
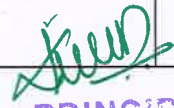


ACADEMIC YEAR (2022-2023)						
		<b>J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY</b> T.N.Palayam(po),Gobi(tk)-638506, Erode(dt).				Metric No 1.3.2
S.No	Name of the course	course code	programme offering	project work	internship	Number of students
<b>(2022-2023) Regulation-2017</b>						
1	Project Work	EE 8811	ELECTRICAL & ELECTRONICS ENGINEERING	✓		10
2	Electric Energy Generation,Utilization and Conservation	EE8015	ELECTRICAL & ELECTRONICS ENGINEERING	✓	✓	6
3	High Voltage Direct Current Transmission	EE8017	ELECTRICAL & ELECTRONICS ENGINEERING		✓	5
4	Renewable Energy Systems	EE8703	ELECTRICAL & ELECTRONICS ENGINEERING	✓	✓	6
5	High Voltage Engineering	EE8701	ELECTRICAL & ELECTRONICS ENGINEERING	✓		4
6	Power System Operation and Control	EE8702	ELECTRICAL & ELECTRONICS ENGINEERING		✓	7
7	Protection and Switchgear	EE8602	ELECTRICAL & ELECTRONICS ENGINEERING	✓		3
8	Microprocessors and Microcontrollers	EE8551	ELECTRICAL & ELECTRONICS ENGINEERING		P	6
9	Power Electronics	EE8552	ELECTRICAL & ELECTRONICS ENGINEERING	✓		7
10	Transmission and Distribution	EE8402	ELECTRICAL & ELECTRONICS ENGINEERING	✓		8

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**



## J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

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

Accredited by NAAC with "A" grade

T.N. Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506



### DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

S.No	Name of the Course that include experiential learning through Project Work/Internship/Field Visit
1	Project Work
2	Electric Energy Generation, Utilization and Conservation
3	High Voltage Direct Current Transmission
4	Renewable Energy Systems
5	High Voltage Engineering
6	Power System Operation and Control
7	Protection and Switchgear
8	Microprocessors and Microcontrollers
9	Power Electronics
10	Transmission and Distribution

**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

# **PROJECT WORK**

EE8811

PROJECT WORK

L T P C

0 0 20 10

**OBJECTIVES:**


- To develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same. To train the students in preparing project reports and to face reviews and viva voce examination.

The students in a group of 3 to 4 works on a topic approved by the head of the department under the guidance of a faculty member and prepares a comprehensive project report after completing the work to the satisfaction of the supervisor. The progress of the project is evaluated based on a minimum of three reviews. The review committee may be constituted by the Head of the Department. A project report is required at the end of the semester. The project work is evaluated based on oral presentation and the project report jointly by external and internal examiners constituted by the Head of the Department.

**TOTAL: 300 PERIODS**

**OUTCOMES:**

On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).



**HYBRID ELECTRIC BICYCLE**



**A PROJECT REPORT**

*Submitted by*

**DEEPAK.P** (731219105005)

**DHIVAKARAN.R** (731219105007)

**KARTHIKPRABHU.P** (731219105012)

**SELVI.S** (731219105019)

*in partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

*in*

**ELECTRICAL AND ELECTRONICS ENGINEERING**

**J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N.PALAYAM-638506**

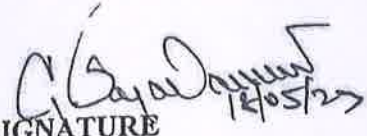
**ANNA UNIVERSITY: CHENNAI-600025**

**MAY-2023**

**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**

BONAFIDE CERTIFICATE

Certified that this project report is "HYBRID ELECTRIC BICYCLE MODEL" is the bonafide work of "DEEPAK.P (731219105005), DHIVAKARAN.R (731219105007), P.KARTHIKPRABHU (731219105012) , SELVI.S (731219105019)" who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
SIGNATURE

Dr.C.SARAVANAN.,M.E.,Ph.D

HEAD OF THE DEPARTMENT

Department of Electrical and  
Electronics Engineering,  
J.K.K Munirajah College of  
Technology,  
T.N.Palayam-638506

  
SIGNATURE

SIGNATURE

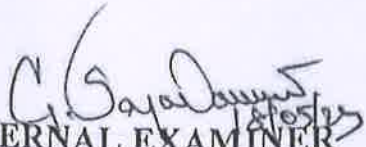
Mr.G.PALANISAMY.,M.E.,

SUPERVISOR &

ASSISTANT PROFESSOR

Department of Electrical and  
Electronics Engineering,  
J.K.K Munirajah College of  
Technology,  
T.N.Palayam-638506

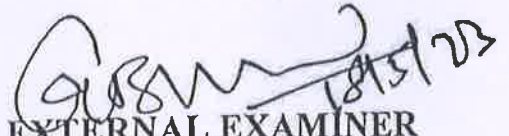
Submitted for the project viva voce held on.....18-05-2023 - FN.....

  
INTERNAL EXAMINER



PRINCIPAL

JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt),

  
EXTERNAL EXAMINER

# CHAPTER 1

## INTRODUCTION

### 1.1 MAJOR ISSUES

The story of summer travel in rural areas, and pollution. The best tech app as a Future E. bike rack option. The E-bike is a battery-operated vehicle that emits less pollution and requires less maintenance. E-bikes are the most environmentally friendly alternative to both regular bicycles and autos. Being a sustainable and practical mode of transportation. Physically handicapped passengers can travel independently on E-bikes thanks to a unique modification. The goal of building an electric bicycle is to demonstrate the benefits of using clean energy rather than a combustion engine to generate power. These cycles are powered by a battery coupled to an electric motor. The performance of the motor can be altered to meet the limits, depending on its type.

### 1.2 NEED FOR ELECTRIC BICYCLE

Electric bicycles are the bridge between commuting faster and commuting safer, electric bicycle reduces the human energy input that makes commuting easier and faster. A normal traditional bicycle moving at its average speed will be around 15-19km/hr, electric bicycles can commute at a speed of 25km/h and maximum speed can be increased even further without the human energy input. An avg person gets tired after 35-45 mins of cycling, in other words, we lose internal energy as we commute by pedaling on a normal bicycle. This energy that a human loses for commuting can be eliminated by the use of an electric bicycle and that energy can be used in other work that requires.

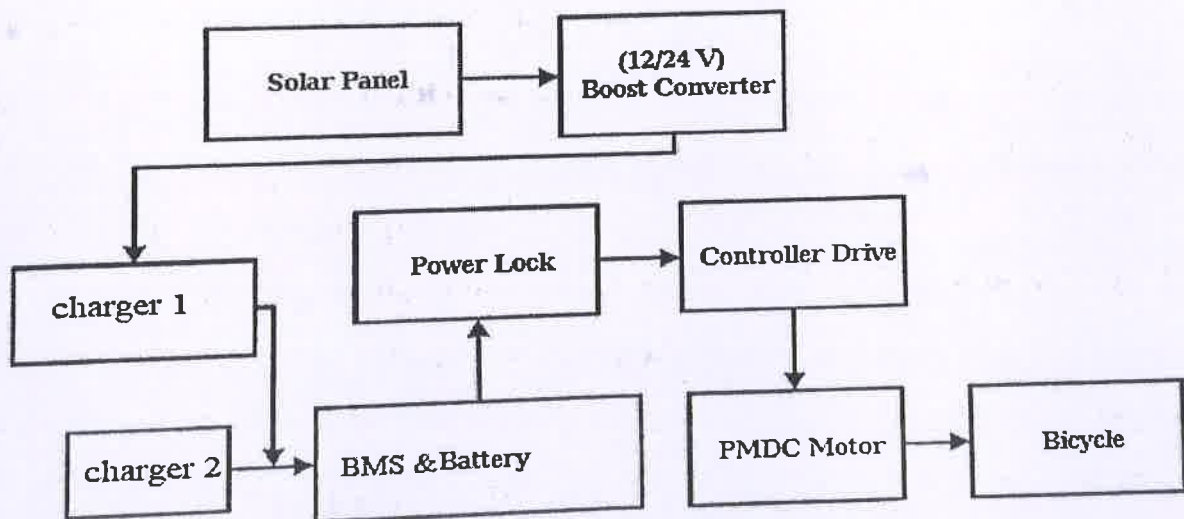
### 1.3 PROBLEM FORMULATION

- We are concerned about the growing global energy consumption, which encourages us to change into renewable.

- In various places, they many **energy-saving strategies**. Our main goal is the automotive business, where we convert bicycles into electric bikes.
- Our fundamental goal is to build a product that travels at twice the rate of a cycling while involving no extra exertion (sales). We adopt a **PMDC motor** instead of a combustion engine in your two - wheelers as it emits less air, works better, and creates lesser commotion.

These bikes are powered by energy stored in **rechargeable packages**.

- Make use of electricity as a key source of energy.
- **The battery** is charged using a **distribution system** that is fed from the main system.



