

SYED AMMAL ENGINEERING COLLEGE

An Autonomous Institution

ESTD : 1998



Accredited with 'A+' Grade by NAAC



Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

Recognized Under section 2 (f) and 12 B of the UGC Act 1956 | An ISO 9001:2015 Certified Institution

NBA Accredited UG Courses : CSE & MECH | Anna University Approved Research Centres : EEE, CSE, MECH & ECE

Dr. E.M. Abdullah Campus, Ramanathapuram - 623 502, Tamil Nadu.

Ph: 04567 - 222 234, Mobile : 94873 04000, 84893 04000, 87548 88877 | E-mail : office@syedengg.ac.in, saec@syedengg.ac.in | Web : www.syedengg.ac.in

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

ELECTRICAL MACHINES LABORATORY

Laboratory Incharge : Dr.G.S.Naganathan

Technician : Mr.S. Jeyakumar



Area of the laboratory: $31.03\text{M} \times 12.11\text{M} = 375.77\text{Sq.M}$

Description:

- Electrical machines laboratory has well furnished by AC and DC power supply.
- AC power supply given to the induction motors through AC panel board
- 100 Amps , 230 Volt Rectifier unit is used to obtain DC supply which is given to the DC motors Through DC panel board.

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- There are 26 experimental working tables are provided in this laboratory.
- This laboratory is covering all the Electrical machines related laboratory courses prescribed by Anna University.
- Each experiments working table having proper protecting devices such as fuse and MCB.
- If required Suitable starters are provided to protect motor during starting.
- **Major Equipments Cost in Electrical Machines Lab: Rs. 14,77,752.56**

The following courses are conducted in this Laboratory for the Academic Year (2023-24)

BE3271	Basic Electrical and Electronics Engineering Laboratory	2 nd Semester (Mech)
BE3272	Basic Electrical, Electronics and Instrumentation Engineering Laboratory	2 nd Semester (Civil)
EE3311	Electrical Machines Laboratory – I	3 rd Semester(EEE)
EE3411	Electrical Machines Laboratory – II	4 th Semester (EEE)

POWER ELECTRONICS LABORATORY

Laboratory Incharge : Dr.S.Aiswariya

Technician : Ms.M.Pandiselvi

Store Room:



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Area of the laboratory: $13.29\text{M} \times 9.12\text{M} = 121.88\text{Sq.M}$

Description:

- All the experimental kits and components are stored in the separate store room. having selves and racks
- There are 9 double sided experiment working table in this laboratory.
- This laboratory is covering the Electronic devices and power electronics related laboratory courses prescribed by Anna University.
- Each experiments working table having proper protecting devices such as fuses and MCBs.
- **Major Equipment's Cost in Power Electronics Lab: Rs.16,43,172.35**

The following courses are conducted in this Laboratory for the Academic Year (2023-2024)

EE3271	Electric Circuits Laboratory	2 nd Semester (EEE)
EC3311	Electronic Devices and Circuits Laboratory	3 rd Semester (EEE)
EE3511	Power Electronics Laboratory	5 th Semester (EEE)
EE8811	Project work	8 th Semester (EEE)

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INSTRUMENTATION & CONTROL SYSTEM LABORATORY

Laboratory Incharge :

Mr.M.Senthil Kumar Technician :

Mr.C. Govindaraj

Store Room:



Area of the laboratory: $13.75\text{M} \times 9.12\text{M} = 125.40 \text{ Sq.M}$

Description:

- All the experimental kits and components are stored in the separate store room.having selves and racks

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- There are 9 double sided experiment working table in this laboratory.
- This laboratory is covering the Control and Instrumentation, Engineering Practices and Electrical Circuits related laboratory courses prescribed by Anna University.
- Each experiments working table having proper protecting devices such as fuse and MCB.
- **Major Equipments Cost in Instrumentation & Control Lab: Rs. 7,05,851.22**

The following courses are conducted in this Laboratory for the Academic Year (2023-2024)

GE3271	Engineering Practice Laboratory	2 nd Semester (All UG Programmes)
EE3512	Control and Instrumentation Laboratory	5 th Semester (EEE)
EE8811	Project work	8 th Semester (EEE)

