog Circuits Laboratory

22SD5EE101-Elements of Electrical and Electronics Engineering

22ES2EE107-Network Analysis Laboratory

22ES2EE102- Principles of Electrical Engineering Laboratory

Location and Hours:

The Network Analysis laboratory is located in room no: A-308

Open Door Access: 9:00 AM - 6.30 PM

Scheduled classes take priority

Contact:

Mrs. K.Sravani,
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Mrs.V.Malleswari,
Instructor,
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ELECTRICAL MACHINES LABORATORY



Background:

Electrical machines laboratory is the core lab of the electrical department, where students can get a real time experience of working with the electrical machines as a part of their regular academic experiments.

Description:

Electrical Machines Lab is well equipped with all the required machines to perform experiments. As a part of upgradation of lab an amount of 12lakh Rupees was sanctioned by AICTE under the scheme MODROBS for the project title “Data Acquisition based design and control of Special and regular electrical Machines”. In this lab students will carry out with their project works and research work. In addition to the machines required for performing the regular experiments this lab consists of advanced machines which will be used for their project work and research work as well.

Current Equipment:

This laboratory is equipped with advanced special electrical machines like BLDC motor, PMSM motor along with the regular machines like DC&AC motors, DC &AC Generators, Transformers. Machine design software **Ansys Maxwell** is an added feather for the lab which can be used by the researchers and students for developing a state of art machinery.

Lab Investment: Rs. 29,00,000/-

Utilization:

This lab is utilized for conducting the following course(s):

- (1). Electrical Machines-I Laboratory
- (2). Electrical Machines-II Laboratory

Location and Hours:

Electrical Machines Laboratory is located in room no. S3-1.

Open Door Access:

9.00 AM to 5.00 PM

Scheduled classes take priority

Contact:

Mr.G.C.Prabhakar
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Mr.P.H.Syam Rao
Sr. Skilled Asst.
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BASIC ELECTRICAL ENGINEERING LABORATORY



Background:

This lab is specially for Under graduate students of ECE, EIE, CSE, IT, ME and AE. In a basic electrical engineering lab, student typically can learn fundamental concepts and perform experiments (as a part of their curriculum) related to electricity and circuits.

Description:

Here are some common topics covered in a Basic electrical engineering lab:

1. Ohm's Law: Ohm's Law relates voltage, current, and resistance in a circuit. The formula is $V = IR$, where V is voltage in volts (V), I is current in amperes (A), and R is resistance in ohms (Ω). In the lab, you may measure voltage, current, and resistance to verify Ohm's Law.

2. **Circuit Analysis:** Student will learn how to analyse simple series and parallel circuits using Kirchhoff's laws and basic circuit analysis techniques. This includes calculating total resistance, current, and voltage across components.
3. **Circuit Building:** student will work on constructing circuits using various components such as resistors, capacitors, inductors, switches, and power supplies on a breadboard or circuit board. These circuits may include simple lighting circuits, voltage dividers, and RC/RL circuits.
4. **Measurement Instruments:** student will become familiar with using measurement instruments like multimeters and oscilloscopes. Multimeters are used to measure voltage, current, and resistance, while oscilloscopes display and analyse waveforms.
5. **Circuit Simulation:** students may use software tools like SPICE (Simulation Program with Integrated Circuit Emphasis) or MATLAB/Simulink to simulate and analyse electrical circuits before implementing them physically. This helps student to understand circuit behaviour and troubleshoot issues.
6. **Diode Characteristics:** students will study the behaviour of diodes, such as their forward and reverse voltage characteristics, by measuring voltage and current across them. student may also examine the use of diodes in rectifier circuits.
7. **Transistor Characteristics:** students will learn about basic transistor types (such as bipolar junction transistors or MOSFETs) and their behaviour in common-emitter or common-source configurations. You may measure parameters like current gain, voltage gain, and input/output characteristics.
8. **Frequency Response:** Student may explore the frequency response of simple RC and RL circuits by observing how the amplitude and phase of signals change with frequency using an oscilloscope or frequency analyser.
9. **Power Analysis:** Student will learn to calculate and measure power dissipation in resistive circuits using the formula $P = VI$, where P is power in watts (W), V is voltage, and I is current.

These are just a few examples of the topics covered in a basic electrical engineering lab. The specific experiments and concepts taught may vary depending on the curriculum.