**Fig. 1.1** Block diagram of the drive train

*[Signature]*  
 PRINCIPAL  
 JKK MUNIRAJAH COLLEGE  
 OF TECHNOLOGY  
 T.N. PALAYAM (Po)-638 506.  
 GOBI (Tk), ERODE (Dt).

## CHAPTER 6

### CONCLUSION

We're looking at different renewable energy such as solar water and capacitors as we use renewable resources include oil products greater. There are various techniques for saving energy. Electric bicycles, a newish kind of transportation, provide a practical responsibility of carrying people of all ages. It's a low-cost mode of transportation that others can afford. This bike's engines run smoothly, and the car battery is small, allowing it to cruise so at faster pace. These bikes are less environmentally concerned, are more profitable, and can be chopped down into smaller parts. These bikes could be a good route to get through town, especially with the rising expense of oil. They will be significantly cheaper than fuel motorbikes and will be significantly faster than a typical bike.

### REFERENCE

1. L. N. Demeter, V. Turcin, M. Hanek, G. Vataselu and B. Zorlescu "Modular solution for charging the batteries of electric bikes parked on public domain," 2017 Electric Vehicles International Conference (EV), 2017, pp. 1-5, doi: 10.1109/EV.2017.8242106.
2. R. Meireles, J. Silva, A. Teixeira and B. Ribeiro, "An E-Bike design for the fourth-generation bike-sharing services," 2013 World Electric Vehicle Symposium and Exhibition (EVS27), 2013, pp. 1-6, doi: 10.1109/EVS.2013.6915040.
3. D. M. Sousa, P. J. Costa Branco and J. A. Dente, "Electric bicycle using batteries and supercapacitors," 2007 European Conference on Power Electronics and Applications, 2007, pp. 1-10, doi: 10.1109/EPE.2007.4417425.

EE8703

**RENEWABLE ENERGY SYSTEMS**

L T P C  
3 0 0 3

**OBJECTIVES:**

To impart knowledge on the following Topics

- Awareness about renewable Energy Sources and technologies.
- Adequate inputs on a variety of issues in harnessing renewable Energy.
- Recognize current and possible future role of renewable energy sources.

**UNIT I RENEWABLE ENERGY (RE) SOURCES 9**

Environmental consequences of fossil fuel use, Importance of renewable sources of energy, Sustainable Design and development, Types of RE sources, Limitations of RE sources, Present Indian and international energy scenario of conventional and RE sources.

**UNIT II WIND ENERGY 9**

Power in the Wind – Types of Wind Power Plants(WPPs)–Components of WPPs-Working of WPPs- Siting of WPPs-Grid integration issues of WPPs.

**UNIT III SOLAR PV AND THERMAL SYSTEMS 9**

Solar Radiation, Radiation Measurement, Solar Thermal Power Plant, Central Receiver Power Plants, Solar Ponds.- Thermal Energy storage system with PCM- Solar Photovoltaic systems : Basic Principle of SPV conversion – Types of PV Systems- Types of Solar Cells, Photovoltaic cell concepts: Cell, module, array ,PV Module I-V Characteristics, Efficiency & Quality of the Cell, series and parallel connections, maximum power point tracking, Applications.

**UNIT IV BIOMASS ENERGY 9**

Introduction-Bio mass resources –Energy from Bio mass: conversion processes-Biomass Cogeneration-Environmental Benefits. Geothermal Energy: Basics, Direct Use, Geothermal Electricity. Mini/micro hydro power: Classification of hydropower schemes, Classification of water turbine, Turbine theory, Essential components of hydroelectric system.

**UNIT V OTHER ENERGY SOURCES 9**

Tidal Energy: Energy from the tides, Barrage and Non Barrage Tidal power systems. Wave Energy: Energy from waves, wave power devices. Ocean Thermal Energy Conversion (OTEC)- Hydrogen Production and Storage- Fuel cell : Principle of working- various types - construction and applications. Energy Storage System- Hybrid Energy Systems.

**TOTAL : 45 PERIODS**

**OUTCOMES:**

- Ability to create awareness about renewable Energy Sources and technologies.
- Ability to get adequate inputs on a variety of issues in harnessing renewable Energy.

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**

**EE8701**

**HIGH VOLTAGE ENGINEERING**

L T P C  
3 0 0 3

**OBJECTIVES:**

To impart knowledge on the following Topics

- Various types of over voltages in power system and protection methods.
- Generation of over voltages in laboratories.
- Measurement of over voltages.
- Nature of Breakdown mechanism in solid, liquid and gaseous dielectrics.
- Testing of power apparatus and insulation coordination

**UNIT I OVER VOLTAGES IN ELECTRICAL POWER SYSTEMS 9**

Causes of over voltages and its effects on power system – Lightning, switching surges and temporary over voltages, Corona and its effects – Bewley lattice diagram- Protection against over voltages.

**UNIT II DIELECTRIC BREAKDOWN 9**

Properties of Dielectric materials - Gaseous breakdown in uniform and non-uniform fields – Corona discharges – Vacuum breakdown – Conduction and breakdown in pure and commercial liquids, Maintenance of oil Quality – Breakdown mechanisms in solid and composite dielectrics- Applications of insulating materials in electrical equipments.

**UNIT III GENERATION OF HIGH VOLTAGES AND HIGH CURRENTS 9**

Generation of High DC voltage: Rectifiers, voltage multipliers, vandigriff generator: generation of high impulse voltage: single and multistage Marx circuits – generation of high AC voltages: cascaded transformers, resonant transformer and tesla coil- generation of switching surges – generation of impulse currents - Triggering and control of impulse generators.

**UNIT IV MEASUREMENT OF HIGH VOLTAGES AND HIGH CURRENTS 9**

High Resistance with series ammeter – Dividers, Resistance, Capacitance and Mixed dividers - Peak Voltmeter, Generating Voltmeters - Capacitance Voltage Transformers, Electrostatic Voltmeters – Sphere Gaps - High current shunts- Digital techniques in high voltage measurement.

**UNIT V HIGH VOLTAGE TESTING & INSULATION COORDINATION 9**

High voltage testing of electrical power apparatus as per International and Indian standards – Power frequency, impulse voltage and DC testing of Insulators, circuit breakers, bushing, isolators and transformers- Insulation Coordination& testing of cabilities.

**TOTAL : 45 PERIODS**

**OUTCOMES:**

- Ability to understand Transients in power system.
- Ability to understand Generation and measurement of high voltage.



**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506,**  
**GOBI (TR), ERODE (Dt).**



# WIRELESS SOLAR EV CHARGING STATION



## A PROJECT REPORT

*Submitted by*

**DEEPA.S**

**(731219105004)**

**MAGESHWARI.K**

**(731219105013)**

**YUVARAJA.S**

**(731219105022)**

*In partial fulfillment for the award of the degree*

*Of*

**BACHELOR OF ENGINEERING**

*In*


**ELECTRICAL AND ELECTRONICS ENGINEERING**

**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N.PALAYAM-638506**

**ANNA UNIVERSITY:: CHENNAI-600025**

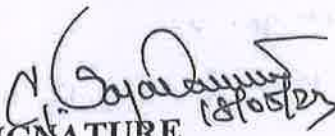
**MAY-2023**

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**

**ANNA UNIVERSITY::CHENNAI-600025**


**BONAFIDE CERTIFICATE**

Certified that this project report "**WIRELESS SOLAR EV CHARGING STATION**" is the bonafide work of **S.DEEPA (731219105004)**, **M.MAGESHWARI (731219105013)** and **S.YUVARAJA (731219105022)** who carried out the project work under my supervision certified further that to the best of my knowledge the work reported here in does not form part of any other candidate.

  
SIGNATURE

**Dr.C.SARAVANAN.,M.E.,Ph.D.,**  
**HEAD OF THE DEPARTMENT**

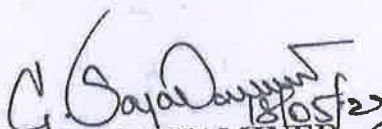
Department of Electrical and Electronics  
Engineering  
J.K.K. Munirajah College of Technology  
T.N. Palayam-638506

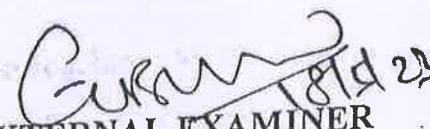
  
SIGNATURE


**Mrs.P.HEMALATHA,M.E.,M.B.A.,**  
**SUPERVISOR**

Department of Electrical and Electronics  
Engineering  
J.K.K. Munirajah College of Technology  
T.N. Palayam-638506

Submitted for the B.E Degree Project Viva Voce held on **18-05-2023 - FN**..