COMPUTER AND EMBEDDED SYSTEMS LABORATORY

Laboratory Incharge: Mr.T.Arunprasath

Technician : Mr.C.
Govindaraj



Area of the laboratory: $13.29\text{M} \times 9.14\text{M} = 155.59 \text{ Sq.M}$

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Description:

- There are 72 systems with 16 Mbps internet connections provided in this laboratory.
- The Lab is completely air –conditioned with 6 ton A/C.
- This laboratory cover Anna university syllabus belongs to the Computer, power systemsimulation related experiments.
- **Major Equipments Cost in Lab: Rs. 20, 15, 928**

Configuration Details: Intel Core i3 4130 Processor (4th Generation), Intel H81 Chipset Mother board Integrated Gigabit Ethernet card, 4 GB DDR3 Ram @ 1066 MHz (2 RAM Slots), 500 GB 7,200 RPM HDD, 18.5” Flat Panel Monitor

The following courses are conducted in this Laboratory for the Academic Year (2023-2024)

CS3362	C Programming and Data Structures Laboratory	3 rd Semester (EEE)
EE3611	Power System Laboratory	6 th Semester (EEE)
EE8711	Power System Simulation Laboratory	7 th Semester (EEE)
EE8811	Project work	8 th Semester (EEE)

PROJECT & RESEARCH LABORATORY

Laboratory Incharge : Mr.M.Paul

Jeyaraj Technician : :

Ms.M.Pandiselvi

Area of the laboratory: 6.7M×9.12M=61.10 Sq.M

- This Laboratory was established to encourage the students for doing projects and research work.
- This Laboratory contains BLDC Motor, Switched Reluctance Motor, Stepper Motor, Power Quality Analyzer for analyzing proto-type experimental models related to Power Electronic Converters.
- This Laboratory also used to do proto-type models related to Robotics and Control.
- **Establishing Cost of the Laboratory: Rs.3,00,000.**

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SAMPLE PROJECTS

PC BASED AUTOMATION SYSTEMS FOR AC INDUCTION MOTOR



The schematic diagram of PC based automation systems for AC induction motor is shown in Figure. The voltage given to the 3 Phase induction motor is gradually increased till the rated voltage by using the autotransformer. The purpose of maintaining the rated voltage is to reduce the starting current. The voltage given to the 3 Phase induction motor and the current flow through it are measured by using current and voltage sensor. The speed of the induction motor is measured by using the proximity sensor. The signal conditioning unit converts the current, voltage and the speed to digital signal and then send to the personal computer, where software programs are loaded to perform the analysis.

EMBEDDED NETWORK CONTROL BETWEEN HETEROGENEOUS NONLINEAR SYSTEMS FOR AGRICULTURAL APPLICATIONS

Objectives:

- To design and develop two heterogeneous systems
- To make Network Control between them using IEEE standard wireless networks

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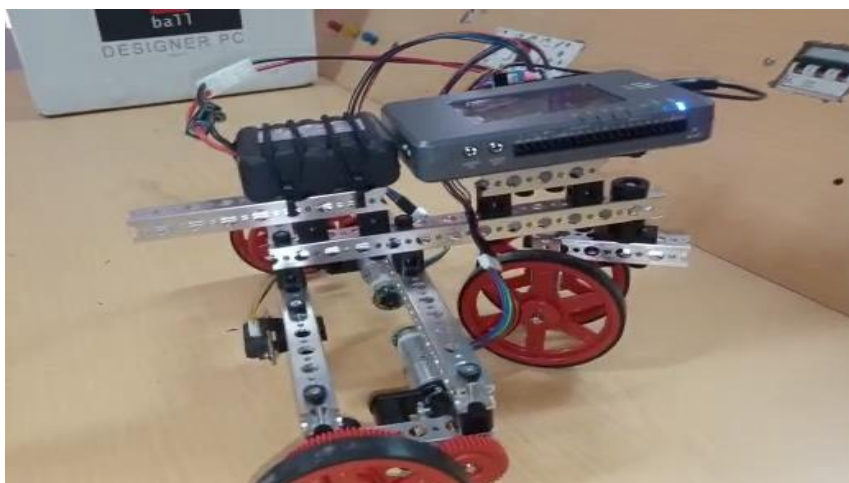
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- To create a novel and comprehensive representation of the cyber physical system that captures the interrelationship between the cyber and the physical elements
- To develop optimal strategies for the defender and the attacker
- To develop the intelligent optimal controller for the physical system in the presence of uncertain dynamics induced by the cyber system
- To eradicate the cyber drawbacks like connectivity problem, integrity problem, delays, congestion and packet losses.
- To implement and analyze the performance of the prototype model in real-time.