Current Equipment:

This laboratory equipped with

Dc compound motor with brake drum arrangement

Dc shunt motor –Dc shunt generator set

Dc shunt motor–Dc compound generator set

3-phase squirrel cage induction motor with brake drum

Dc motor-Alternator set

1-phase transformers

Lab Investment: Rs. 10,37,791 /-

Utilization:

This lab is utilized for conducting the following course(s):

- (1). Basic Electrical Engineering Laboratory (22ES2EE105)
- (2). Basic Electrical and Electronics Engineering (22ES1EE101)
- (3). Fundamentals of Electrical and Electronics Engineering (22ES1EE103)

Location and Hours:

Basic Electrical Engineering Laboratory is located in room no. S1-2.

Open Door Access:

9.00 AM to 5.00 PM

Scheduled classes take priority

Contact:

Mr. N. Amarnadh Reddy

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P.H.Sham Rao

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POWER ELECTRONICS LAB



Background:

The lab provides the facilities of research & development for Electrical engineering. This lab aims at providing students the knowledge about closed loop control of various power electronic converters (both AC and DC). Students are made familiar with power electronic circuits and their intended use in various applications. This laboratory is primarily aimed to meet the requirements of practical work meant for Components basic analysis, designing and testing of power electronic circuits and drives. All Power electronic devices and their characteristics, applications can be studied.

Description:

Power electronics lab is equipped with modern experimental set-ups for under graduates taking the Electrical and Electronics Engineering course. Lab includes the characteristics of power electronics devices like SCR, MOSFET & IGBT, UJT firing circuits, the operation of Rectifiers, Choppers, Inverters, AC Voltage Controllers and Cyclo converters.

Current Equipment:

The laboratory is well equipped with the PWM inverters, half & full controlled rectifiers, MOSFET based step up & step-down choppers, cyclo converters with dual role firing circuits, AC voltage converts with various load adjustments and Digital Storage Oscilloscopes.

Lab investment: RS. 15,27,176 /-

Utilization:

This lab is utilized for conducting the following course(s):

19PC2EE04 - Power Electronics Laboratory

Location and Hours:

The power electronics laboratory is located in room no: A-310

Open Door Access: 9:00 AM - 6.30 PM

Scheduled classes take priority

Contact:

Dr. G. Lakshminarayana

Assist. Professor,

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Mr.M.Rama Krishna Das

Instructor

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CONTROL SYSTEMS LABORATORY



Background:

The lab provides foundation of Control system. The lab aims at providing students the knowledge about various control system devices. Students are made familiar with the basic control operations intended for various applications. The laboratory is primarily aimed to meet the requirement of control systems study, analysis, design and testing. All the fundamental components, controllers, compensators and their characteristics along with the applications can be studied. Using this equipment, the basic analysis and design of controller can be carried and enables the foundation towards AI controllers.

Description:

Control Systems lab is special lab well equipped with the latest signal generator, oscilloscope, digital trainer kits and measuring instruments. Students of the parent department study, analyze and design the controllers which are the part of their regular curriculum. Special

equipment such as Amplifier, SCADA, Synchro's and Stepper motor are available for the purpose of system study.

Current Equipment:

Regulated Power Supply, 0-30V, 5A
20 MHZ Oscilloscope and 50MHZ Digital Storage Oscilloscope
Function Generator
Lead- Lag Networks
Magnetic Amplifier
Stepper motor with 8085 Mp based Kit
AC Servo Motor
PID Controller Kit
DC Servo Motor
Temperature Control System
Power System (SCADA)

Lab Investment: Rs. 23,42,117/-

Utilization:

This lab is utilized for conducting the following course(s):

Control Systems and Simulation Laboratory

Location and Hours:

Control Systems laboratory is located in room No: A-309

Open Door Access: 9:00 AM to 6:30 PM

Scheduled classes take priority.

Contact:

Dr.G.Radhika
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SIMULATION OF ELECTRICAL SYSTEMS LABORATORY
&
MICROPROCESSOR AND MICROCONTROLLER LABORATORY



SIMULATION OF ELECTRICAL SYSTEMS LABORATORY

Background:

This lab is specially for under graduate electrical students. In the lab students will do the regular academic experiments i.e .Programming through C, Data Structures Lab and

Engineering Drawing through AutoCAD software for I-B.Tech.students. This lab also provides the facility to conduct Placement Exams, Certificate Courses, Online Exams and Student Projects.