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**

## CHAPTER 1

### 1. INTRODUCTION

The Wireless charging for house appliances represents an attractive technological solution, alternative to the conventional wire-based energy transmission. By means of the coils inductive coupling effect, the electric power can be transferred from the inductor coil to the receiver without exploiting power cords. The wireless charging can bring great advantages in the field of household appliances charging or supplying, due to its contribution to comfort and safety. For instance, a mobile phone battery could be easily recharged by only placing the device on a magnetic pad, thus avoiding the use of the bulky and bothering conventional wired chargers. Further, the absence of a plug-in operation prevents any potential electrocution risk. In the scenario of an ever more interconnected world, the proliferation of new consumer electronic devices forces to question the conventional technologies for the battery charging. Thanks to the wireless charging, multiple devices could be simultaneously charged by a single magnetic pad, not needing multiple chargers and plugs. An international common standard was built by the Wireless Power Consortium (WPC) to help the full interoperability between chargers and devices. Now-a-days, the wireless charging technology for mobile phones is successfully commercialized and standardized. The spread of the wireless charging technology to the full range of the household appliances, from the lowest (e.g. smart phone and laptop) to the highest power levels (e.g. television and washing machine), is strongly dependent on the power efficiency target. The industrial and academic actors are addressing their research on efficiency-related issues. An innovative topology of power receiver of wireless charger for consumer devices is proposed. As far as household appliances are

concerned, an example of an IPT system for a 1 kW power level is provided. In an investigation on the physiological compatibility of a magnetic coupler system for Wireless charging is carried out. In order to increment the distance between the coils without invalidating the coupling efficiency, working at the resonance condition is essential.


## 1.1 PROJECT MOTIVATION

The motivation for wireless power transfer system comes from wires complex and untidy. With a large number of gadgets are using now-a-days that focus on smart phone, there are demands for convenience in managing their power supplies. Other than that, it can help user easily to use technology at anywhere and anytime without worrying their battery draining quickly on their smart phone and other appliances in home.

## 1.2 SCOPE OF THE PROJECT

The scope of this project is:

- Using only normal copper wire and enamel copper wire to do resonant coil on the existing circuit that had been commercialized.
- Develop the wireless power transfer system using a hardware and analytical by using existing circuit that had been commercial.
- The project only focused performance of the system with two type of material on the coil.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TR), ERODE (DI).

## CONCLUSION

- In this part, an immediate AC-AC WPT converter has been proposed. The converter has been appeared to have a less complex structure contrasted with a customary AC-DC-AC converter.
- This part centered around the investigation of the AC-AC converter in connection to the control system.
- While there are various conceivable topologies for the immediate AC-AC converters dependent on vitality infusion and free swaying system as talked about, just a single chosen precedent converter topology is depicted here.



PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).



# SOLAR INDUCTION STOVE



## A PROJECT REPORT

*Submitted by*

**JANAKRISHNAN. M** (731219105010)

**NANDHINI.G** (731219105016)

**NIVETHAVARANI.V** (731219105017)

*In partial fulfillment for the award of the degree*

*of*

**BACHELOR OF ENGINEERING**

**IN**


**ELECTRICAL AND ELECTRONICS ENGINEERING**

**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N. PALAYAM-638506**

**ANNA UNIVERSITY::CHENNAI 600025**

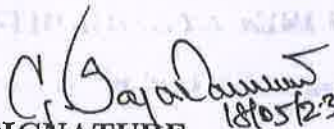
**MAY-2023**

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638506,**  
**GOBI (Tk), ERODE (Dt).**

**ANNA UNIVERSITY : CHENNAI 600 025**

**BONAFIDE CERTIFICATE**

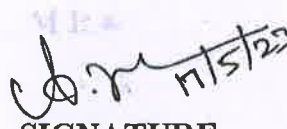
Certified that this project report “**SOLAR INDUCTION STOVE**” is the bonafide work of “**M. JANAKRISHNAN (731219105010), G. NANDHINI (731219105016), and V. NIVETHAVARANI (731219105017)**” who carried out the Project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
SIGNATURE 18/05/23

**Mr. C. SARAVANAN., M.E., Ph.D**

**HEAD OF THE DEPARTMENT**

Department of Electrical and  
Electronics Engineering,  
J.K.K.Munirajah College of technology,  
T.N. Palayam – 638506

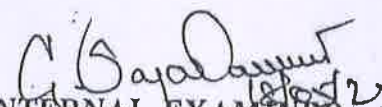
  
SIGNATURE 17/5/23

**Mr. A. VIGNESHKUMAR. M.E.,**

**SUPERVISOR**

Department of Electrical and  
Electronics Engineering,  
J.K.K. Munirajah College of technology,  
T.N. Palayam - 638506

Submitted for the B.E Project Viva Voice held on....**18/05/2023**.....**FN**.....

  
INTERNAL EXAMINER 18/05/23

  
EXTERNAL EXAMINER 18/05/2023

**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**

## CHAPTER 1

### INTRODUCTION


#### INTRODUCTION

There is an ongoing effort to reduce the Carbon dioxide (CO<sub>2</sub>) footprint released into the atmosphere; this is a pending concern due to recent studies in climate change and other studies.

Many initiatives have been considered to protect the environment, among these, there have been some suggestions for the implementation of renewable energy. It is also important to note that it is just as important to use this energy efficiently in a responsible manner.

In recent years, Ecuador had an increase in generation of clean power from hydro plants projects, and it will become energy independent for current demand, and in the future, it will be a source of energy for neighboring countries. For these reasons, Ecuador is also planning for reducing the natural gas consumption, at this moment subsidized by the government which will make better use of the energy surplus.

As an additional measure to contribute to the new direction in energy production and management, there is a governmental initiative to migrate the current use of natural gas to electrical power for induction stoves. Induction cooking differs from all other methods of cooking; this is due that the heat from the pot is directly generated at the pot from the stove.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

## CHAPTER 6

### CONCLUSION

#### CONCLUSION

In the past we use wooden stoves and kerosene stoves for cooking. Later the modern technology grown vastly we also upgraded from wooden stove gas stoves and electrical stoves. Now in this project we use an induction stove which works on the solar energy.

The solar energy is converted to electrical energy and this energy can be used. While cooking in the day time we can directly get the solar energy but in the time night we would use the energy which we stored earlier. So, solar energy helps us to use the induction stove in day and night, also it can be alternative for gas stove or electrical stove which are used in day today life. The model is easy to handle and portable too. It is a solution for energy crisis.

In Somalia, consumers are heavily dependent on the foreign technology which makes it difficult for troubleshooting when the products need repair or disfunction. designed in this project for the proposed solar based induction cooking system is made with all the local components available which will make it compact in size, cheap and the fixation will be easy.

The proposed system will use solar energy as the input to the cooker to reduce the burden on the natural gas supply as solar energy has a good prospect to harness solar power in Somalia. In the coming years, the price of solar panels will reduce further and make it more economically viable for the consumers.



PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

**OBJECTIVES:**

To impart knowledge on the following Topics

- Different types of power semiconductor devices and their switching
- Operation, characteristics and performance parameters of controlled rectifiers
- Operation, switching techniques and basics topologies of DC-DC switching regulators.
- Different modulation techniques of pulse width modulated inverters and to understand harmonic reduction methods.
- Operation of AC voltage controller and various configurations.

**UNIT I POWER SEMI-CONDUCTOR DEVICES 9**

Study of switching devices, SCR, TRIAC, GTO, BJT, MOSFET, IGBT and IGCT- Static characteristics: SCR, MOSFET and IGBT - Triggering and commutation circuit for SCR-Introduction to Driver and snubber circuits.

**UNIT II PHASE-CONTROLLED CONVERTERS 9**

2-pulse, 3-pulse and 6-pulse converters— performance parameters –Effect of source inductance— Firing Schemes for converter—Dual converters, Applications-light dimmer, Excitation system, Solar PV systems.

**UNIT III DC TO DC CONVERTERS 9**

Step-down and step-up chopper-control strategy— Introduction to types of choppers-A, B, C, D and E -Switched mode regulators- Buck, Boost, Buck- Boost regulator, Introduction to Resonant Converters, Applications-Battery operated vehicles.

**UNIT IV INVERTERS 9**

Single phase and three phase voltage source inverters (both 120° mode and 180° mode)—Voltage & harmonic control—PWM techniques: Multiple PWM, Sinusoidal PWM, modified sinusoidal PWM – Introduction to space vector modulation –Current source inverter, Applications-Induction heating, UPS.


**UNIT V AC TO AC CONVERTERS 9**

Single phase and Three phase AC voltage controllers—Control strategy- Power Factor Control – Multistage sequence control –single phase and three phase cyclo converters –Introduction to Matrix converters, Applications –welding .

**TOTAL : 45 PERIODS**

**OUTCOMES:**

- Ability to analyse AC-AC and DC-DC and DC-AC converters.
- Ability to choose the converters for real time applications.

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**

**EE8015 ELECTRIC ENERGY GENERATION, UTILIZATION AND CONSERVATION**

L T P C  
3 0 0 3

**OBJECTIVES:**

To impart knowledge on the following Topics

- To study the generation, conservation of electrical power and energy efficient equipments.
- To understand the principle, design of illumination systems and energy efficiency lamps.
- To study the methods of industrial heating and welding.
- To understand the electric traction systems and their performance.