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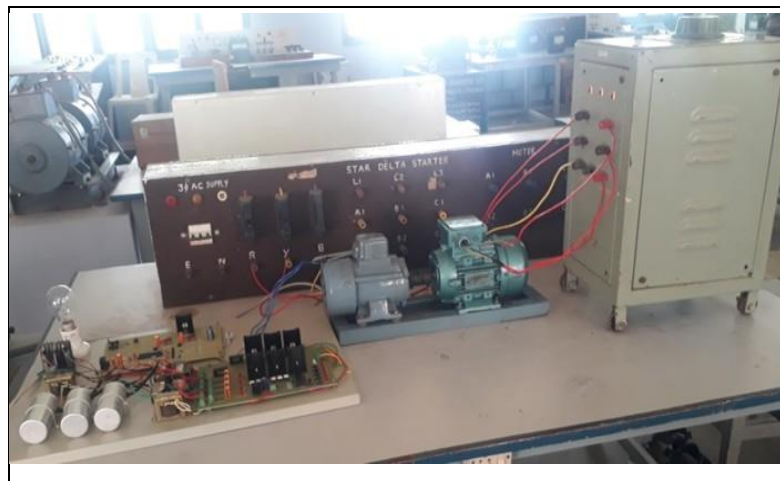
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SOLAR ENERGY BASED SMART LAVATORY CLEANING SYSTEM



India has developed in advance technologies in the all the field by smart way, but lack of attention in lavatory system. Hence, a solar energy based smart lavatory cleaning system is proposed. This project implemented using Gear motor, Solar photo voltaic Cell, Lead acid battery, Arduino controller, Water tank and Cleaning liquid tank. The Motor is operated manually by switch control, when the operator press the switch for motor control the cleaning action takes place, the direction of motor also can be controlled by the switch, at the same time the operator can control the pump for water and cleaning liquids. All the control actions will be carried by Arduino Nano controller. The system powered by battery hence it can be rechargeable with the help of direct power as well as using solar. A solar energy-based smart lavatory cleaning system is a modern and eco-friendly solution for maintaining the cleanliness and hygiene of public restrooms.

PERFORMANCE ASSESSMENT OF MICRO WIND TURBINE ENERGY GENERATOR



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The micro wind turbine is a portable energy source for remote regions. The large wind turbine has high noise, installation cost, transmission loss. So, it is replaced by the micro wind turbine. In this project the generation of power is using induction machine, because of insufficient wind resources. This project includes suitable frequency selection using variable voltage variable frequency (v/f) drive to generate desired power. This project aims at the analysis and development of Micro Wind Turbine and generation of power for domestic applications at any wind speed without shutting down the turbine.

ELECTRIC BIKE BLDC HUB MOTOR CONTROL USING MCU

In this project a primary objective of the project is to design a feasible yet highly adaptable E-bike. As the number of motor vehicles on the roads throughout the world increase at staggering rate each year the dependence on oil-based fuel grows almost unchecked. To move away from this dependence on oil, a vast amount of money is being spent on the development of electrical vehicles that may be produced electrical motor effective cycle Design the aim of this study is to investigate how to design a simple, cost-effective model of electrical motorcycle with intelligent control system. squirrel cage induction motor parameter by means of a combined ,new trustworthy, simple and cheap process, in order to be used at the first design stages of variable speed drives .In this work three different approaches are combined there are electrical energy is converted again to mechanical energy by mean a induction motor .microcontroller based control system to change the speed and direction of rotation of dc motor armature voltage is varied by pulse width modulation of input dc voltage by using the developed microcontroller's program