Description:

Simulation Of Electrical Systems Laboratory is well equipped with all the required software to do their academic experiments. In addition to the software required for the curriculum simulation experiments this lab consists of additional software which will used for their project work and research work as well.

Current Equipment:

This laboratory equipped with software like MATLAB, PYTHON, AUTOCAD and CODE BLOCKS For the curriculum experiments MATLAB will be used and for project works and research works including MATLAB, MI POWER & EMTP software will be used.

MICROPROCESSOR AND MICROCONTROLLER LABORATORY

Background:

This lab has various types of microprocessors, micro controller trainer kits along with interfacing modules to demonstrate the detailed applications of microprocessors. The purpose of this laboratory is to train the students to be familiar with the software and hardware of microprocessors so that they can gain enough experiences to meet the demand of the microprocessor era.

The facilities in the laboratory enable students to build a firm background in microprocessor hardware as well as software. Students learn about assembly language programming, interfacing of programmable chips and peripherals such as stepper motors, analog-to-digital and digital-to-analog converters etc. They acquire the practical skills sufficient to design and realize basic microprocessor-based systems.

Description:

This laboratory is used to provide intensive practical exposure to the students in the field of microprocessor architecture and industrial control through them. Different exercises in this lab includes Serial Data Communication between PC and 8051 microcontroller trainer kit. The lab also provides the facility to interface the microprocessor and microcontroller with different circuits such as A/D converters, stepper motors, DC motors, multidigit displays, etc.

Current Equipment:

Microprocessor kit (8086), Microcontroller kit (8051, DMA Controller, Interrupt controller, Timer, ADC, DAC, Serial Communication, Stepper motor, Keyboard and display control, Oscilloscopes, Function generator, power supply, RS 232c cable & connector, Universal programmer, ARM Controller Kits and DSO.

These labs are also equipped with one white board, teacher table and Chairs, one LCD projector, 10 fans, 20 lights, 9 windows for good Air circulation and good lighting facility as well as 5 ACs for cooling purpose. 36 systems to do the programs and Interfacing kits for doing experiments. Each student has individual system to the programs. Students dump the programs and check the results.

Lab investment: Rs :10,830,110/- (Both Labs)

Utilization:

These labs are utilized for conducting the following course(s):

Microprocessors & Microcontrollers Lab

Programming through C Laboratory

Data Structures Laboratory.

Engineering Drawing

Simulation Experiments of core labs.

Location and Hours:

Room no: A-306

Open Door Access: 9:00 AM - 5.00 PM

Scheduled classes take priority.

Contact:

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Mr.B.Venkatesh

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Mrs.S. SHILPA

Skilled Assistant

ELECTRICAL MEASUREMENTS & INSTRUMENTATION LABORATORY



Background:

The laboratory was established in the year 1995. The lab is well equipped with testing equipment like Dielectric Oil testing kit for testing the insulation strength of the transformer oil, CT Test set & PT test set . The lab is utilized by under graduate, post graduate students and faculty for regular lab works as well as projects and research works.

Description:

The laboratory provides facility to measure electrical parameters like Resistance, Inductance, capacitance, Real & Reactive Power for power transmission systems, Underground cables other measurement applications. The laboratory is also equipped with

Three phase auto transformers ,Three phase PSTs ,power factor meters, energy meters, Potentio meters for calibrating & testing any measuring instrument . The Laboratory is primarily aimed to provide environment to students for Electrical measurements & Instrumentation laboratory. The Laboratory is also utilized by student to perform hardware based projects of any stream.

The lab is having 10 experiment tables,3 staff tables,one instructors table , 6 Chairs, 36 stool chairs,and 6 fans, 4 lights, 10 windows for good Air circulation and good lighting facility.

Lab investment: RS. 10,35868 /-

Utilization:

This lab is utilized for conducting the following course(s):
19PC2EE05-Electrical Measurements and Instrumentation Laboratory

Location and Hours:

The Electrical measurements& simulation Laboratory is located in room no:A-313
Open Door Access: 9:00 AM – 5.00 PM
Scheduled classes take priority

Contact:

M Naga Jyothi
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K.Radhika
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POWER SYSTEMS LABORATORY



Background:

The lab provides the foundation of electrical engineering. This lab aims at providing students the knowledge about various electrical devices. Students are made familiar with electrical and power systems circuits and their intended use in various applications. This

Laboratory is primarily aimed to meet the requirements of basic analysis of relays and protection . All basic relays and their characteristics, applications can be studied.