**UNIT I ILLUMINATION 9**

Importance of lighting – properties of good lighting scheme – laws of illumination – photometry -types of lamps – lighting calculations – basic design of illumination schemes for residential, commercial, street lighting, factory lighting and flood lighting – LED lighting and energy efficient lamps.

**UNIT II REFRIGERATION AND AIR CONDITIONING 9**

Refrigeration-Domestic refrigerator and water coolers - Air-Conditioning-Variou types of air-conditioning system and their applications, smart air conditioning units – Energy Efficient motors: Standard motor efficiency, need for efficient motors, Motor life cycle, Direct Savings and payback analysis, efficiency evaluation factor.

**UNIT III HEATING AND WELDING 9**

Role of electric heating for industrial applications – resistance heating – induction heating –dielectric heating - electric arc furnaces. Brief introduction to electric welding – welding generator, welding transformer and the characteristics.

**UNIT IV TRACTION 9**

Merits of electric traction – requirements of electric traction system – supply systems –mechanics of train movement – traction motors and control – braking – recent trends in electric traction.

**UNIT V DOMESTIC UTILIZATION OF ELECTRICAL ENERGY 9**

Domestic utilization of electrical energy – House wiring. Induction based appliances, Online and OFF line UPS, Batteries - Power quality aspects – nonlinear and domestic loads – Earthing –Domestic, Industrial and Substation.

**TOTAL : 45 PERIODS**

**OUTCOMES:**

- To understand the main aspects of generation, utilization and conservation.
- To identify an appropriate method of heating for any particular industrial application

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).

**EE8551****MICROPROCESSORS AND MICROCONTROLLERS**L T P C  
3 0 0 3**OBJECTIVES:**

To impart knowledge on the following Topics

- Architecture of  $\mu$ P8085 &  $\mu$ C 8051
- Addressing modes & instruction set of 8085 & 8051.
- Need & use of Interrupt structure 8085 & 8051.
- Simple applications development with programming 8085 & 8051

**UNIT I 8085 PROCESSOR**

9

Hardware Architecture, pinouts – Functional Building Blocks of Processor – Memory organization – I/O ports and data transfer concepts– Timing Diagram – Interrupts.

**UNIT II PROGRAMMING OF 8085 PROCESSOR**

9

Instruction -format and addressing modes – Assembly language format – Data transfer, data manipulation &amp; control instructions – Programming: Loop structure with counting &amp; Indexing – Look up table - Subroutine instructions - stack.

**UNIT III 8051 MICRO CONTROLLER**

9

Hardware Architecture, pinouts – Functional Building Blocks of Processor – Memory organization – I/O ports and data transfer concepts– Timing Diagram – Interrupts- Data Transfer, Manipulation, Control Algorithms &amp; I/O instructions, Comparison to Programming concepts with 8085.

**UNIT IV PERIPHERAL INTERFACING**

9

Study on need, Architecture, configuration and interfacing, with ICs: 8255, 8259, 8254, 8279, - A/D and D/A converters &amp; Interfacing with 8085 &amp; 8051.

**UNIT V MICRO CONTROLLER PROGRAMMING & APPLICATIONS**

9

Simple programming exercises- key board and display interface – Control of servo motor- stepper motor control- Application to automation systems.

**TOTAL : 45 PERIODS****OUTCOMES:**

- Ability to acquire knowledge in Addressing modes & instruction set of 8085 & 8051.

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).

**EE8702****POWER SYSTEM OPERATION AND CONTROL**

L	T	P	C
3	0	0	3

**OBJECTIVES:**

To impart knowledge on the following topics

- Significance of power system operation and control.
- Real power-frequency interaction and design of power-frequency controller.
- Reactive power-voltage interaction and the control actions to be implemented for maintaining the voltage profile against varying system load.
- Economic operation of power system.

**UNIT I PRELIMINARIES ON POWER SYSTEM OPERATION AND CONTROL 9**

Power scenario in Indian grid – National and Regional load dispatching centers – requirements of good power system - necessity of voltage and frequency regulation - real power vs frequency and reactive power vs voltage control loops - system load variation, load curves and basic concepts of load dispatching - load forecasting - Basics of speed governing mechanisms and modeling - speed load characteristics - regulation of two generators in parallel.

**UNIT II REAL POWER - FREQUENCY CONTROL 9**

Load Frequency Control (LFC) of single area system-static and dynamic analysis of uncontrolled and controlled cases - LFC of two area system - tie line modeling - block diagram representation of two area system - static and dynamic analysis - tie line with frequency bias control – state variability model - integration of economic dispatch control with LFC.

**UNIT III REACTIVE POWER – VOLTAGE CONTROL 9**

Generation and absorption of reactive power - basics of reactive power control – Automatic Voltage Regulator (AVR) – brushless AC excitation system – block diagram representation of AVR loop - static and dynamic analysis – stability compensation – voltage drop in transmission line - methods of reactive power injection - tap changing transformer, SVC (TCR + TSC) and STATCOM for voltage control.

**UNIT IV ECONOMIC OPERATION OF POWER SYSTEM 9**

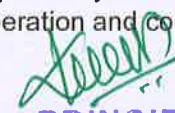
Statement of economic dispatch problem - input and output characteristics of thermal plant - incremental cost curve - optimal operation of thermal units without and with transmission losses (no derivation of transmission loss coefficients) - base point and participation factors method - statement of unit commitment (UC) problem - constraints on UC problem - solution of UC problem using priority list – special aspects of short term and long term hydrothermal problems.

**UNIT V COMPUTER CONTROL OF POWER SYSTEMS 9**

Need of computer control of power systems-concept of energy control centers and functions – PMU - system monitoring, data acquisition and controls - System hardware configurations - SCADA and EMS functions - state estimation problem – measurements and errors - weighted least square estimation - various operating states - state transition diagram.

**TOTAL : 45 PERIODS****OUTCOMES:**

- Ability to understand the day-to-day operation of electric power system.
- Ability to understand the significance of power system operation and control.

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**



**An IoT based Control System for a Solar  
Membrane Distillation Plant used for  
Greenhouse Irrigation**



**A PROJECT REPORT**

Submitted by

**BHARATHIDASAN.S**

**731219105003**

**DHARANI.P**

**731219105006**

**MURALITHARAN.P**

**731219105014**

*In partial fulfillment for the award of the degree*

of

**BACHELOR OF ENGINEERING**

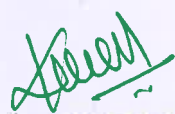
In

**ELECTRICAL AND ELECTRONICS ENGINEERING**

**J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY**

**ANNA UNIVERSITY: CHENNAI 600025**

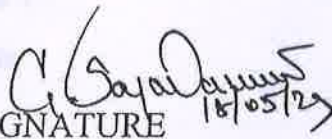
**MAY - 2023**

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEC**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**

**ANNA UNIVERSITY: CHENNAI 600 025**

**BONAFIDE CERTIFICATE**

Certified that this project report is "AN IOT BASED CONTROL SYSTEM FOR A SOLAR MEMBRANCE DISTILLATION PLANT USED FOR GREEN HOUSE IRRIGATION" is the bonafide work of "BHARATHIDASAN.S (731219105003), DHARANI.P (731219105006), MURALITHARAN.P (731219105014)" who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

  
SIGNATURE

**Dr.C.SARAVANAN.,M.E.,Ph.D**

**HEAD OF THE DEPARTMENT**

Department of Electrical and  
Electronics Engineering,  
J.K.K Munirajah College of  
Technology,  
T.N.Palayam-638506

  
SIGNATURE

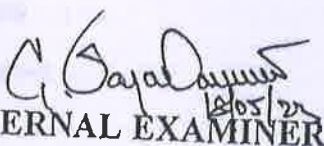
SIGNATURE

**Mr.S.M.PRANESH.,M.E.,**


**SUPERVISOR**

Department of Electrical and  
Electronics Engineering,  
J.K.K Munirajah College of  
Technology,  
T.N.Palayam-638506

Submitted for the project viva voce held on **18-05-2023 FN**

  
INTERNAL EXAMINER

  
EXTERNAL EXAMINER

  
**PRINCIPAL**  
**J.K.K. MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Pd)-638 506.**  
**GOBI (TK), ERODE (Dt).**


# CHAPTER 1

## INTRODUCTION

### 1.1 Embedded Systems

- Simple and easy to install and configure. Saving energy and resources, so that it can be utilized in proper way and amount
- Green houses would be able to smear the proper quantity of water at the proper time by automating green house or nursery green house.
- Avoiding green house at the wrong time of day, reduce runoff from overwatering saturated soils which will improve crop performance.

Automated green house system uses valves to turn motor ON and OFF. Motors can be automated easily by using controllers and no need of labour to message display on liquid crystal display screen, at the end, when the gas leakage is successfully stopped then with the help of reset button the whole system reached to the initial stage. An embedded system is a computer system with a dedicated function within a larger mechanical or electrical system, often with real-time computing constraints. It is embedded as part of a complete device often including hardware and mechanical parts. Embedded systems control many devices in common use today. Ninety-eight percent of all microprocessors are manufactured as components of embedded systems as shown in Figure 1.1.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

## CHAPTER 5

### CONCLUSION & FUTURE WORK

#### 5.1 Conclusion

Precision Green House can be made more accurate and efficient with IOT enabled technologies. IOT can be applied in different domains of Green House. With the help of IOT, use of effective energy for pumps, boosters, lighting and other purposes also done the second one is the crop monitoring. By deploying sensors in the crop field which is connected to the internet for an appropriate decision can be taken with IOT. Efficient use of fertilizers can be made with IOT. Finally conclude that need to develop on optimal Agri-IoT architecture which is enclosed with low cost, low power consumption of devices, better decision making process, QOS service, optimal performance and it is easy to understand the farmer without knowledge.



PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

**OBJECTIVES:**

- To study the structure of electric power system and to develop expressions for the computation of transmission line parameters.
- To obtain the equivalent circuits for the transmission lines based on distance and to determine voltage regulation and efficiency.
- To understand the mechanical design of transmission lines and to analyze the voltage distribution in insulator strings to improve the efficiency.

**UNIT I TRANSMISSION LINE PARAMETERS 9**

Structure of Power System - Parameters of single and three phase transmission lines with single and double circuits -Resistance, inductance and capacitance of solid, stranded and bundled conductors, Symmetrical and unsymmetrical spacing and transposition – application of self and mutual GMD; skin and proximity effects -Typical configurations, conductor types and electrical parameters of EHV lines.

**UNIT II MODELLING AND PERFORMANCE OF TRANSMISSION LINES 9**

Performance of Transmission lines - short line, medium line and long line – equivalent circuits, phasor diagram, attenuation constant, phase constant, surge impedance -transmission efficiency and voltage regulation, real and reactive power flow in lines – Power Circle diagrams - Formation of Corona – Critical Voltages – Effect on Line Performance.

**UNIT III MECHANICAL DESIGN OF LINES 9**

Mechanical design of OH lines – Line Supports –Types of towers – Stress and Sag Calculation – Effects of Wind and Ice loading. Insulators: Types, voltage distribution in insulator string, improvement of string efficiency, testing of insulators.

**UNIT IV UNDER GROUND CABILITIES 9**

Underground capabilities - Types of capabilities – Construction of single core and 3 core Cabilities -Insulation Resistance – Potential Gradient - Capacitance of Single-core and 3 core capabilities- Grading of capabilities - Power factor and heating of capabilities– DC capabilities.

**UNIT V DISTRIBUTION SYSTEMS 9**

Distribution Systems – General Aspects – Kelvin's Law – AC and DC distributions -Techniques of Voltage Control and Power factor improvement – Distribution Loss –Types of Substations -Methods of Grounding – Trends in Transmission and Distribution: EHVAC, HVDC and FACTS (Qualitative treatment only).

**TOTAL : 45 PERIODS****OUTCOMES:**

- To understand the importance and the functioning of transmission line parameters.
- To understand the concepts of Lines and Insulators.



**UNINTERRUPTIBLE  
POWER SUPPLY WITH HYBRID SUPPLY**



**A PROJECT REPORT**

*Submitted by*

**NANDHA KUMAR.S**

**(731219105015)**

**TAMIL SELVAM.A**

**(731219105021)**

**AMSAVENI.M**

**(731219105301)**

*In partial fulfillment for the award of the degree*

*Of*

**BACHELOR OF ENGINEERING**

*In*

**ELECTRICAL AND ELECTRONICS ENGINEERING**

**J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY**

**T.N.PALAYAM-638506**

**ANNA UNIVERSITY:: CHENNAI-600025**

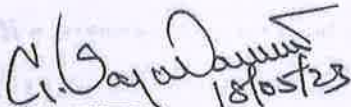
**MAY-2023**

**PRINCIPAL  
J.K.K. MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).**

**ANNA UNIVERSITY: CHENNAI-600025**

**BONAFIDE CERTIFICATE**

Certified that this project report “ **UNINTERRUPTIBLE POWER SUPPLY WITH HYBRID SUPPLY**” Is the bonafide work of **S.NANDHAKUMAR (731219105015), A.TAMILSELVAM (731219105021), and M.AMSAVENI (731219105301)** who carried out the project work under my supervision. Certified further that to the best of my knowledge the work reported here in does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or another candidate.

  
SIGNATURE

**Dr.C.SARAVANAN.,M.E.,Ph.D.,**  
**HEAD OF THE DEPARTMENT**

Department Of Electrical and Electronics  
Engineering  
J.K.K.Munirajah college of technology  
T.N. Palayam-638506

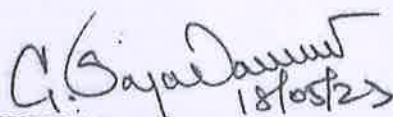
  
SIGNATURE


**T.S.THAMBIRAN M.E.,**  
**SUPERVISOR**

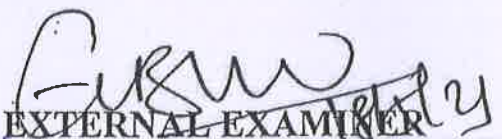
Assistant Professor

Department Of Electrical and Electronics  
Engineering  
J.K.K.Munirajah college of technology  
T.N. Palayam-638506

Submitted for the Project Viva Voce held on **18.08.2023** .....

  
INTERNAL EXAMINER

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (PO)-638 506.  
GOBI (TK), ERODE (DI).

  
EXTERNAL EXAMINER

## CHAPETR-1

### 1. INTRODUCTION

The need of D.C Power supply is always there in the field of electrical engineering. The main advantages these D.C power supplies bring are portability and cost effectiveness as compared to A.C power supplies but sometimes the cheapness of these

That is the output of most of the D.C power supplies present in the market has ripples in it and is not pure D.C. Moreover the output voltage is not exact due to losses in the circuit. Inverter circuit uses the concept of using transformer in the reverse manner. The circuit contains various sections. Multi vibrator section is used to produce the oscillations.

Thus obtained oscillations are amplified by Darlington pair section. Push pull section is used to drive the current into the load. Suitable heat sinks can also be used for the output stage transistors. Finally the transformer is used in reverse manner to obtain a steady 230-240 volts, 60 Hz ac electricity. This electricity can be used to home appliances satisfactorily.




PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).

## CHAPTER 6

### CONCLUSION

The transformer-less inverter are more efficient than the conventional inverter topology. The transformer-less inverter reduces the size and cost of the whole system and reduces the complexity of the system. A single-phase single stage transformer-less inverter fed compressor load is designed. The converter has the capability to step up/down the input voltage with minimum number of passive elements. In this converter buck, boost and buck-boost converters are incorporates in one converter. THD value of output current and voltage of the inverter is 4.83% which is less than 5%. The THD value of the compressor current and voltage is 13.36% and 9.66% which is greater than 5%. So the THD is increased when the converter is connected to the compressor load. The simulation of the proposed system is done on MATLAB Simulink. The extension of this project is to rectify the power quality issues.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).



# J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY

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

Accredited by NAAC with "A" grade

T.N.Palayam (Po), Gobi (Tk), Erode (Dt) – 638 506



## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

### INTERNSHIP / INPLANT TRAINING

2022-2023 (FINAL YEAR)

SL.NO	STUDENT NAME	COMPANY NAME	DURATION	LOCATION
1	DEEPA S	SAKTHI SUGARS LIMITED	01.08.2022 to 06.08.2022	BHAVANI
2	DHARANI P			
3	MAGESHWARI K			
4	NANDHINI G			
5	NIVETHAVARINI V			
6	AMSAVENI M			
7	BARATHIDASAN S	TECHNOLOGI CS GLOBAL PVT LTD	01.08.2022 to 14.08.2022	BENGALURU
8	DEEPAK P			
9	JANAKRISHNAN M			
10	KARTHIK PRABHU P			
11	NANDHAKUMAR S			
12	SELVI S	ANNA CO- OPERATIVE SPINNING MILLS LTD	02.08.2022 to 06.08.2022	ANDIPATTI
13	DIVAKARAN R			
14	MURALIDHARAN P			
15	TAMILSELVAM A			
16	YUVARAJHA S			

PRINCIPAL

JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

**EE8017**

**HIGH VOLTAGE DIRECT CURRENT TRANSMISSION**

**L T P C**  
**3 0 0 3**

**OBJECTIVES:** To impart knowledge about the following topics:

- Planning of DC power transmission and comparison with AC power transmission.
- HVDC converters.
- HVDC system control.
- Harmonics and design of filters.
- Power flow in HVDC system under steady state.

**UNIT I INTRODUCTION**

**9**

DC Power transmission technology–Comparison of AC and DC transmission–Application of DC transmission–Description of DC transmission system–Planning for HVDC transmission–Modern trends in HVDC technology–DC breakers–Operating problems– HVDC transmission based on VSC –Types and applications of MTDC systems.