Description:

Power Systems lab is special and well equipped with the transformers, transmission line, synchronous machine and electromagnetic relays. Guidance is provided to the B.Tech and M.Tech students by a team of expert faculty and lab technicians. The labs are kept open after the college hours to enable the students to engage themselves in research work and make experiments to get familiar with the characteristics of various power systems components and the circuit performance and the techniques of making hardware circuits.

Current Equipment:

The laboratory is well equipped with Electromagnetic IDMT over current relay, Micro Processor based Over voltage/Under voltage relay, Differential protection of 1- Φ transformer, Testing of CT and PT's, insulator strings, underground cable, Capacitance of 3-core cables, 3- Φ synchronous machine, 3- Φ Transformer protection relays,transmission system, Three winding Transformer and generator protection

Lab Investment: Rs 15,98,295/-

Utilization:

This lab is utilized for conducting the following course(s):

B.Tech: Power Systems Laboratory

M.Tech: Power Systems Practice Laboratory

Location and Hours:

Power system devices and electrical circuits is located in room no:A-307

Open Door Access: 9:00 AM - 6.30 PM

Scheduled classes take priority

Contact

Mrs.Seelam Poornima

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Mr.B.Sivaji

Instructor

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POWER CONVERTERS LAB



**Background:**

Power Converters lab provides the facilities of research & development for Electrical engineering. This lab is specially for post graduate electrical students. This lab aims at providing students the knowledge about closed loop control of various drives systems (both AC and DC). This Laboratory is primarily aimed to meet the requirements of practical work meant for analysis, designing and testing of power electronic circuits and drives.

Description:

Power converters lab is equipped with modern experimental set-ups for post graduates taking the Power Converters & Drives course. Lab includes the control of unique PMSM & BLDC drives, the optimization and control of three phase IGBT four quadrant chopper drive.

Current Equipment:

The laboratory is well equipped with the solar photovoltaic training and research system, three phase IGBT inverter, Level shifting card, Vector control drive, three phase bridge inverter and voltage source inverter and three phase cyclo converter and Digital Storage Oscilloscopes.

Lab investment: RS. 1619166 /-

Utilization:

This lab is utilized for conducting the following course(s):

22PC2PL03- Advanced Power Electronic Converters Laboratory

22PC2PL04- Power Electronic Converters and Applications Laboratory

Location and Hours:

The power converters laboratory is located in room
no:P-208

Open Door Access: 9:00 AM - 6.30 PM
Scheduled classes take priority

Contact:

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Mr.M.Rama Krishna Das
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ELECTRICAL SYSTEMS SIMULATION LABORATORY

**Background:**

This lab is specially for post graduate electrical students. In the lab students will do the regular academic experiments. The students from Power Electronics and Power System specialization students will do simulation experiments in this lab.

Description:

Electrical Systems Simulation Lab is well equipped with all the required software to do Power Electronics and Power System specialization simulation experiments. In this lab students will carry out with their project works and research work. In addition to the software required for the curriculum simulation experiments this lab consists of additional software which will be used for their project work and research work as well.

Current Equipment:

This laboratory is equipped with software like MATLAB, MiPOWER, EMTP. For the curriculum experiments MATLAB will be used and for project works and research works including MATLAB, MiPOWER & EMTP software will be used.

Lab Investment: Rs. 25,61,143/-

Utilization:

This lab is utilized for conducting the following course(s):

- (1). Python for Electrical Systems and Applications Laboratory (22PC2PL01)
- (2). Modeling and Simulation of Electrical Drives Laboratory (22PC2PL02)
- (3). Advanced Power Electronic Converters Laboratory (22PC2PL03)
- (4). Power System Analysis Laboratory (22PC2PS01)
- (5). FACTS and Dynamics Laboratory (22 PC2PS04)

Location and Hours:

Electrical Systems Simulation Laboratory is located in room no. P-209.

Open Door Access:

9.00 AM to 6.30 PM

Scheduled classes take priority

Contact:

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