**UNIT II ANALYSIS OF HVDC CONVERTERS**

**9**

Line commutated converter -Analysis of Graetz circuit with and without overlap -Pulse number– Choice of converter configuration – Converter bridge characteristics– Analysis of a 12 pulse converters– Analysis of VSC topologies and firing schemes.

**UNIT III CONVERTER AND HVDC SYSTEM CONTROL**

**9**

Principles of DC link control–Converter control characteristics–System control hierarchy– Firing angle control– Current and extinction angle control– Starting and stopping of DC link –Power control –Higher level controllers –Control of VSC based HVDC link.

**UNIT IV REACTIVE POWER AND HARMONICS CONTROL**

**9**

Reactive power requirements in steady state–Sources of reactive power–SVC and STATCOM– Generation of harmonics –Design of AC and DC filters– Active filters.

**UNIT V POWER FLOW ANALYSIS IN AC/DC SYSTEMS**

**9**

Per unit system for DC quantities–DC system model –Inclusion of constraints –Power flow analysis –case study

**TOTAL : 45 PERIODS**

**OUTCOMES:**

- Ability to understand the principles and types of HVDC system.
- Ability to analyze and understand the concepts of HVDC converters.
- Ability to acquire knowledge on DC link control.



**PRINCIPAL**

**JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).**

**EE8602**

**PROTECTION AND SWITCHGEAR**

L T P C  
3 0 0 3

**OBJECTIVES:**

To impart knowledge on the following Topics

- Causes of abnormal operating conditions (faults, lightning and switching surges) of the apparatus and system.
- Characteristics and functions of relays and protection schemes.
- Apparatus protection, static and numerical relays
- Functioning of circuit breaker

**UNIT I PROTECTION SCHEMES**

9

Principles and need for protective schemes – nature and causes of faults – types of faults – Methods of Grounding - Zones of protection and essential qualities of protection – Protection scheme

**UNIT II ELECTROMAGNETIC RELAYS**

9

Operating principles of relays - the Universal relay – Torque equation – R-X diagram –Electromagnetic Relays – Over current, Directional, Distance, Differential, Negative sequence and Under frequency relays.

**UNIT III APPARATUS PROTECTION**

9

Current transformers and Potential transformers and their applications in protection schemes -Protection of transformer, generator, motor, bus bars and transmission line.

**UNIT IV STATIC RELAYS AND NUMERICAL PROTECTION**

9

Static relays – Phase, Amplitude Comparators – Synthesis of various relays using Static comparators – Block diagram of Numerical relays – Over current protection, transformer differential protection, distant protection of transmission lines.

**UNIT V CIRCUIT BREAKERS**

9

Physics of arcing phenomenon and arc interruption - DC and AC circuit breaking – re-striking voltage and recovery voltage - rate of rise of recovery voltage - resistance switching – current chopping - interruption of capacitive current - Types of circuit breakers – air blast, air break, oil, SF<sub>6</sub>, MCBs, MCCBs and vacuum circuit breakers – comparison of different circuit breakers –Rating and selection of Circuit breakers.

**TOTAL : 45 PERIODS**

**OUTCOMES:**

- Ability to understand and analyze Electromagnetic and Static Relays.
- Ability to suggest suitability circuit breaker.

  
**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).



## Internship

1 message

Tue 25 July 2022 at 11.55 am

**From:** C SARAVANAN <[hodeeee@jkkmct.edu.in](mailto:hodeeee@jkkmct.edu.in)>

Date: Tue 25 Aug 2022 at 11.55 am

Subject: Internship - reg

To: ASST GENERAL MANAGER<[hrdu1@sakthisugars.com](mailto:hrdu1@sakthisugars.com)>

Dear SIR ,

I am requesting to be joining your SAKTHI SUGARS LTD. The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.


Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff. (Students name: 1. DEEPA S, 2. DHARANI P, 3. MAGESHWARI K, 4. NANDHINI G, 5. NIVETHAVARINI V, 6. AMSAVENI M, 7. ISAKKIRAJA.P, 8. SIVAGIRI.K, 9. THIRUMARAN DILEEBAN.S)

Sincerely,

Head Of The Department –(EEE),

JKK Munirajah College of Technology,

T.N.Palayam, Erode-638506, Tamilnadu.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).



## Internship

1 message

Fri, 28 July 2022 at 2.08PM

From: ASST GENERAL MANAGER <hrdu1@sakthisugars.com>

Date: Fri 28 July 2022 at 2.08PM

Subject: Internship - reg

To: C SARAVANAN <hodeee@jkkmct.edu.in>

Dear Hod,

We are pleased to offer you an internship program with SAKTHI SUGARS LTD for a period from 1<sup>st</sup> Aug 2022 to 6<sup>th</sup> Aug 2022. You should note that any information and data collected from you during the course of your internship should be kept confidential at all times. We appreciate your interest in our company.

With Regards,

GM

SAKTHI SUGARS LTD

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).



# Sakthi Sugars Limited

Regd. Office & Factory : Sakthinagar - 638 315, Bhavani Taluk, Erode Dist., Tamilnadu.

Phone : (04256) 246241 - 246244, 246341 - 246344. Fax : 04256 - 246442

E-mail : hrdu1@sakthisugars.com

Admn/20/ (21) /2022  
06<sup>th</sup> August 2022

## TO WHOM SO EVER IT MAY CONCERN

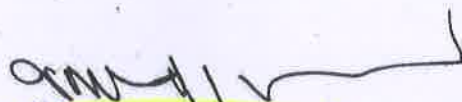
This is to certify that Ms. DEEPA .S (Register No.731219105004) IV YEAR, B.E., (EEE), student of J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, GOBI TALUK, ERODE DISTRICT, has undergone INPLANT TRAINING in our organization from 01.08.2022 to 06.08.2022 as a partial fulfillment of her course study.

During the above period, her conduct was found to be GOOD.


We wish all success in her future endeavors.

For SAKTHI SUGARS LIMITED



  
(N. MOHANKUMAR)

ASST. GENERAL MANAGER – HR & ADMN

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

Head Office : 180, Race Course Road, Post Box No. 3775, Coimbatore -641 018. Phone : 2221551, 95422 4322 222

Grams : "SUGARKING" Fax : 2220574, 5322488 E - mail : info@sakthisugars.com

Please visit us at : www.sakthisugars.com



# Sakthi Sugars Limited

Regd. Office & Factory : Sakthinagar - 638 315, Bhavani Taluk, Erode Dist., Tamilnadu.

Phone : (04256) 246241 - 246244, 246341 - 246344. Fax : 04256 - 246442

E-mail : hrdu1@sakthisugars.com

Admn/20/ 1212 /2022  
06<sup>th</sup> August 2022

## TO WHOM SO EVER IT MAY CONCERN


This is to certify that Ms.DHARANI .P (Register No.731219105006) IV YEAR, B.E., (EEE), student of J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, GOBI TALUK, ERODE DISTRICT, has undergone INPLANT TRAINING in our organization from 01.08.2022 to 06.08.2022 as a partial fulfillment of her course study.

During the above period, her conduct was found to be GOOD.


We wish all success in her future endeavors.

For SAKTHI SUGARS LIMITED



  
(N. MOHANKUMAR)

ASST. GENERAL MANAGER – HR & ADMN

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM, (Po)-638 506.  
GOBI (TK), ERODE (Dt).

Head Office : 180, Race Course Road, Post Box No. 3775, Coimbatore -641 018. Phone : 2221551, 95422 4322 222

Grams : "SUGARKING" Fax : 2220574, 5322488 E - mail : info@sakthisugars.com

Please visit us at : www.sakthisugars.com



# Sakthi Sugars Limited

Regd. Office & Factory : Sakthinagar - 638 315, Bhavani Taluk, Erode Dist., Tamilnadu.

Phone : (04256) 246241 - 246244, 246341 - 246344. Fax : 04256 - 246442

E-mail : hrdu1@sakthisugars.com

Admn/20/ 1213 /2022  
06<sup>th</sup> August 2022

## TO WHOM SO EVER IT MAY CONCERN


This is to certify that Ms. **MAGESHWARI .K** (Reg. No.731219105013) **IV YEAR, B.E., (EEE)**, student of **J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, GOBI TALUK, ERODE DISTRICT**, has undergone **INPLANT TRAINING** in our organization from **01.08.2022** to **06.08.2022** as a partial fulfillment of her course study.

During the above period, her conduct was found to be **GOOD**.


We wish all success in her future endeavors.

**For SAKTHI SUGARS LIMITED**



  
(N. MOHANKUMAR)

**ASST. GENERAL MANAGER – HR & ADMN**

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (DI).**

Head Office : 180, Race Course Road, Post Box No. 3775, Coimbatore -641 018. Phone : 2221551, 95422 4322 222

Grams : "SUGARKING" Fax : 2220574, 5322488 E - mail : info@sakthisugars.com

Please visit us at : www.sakthisugars.com



# Sakthi Sugars Limited

Regd. Office & Factory : Sakthinagar - 638 315, Bhavani Taluk, Erode Dist., Tamilnadu.

Phone : (04256) 246241 - 246244, 246341 - 246344. Fax : 04256 - 246442

E-mail : hrdu1@sakthisugars.com

Admn/20/ 1214 /2022  
06<sup>th</sup> August 2022

## TO WHOM SO EVER IT MAY CONCERN


This is to certify that Ms.NANDHINI .G (Register No.731219105016) IV YEAR, B.E., (EEE), student of J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, GOBI TALUK, ERODE DISTRICT, has undergone INPLANT TRAINING in our organization from 01.08.2022 to 06.08.2022 as a partial fulfillment of her course study.

During the above period, her conduct was found to be GOOD.

We wish all success in her future endeavors.

For SAKTHI SUGARS LIMITED



  
(N. MOHANKUMAR)

ASST. GENERAL MANAGER – HR & ADMN



PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).

Head Office : 180, Race Course Road, Post Box No. 3775, Coimbatore -641 018. Phone : 2221551, 95422 4322 222

Grams : "SUGARKING" Fax : 2220574, 5322488 E - mail : info@sakthisugars.com

Please visit us at : www.sakthisugars.com



# Sakthi Sugars Limited

Regd. Office & Factory : Sakthinagar - 638 315, Bhavani Taluk, Erode Dist., Tamilnadu.

Phone : (04256) 246241 - 246244, 246341 - 246344. Fax : 04256 - 246442

E-mail : hrdu1@sakthisugars.com

Admn/20/ 1215 /2022  
06<sup>th</sup> August 2022

## TO WHOM SO EVER IT MAY CONCERN

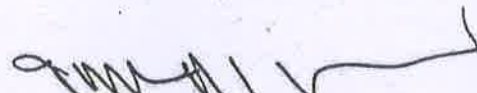
This is to certify that Ms. NIVETHAVARANI .V (Reg. No.731219105017) IV YEAR, B.E., (EEE), student of J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, GOBI TALUK, ERODE DISTRICT, has undergone INPLANT TRAINING in our organization from 01.08.2022 to 06.08.2022 as a partial fulfillment of her course study.

During the above period, her conduct was found to be GOOD.

We wish all success in her future endeavors.

**For SAKTHI SUGARS LIMITED**



  
(N. MOHANKUMAR)

**ASST. GENERAL MANAGER – HR & ADMN**

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

Head Office : 180, Race Course Road, Post Box No. 3775, Coimbatore -641 018. Phone : 2221551, 95422 4322 222

Grams : "SUGARKING" Fax : 2220574, 5322488 E - mail : info@sakthisugars.com

Please visit us at : www.sakthisugars.com



# **Sakthi Sugars Limited**

Regd. Office & Factory : Sakthinagar - 638 315, Bhavani Taluk, Erode Dist., Tamilnadu.

Phone : (04256) 246241 - 246244, 246341 - 246344. Fax : 04256 - 246442

E-mail : hrdu1@sakthisugars.com

Admn/20/ 210 /2022  
06<sup>th</sup> August 2022

## **TO WHOM SO EVER IT MAY CONCERN**


This is to certify that Ms. **AMSAVENI .M** (Register No. **731219105301**) **IV YEAR, B.E., (EEE)**, student of **J.K.K. MUNIRAJAH COLLEGE OF TECHNOLOGY, GOBI TALUK, ERODE DISTRICT**, has undergone **INPLANT TRAINING** in our organization from **01.08.2022** to **06.08.2022** as a partial fulfillment of her course study.

During the above period, her conduct was found to be **GOOD**.

We wish all success in her future endeavors.



**For SAKTHI SUGARS LIMITED**

  
(N. MOHANKUMAR)

**ASST. GENERAL MANAGER – HR & ADMN**

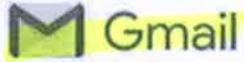


**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**

Head Office : 180, Race Course Road, Post Box No. 3775, Coimbatore -641 018. Phone : 2221551, 95422 4322 222

Grams : "SUGARKING" Fax : 2220574, 5322488 E - mail : info@sakthisugars.com

Please visit us at : [www.sakthisugars.com](http://www.sakthisugars.com)



## Internship

1 message

Mon 24 July 2022 at 10.45 am

**From:** C SARAVANAN <[hodeeee@jkkmct.edu.in](mailto:hodeeee@jkkmct.edu.in)>  
**Date:** Mon 24 JUL 2022 at 10.45 am  
**Subject:** Internship - reg  
**To:** MANAGING DIRECTOR<[mohammed.fayaz@gmail.com](mailto:mohammed.fayaz@gmail.com)>

Dear SIR ,

I am requesting to be joining your TECHNOLOGICS GLOBAL PVT LTD. The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff. (Students name: 1. BARATHIDASAN S G, 2. DEEPAK P, 3. JANAKRISHNAN M, 4. KARTHIK PRABHU P, 5. NANDHAKUMAR S, 6. SELVI S)

Sincerely,

Head Of The Department –(EEE),  
JKK Munirajah College of Technology,  
T.N.Palayam, Erode-638506, Tamilnadu.

**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).



---

## Internship

1 message

---

Thu, 27 July 2022 at 3.48PM

**From:** MANAGING DIRECTOR<[mohammed.fayaz@gmail.com](mailto:mohammed.fayaz@gmail.com)>

**Date:** Thu 27 July 2022 at 3.48PM

**Subject:** Internship - reg

**To:** C SARAVANAN <[hodeee@jkkmct.edu.in](mailto:hodeee@jkkmct.edu.in)>

Dear Hod,

We are pleased to offer you an internship program with TECHNOLOGICS GLOBAL PVT LTD for a period from 1<sup>st</sup> Aug 2022 to 14<sup>th</sup> Aug 2022. You should note that any information and data collected from you during the course of your internship should be kept confidential at all times. We appreciate your interest in our company.

With Regards,

MD

TECHNOLOGICS GLOBAL PVT LTD

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).



TECHNOLOGICS

# TECHNOLOGICS



Date: 14.08.2022

**TO WHOM SO EVER IT MAY CONCERN**

This is so certify that **Mr. BARATHIDASAN S**, 4th Year B.E Electrical and Electronics Engineering in J.K.K. Munirajah College of Technology, T.N. Palayam has successfully completed 14 days (01<sup>st</sup> Aug to 14<sup>th</sup> Aug,2022) Internship Training in “**TECHNOLOGIES GLOBAL PVT LTD**”.

During this tenure **Mr. BARATHIDASAN S** has involved in his work with dedication. We found him pretty and active in whatever the task we have given him. He is a confident person, punctual, hardworking and inquisitive.

We wish him all the best for his future endeavors.

**MANAGING DIRECTOR**

**(Mr. Mohamed Fayaz)**

**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**



TECHNOLOGICS

# TECHNOLOGICS



Date: 14.08.2022

**TO WHOM SO EVER IT MAY CONCERN**

This is so certify that **Mr. DEEPAK P, 4th** Year B.E Electrical and Electronics Engineering in J.K.K. Munirajah College of Technology, T.N. Palayam has successfully completed 14 days (**01<sup>st</sup> Aug to 14<sup>th</sup> Aug, 2022**) Internship Training in “**TECHNOLOGIES GLOBAL PVT LTD**”.

During this tenure **Mr. DEEPAK P** has involved in his work with dedication. We found him pretty and active in whatever the task we have given him. He is a confident person, punctual, hardworking and inquisitive.

We wish him all the best for his future endeavors.

**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**

**MANAGING DIRECTOR**

**(Mr. Mohamed Fayaz)**



TECHNOLOGICS

# TECHNOLOGICS



Date: 14.08.2022

TO WHOM SO EVER IT MAY CONCERN


This is so certify that **Mr. JANAKRISHNAN M**, 4th Year B.E Electrical and Electronics Engineering in J.K.K. Munirajah College of Technology, T.N. Palayam has successfully completed 14 days (01<sup>st</sup> Aug to 14<sup>th</sup> Aug,2022) Internship Training in “**TECHNOLOGIES GLOBAL PVT LTD**”.

During this tenure **Mr. JANAKRISHNAN M** has involved in his work with dedication. We found him pretty and active in whatever the task we have given him. He is a confident person, punctual, hardworking and inquisitive.

We wish him all the best for his future endeavors.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

MANAGING DIRECTOR

  
(Mr. Mohamed Fayaz)



TECHNOLOGICS

**TECHNOLOGICS**



**Date: 14.08.2022**

**TO WHOM SO EVER IT MAY CONCERN**

This is so certify that **Mr. KARTHICK PRABHU P**, 4th Year B.E Electrical and Electronics Engineering in J.K.K. Munirajah College of Technology, T.N. Palayam has successfully completed 14 days (01<sup>st</sup> Aug to 14<sup>th</sup> Aug,2022) Internship Training in “**TECHNOLOGIES GLOBAL PVT LTD**”.

During this tenure **Mr. KARTHICK PRABHU P** has involved in his work with dedication. We found him pretty and active in whatever the task we have given him. He is a confident person, punctual, hardworking and inquisitive.

We wish him all the best for his future endeavors.

**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (TK), ERODE (Dt).**

**MANAGING DIRECTOR**

**(Mr. Mohamed Fayaz)**



TECHNOLOGICS

# TECHNOLOGICS




Date: 14.08.2022

**TO WHOM SO EVER IT MAY CONCERN**


This is so certify that **Mr. NANDHAKUMAR S, 4th** Year B.E Electrical and Electronics Engineering in J.K.K. Munirajah College of Technology, T.N. Palayam has successfully completed 14 days (01<sup>st</sup> Aug to 14<sup>th</sup> Aug,2022) Internship Training in “**TECHNOLOGIES GLOBAL PVT LTD**”.

During this tenure **Mr. NANDHAKUMAR S** has involved in his work with dedication. We found him pretty and active in whatever the task we have given him. He is a confident person, punctual, hardworking and inquisitive.

We wish him all the best for his future endeavors.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).

**MANAGING DIRECTOR**

  
**(Mr. Mohamed Fayaz)**



TECHNOLOGICS

# TECHNOLOGICS



Date: 14.08.2022

**TO WHOM SO EVER IT MAY CONCERN**

This is so certify that **Ms. SELVIS, 4th** Year B.E Electrical and Electronics Engineering in J.K.K. Munirajah College of Technology, T.N. Palayam has successfully completed 14 days (01<sup>st</sup> Aug to 14<sup>th</sup> Aug,2022) Internship Training in “**TECHNOLOGIES GLOBAL PVT LTD**”.

During this tenure **Mr. SELVI S** has involved in her work with dedication. We found her pretty and active in whatever the task we have given her. She is a confident person, punctual, hardworking and inquisitive.

We wish her all the best for his future endeavors.

**PRINCIPAL**  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).

**MANAGING DIRECTOR**

**(Mr. Mohamed Fayaz)**



## Internship

1 message

Sat 29 July 2022 at 10.45 am

**From:** C SARAVANAN <[hodeeee@jkkmct.edu.in](mailto:hodeeee@jkkmct.edu.in)>

**Date:** Sat 29 Jul 2022 at 10.45 am

**Subject:** Internship - reg

**To:** MANAGING DIRECTOR<[annamill1984@gmail.com](mailto:annamill1984@gmail.com)>


Dear SIR ,

I am requesting to be joining your ANNA CO-OPERATIVE SPINNING MILLS LTD. The requirements are exactly what I have prepared for and hoped to do. I feel confident that I can make a significant contribution to your organization while at the same time learning from your staff.

Additionally, I shall complete all insurance forms for the new intern orientation. I look forward to working with you and your fine team. I appreciate your confidence in me and providing the chance to work with and observe your outstanding staff. (Students name: 1. DIVAKARAN R, 2. MURALIDHARAN P, 3. TAMILSELVAM A, 4. YUVARAJHA S,)

Sincerely,

Head Of The Department –(EEE),  
JKK Munirajah College of Technology,  
T.N.Palayam, Erode-638506, Tamilnadu.

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (TK), ERODE (Dt).



## Internship

1 message

Mon, 31 July 2022 at 1.57PM

From: MANAGING DIRECTOR<[annamill1984@gmail.com](mailto:annamill1984@gmail.com)>

Date: Mon 31 July 2022 at 1.57PM

Subject: Internship - reg

To: C SARAVANAN <[hodeee@jkkmct.edu.in](mailto:hodeee@jkkmct.edu.in)>

Dear Hod,

We are pleased to offer you an internship program with ANNA CO-OPERATIVE SPINNING MILLS LTD for a period from 2<sup>st</sup> Aug 2022 to 6<sup>th</sup> Aug 2022. You should note that any information and data collected from you during the course of your internship should be kept confidential at all times. We appreciate your interest in our company.

With Regards,

MD

ANNA CO-OPERATIVE SPINNING MILLS LTD

PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
GOBI (Tk), ERODE (Dt).



**ANNA CO-OPERATIVE SPINNING MILLS LTD.,**  
**ANDIPATTI - 625 512. THENI DISTRICT, TAMILNADU.**

**G. THIRULOGASUNDAR, D.C.E.,**  
President

**N. SANKARARAJ,**  
Assistant Director/Managing Director

F. M :9385983821

annaco\_op@yahoo.co.in

A. O :9385983820

Factory :9385983822

annamill1984@gmail.com

Office :9385983818

GSTIN:33AAAAA1388A1ZG

Rc.No.ACSM/Gen35/2022-23/B1

Date : 09.08.2022

**CERTIFICATE**


This is to certify that **Selvan.R.DHIVAKARAN**, Reg.No.73121905007, Final Year B.E (Electrical And Electronics Engineering) student of J.K.K. Munirajah College of Technology, Erode has undergone **"Inplant Training"** in Anna Co-operative Spinning Mills Ltd., Andipatti, from **02.08.2022 to 06.08.2022** as a part of his educational curriculum.

During the period of training his inclination to learning and attendance were found good.

(Sd/-) N.Sankararaj  
Managing Director

  
For Managing Director

  
09.08.2022

  
**PRINCIPAL**  
**JKK MUNIRAJAH COLLEGE**  
**OF TECHNOLOGY**  
**T.N. PALAYAM (Po)-638 506.**  
**GOBI (Tk), ERODE (Dt).**



**ANNA CO-OPERATIVE SPINNING MILLS LTD.,**  
**ANDIPATTI - 625 512. THENI DISTRICT, TAMILNADU.**

**G. THIRULOGASUNDAR, D.C.E.,**  
President

**N. SANKARARAJ,**  
Assistant Director/Managing Director

F. M :9385983821

✉ annaco\_op@yahoo.co.in

A.O :9385983820

Factory :9385983822

✉ annamill1984@gmail.com

Office :9385983818

GSTIN:33AAAAA1388A1ZG

Rc.No.ACSM/Gen35/2022-23/B1

Date : 09.08.2022

**CERTIFICATE**


This is to certify that **Selvan.P.MURALITHARAN,** Reg.No.731219105014, Final Year B.E (Electrical And Electronics Engineering) student of J.K.K. Munirajah College of Technology, Erode has undergone "**Inplant Training**" in Anna Co-operative Spinning Mills Ltd., Andipatti, from 02.08.2022 to 06.08.2022 as a part of his educational curriculum.

During the period of training his inclination to learning and attendance were found good.

(Sd/-) N.Sankararaj  
Managing Director

  
For Managing Director



  
09.08.2022



**ANNA CO-OPERATIVE SPINNING MILLS LTD.,**  
**ANDIPATTI - 625 512. THENI DISTRICT, TAMILNADU.**

**G. THIRULOGASUNDAR, D.C.E.,**  
President

**N. SANKARARAJ,**  
Assistant Director/Managing Director

F. M :9385983821

✉ annaco\_op@yahoo.co.in

A. O :9385983820

Factory :9385983822

✉ annamill1984@gmail.com

Office :9385983818

GSTIN:33AAAAA1388A1ZG

Rc.No.ACSM/Gen35/2022-23/B1

Date : 09.08.2022

**CERTIFICATE**

This is to certify that **Selvan.A.TAMILSELVAM,** Reg.No.731219105021, Final Year B.E (Electrical And Electronics Engineering) student of J.K.K. Munirajah College of Technology, Erode has undergone "**Inplant Training**" in Anna Co-operative Spinning Mills Ltd., Andipatti, from **02.08.2022 to 06.08.2022** as a part of his educational curriculum.

During the period of training his inclination to learning and attendance were found good.

(Sd/-) N.Sankararaj  
Managing Director

  
For Managing Director

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
T.N. PALAYAM (Po)-638 506.  
TAMILNADU (DI).

  
09.08.2022



**ANNA CO-OPERATIVE SPINNING MILLS LTD.,**  
**ANDIPATTI - 625 512. THENI DISTRICT, TAMILNADU.**

**G. THIRULOGASUNDAR, D.C.E.,**  
President

**N. SANKARARAJ,**  
Assistant Director/Managing Director

F. M :9385983821

✉ annaco\_op@yahoo.co.in

A. O :9385983820

Factory :9385983822

✉ annamill1984@gmail.com

Office :9385983818

GSTIN:33AAAAA1388A1ZG

Rc.No.ACSM/Gen35/2022-23/B1

Date : 09.08.2022


**CERTIFICATE**


This is to certify that **Selvan.S.YUVARAJ**, Reg.No.731219105022, Final Year B.E (Electrical And Electronics Engineering) student of J.K.K. Munirajah College of Technology, Erode has undergone "**Inplant Training**" in Anna Co-operative Spinning Mills Ltd., Andipatti, from 02.08.2022 to 06.08.2022 as a part of his educational curriculum.

During the period of training his inclination to learning and attendance were found good.

(Sd/-) N.Sankararaj  
Managing Director

  
For Managing Director

  
PRINCIPAL  
JKK MUNIRAJAH COLLEGE  
OF TECHNOLOGY  
F. M. PALAYAM (PO)-638 506.  
ERODE (DT).

  
09.08.2022