ACADEMIC YEAR (2023-2024)						
	J.K.K.MUNIRAJAH COLLEGE OF TECHNOLOGY (AUTONOMOUS) T.N.PALAYAM(PO), GOBI(TK)-638506					Metric No 1.3.2
S.No	Name of the course	course code	programme offering	Contents mapping to		Number of students
				project work	internship	
(2023-2024) Regulations 2021						
1	Project Work I	AP4311	M.E. Applied Electronics	✓		2
2	Project Work II	AP4411	M.E. Applied Electronics	✓		2
3	Semiconductor Devices and Modeling	AP4153	M.E. Applied Electronics	✓		2
4	Power Conversion Circuits for Electronics	AP4202	M.E. Applied Electronics	✓		2
5	Industrial Internet of Things	AP4251	M.E. Applied Electronics	✓	✓	2
6	Embedded Systems	AP4203	M.E. Applied Electronics	✓	✓	2
7	PCB Design	AP4072	M.E. Applied Electronics	✓	✓	2

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M.E Applied Electronics

ACADEMIC YEAR 2023-2024

S.NO	REGISTER NUMBER	STUDENT NAME	PROJECT WORK	INTERNSHIP
1	731222401001	BAKYALAKSHMI P	✓	✓
2	731222401002	DEEPIKA M	✓	

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M.E Applied Electronics

S.NO	Name of the Course that Include Experimental Learning through project Work/Internship/Field Visit
1	Project Work I
2	Project Work II
3	Semiconductor Devices and Modeling
4	Power Conversion Circuits for Electronics
5	Industrial Internet of Things
6	Embedded Systems
7	PCB Design

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PROJECT WORK

AP4153 SEMICONDUCTOR DEVICES AND MODELING L T P C
3 0 0 3

COURSE OBJECTIVES:

- To acquire the fundamental knowledge and to expose to the field of semiconductor theory and devices and their applications.
- To gain adequate understanding of semiconductor device modelling aspects, designing devices for electronic applications
- To acquire the fundamental knowledge of different semiconductor device modelling aspects.

UNIT I MOS CAPACITORS 9

Surface Potential: Accumulation, Depletion, and Inversion, Electrostatic Potential and Charge Distribution in Silicon, Capacitances in an MOS Structure, Polysilicon-Gate Work Function and Depletion Effects, MOS under Nonequilibrium and Gated Diodes, Charge in Silicon Dioxide and at the Silicon-OxideInterface, Effect of Interface Traps and Oxide Charge on Device Characteristics, High-Field Effects, Impact Ionization and Avalanche Breakdown, Band-to-Band Tunneling, Tunneling into and through Silicon Dioxide, Injection of Hot Carriers from Silicon into Silicon Dioxide, High-Field Effects in Gated Diodes, Dielectric Breakdown.

UNIT II MOSFET DEVICES 9

Long-Channel MOSFETs, Drain-Current Model, MOSFET I-V Characteristics, Subthreshold Characteristics, Substrate Bias and Temperature Dependence of Threshold Voltage, MOSFET Channel Mobility, MOSFET Capacitances and Inversion-Layer Capacitance Effect, Short-Channel MOSFETs, Short-Channel Effect, Velocity Saturation and High-Field Transport Channel Length Modulation, Source-Drain Series Resistance, MOSFET Degradation and Breakdown at High Fields

UNIT III CMOS DEVICE DESIGN 9

CMOS Scaling, Constant-Field Scaling, Generalized Scaling, Nonscaling Effects, Threshold Voltage, Threshold-Voltage Requirement, Channel Profile Design, Nonuniform Doping, Quantum Effect on Threshold Voltage, Discrete Dopant Effects on Threshold Voltage, MOSFET Channel Length, Various Definitions of Channel Length, Extraction of the Effective Channel Length, Physical Meaning of Effective Channel Length, Extraction of Channel Length by C-V Measurements.

UNIT IV BIPOLAR DEVICES 9

n-p-n Transistors, Basic Operation of a Bipolar Transistor, Modifying the Simple Diode Theory for Describing Bipolar Transistors, Ideal Current-Voltage Characteristics, Collector Current, Base Current, Current Gains, Ideal IC-VCE Characteristics, Characteristics of a Typical n-p-n Transistor, Effect of Emitter and Base Series Resistances, Effect of Base-Collector Voltage on Collector Current, Collector Current Falloff at High Currents, Nonideal Base Current at Low Currents, Bipolar Device Models for Circuit and Time-Dependent Analyses Basic dc Model, Basic ac Model, Small-Signal Equivalent-Circuit Model, Emitter Diffusion Capacitance, Charge-Control Analysis, Breakdown Voltages, Common-Base Current Gain in the Presence of Base-Collector Junction Avalanche, Saturation Currents in a Transistor.

UNIT V MATHEMATICAL TECHNIQUES FOR DEVICE SIMULATIONS 9

Poisson equation, continuity equation, drift-diffusion equation, Schrodinger equation, hydrodynamic equations, trap rate, finite difference solutions to these equations in 1D and 2D space, grid

generation.

TOTAL: 45 PERIODS

COURSE OUTCOMES:

Upon completion of this course, the students will be able to

CO1: Explore the properties of MOS capacitors.

CO2: Analyze the various characteristics of MOSFET devices.

CO3: Describe the various CMOS design parameters and their impact on performance of thedevice.

CO4: Discuss the device level characteristics of BJT transistors.

CO5: Identify the suitable mathematical technique for simulation.

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AP4202 **POWER CONVERSION CIRCUITS FOR ELECTRONICS** L T P C
3 0 0 3

COURSE OBJECTIVE:

- To provide the students a deep insight in to the working of different switching devices with respect to their characteristics
- To analyze different converters with their applications.
- To study advanced converters and switching techniques implemented in recent technology

UNIT I POWER ELECTRONIC DEVICES AND SEMICONDUCTOR SWITCHES 9

Introduction, Applications of power electronics, Power electronics devices: Characteristics of power devices – characteristics of SCR, diac, triac, GTO, PUJT, power transistors – power FETs – LASCR – two transistor model of SCR Protection of thyristors against over voltage – over current, dv/dt and di/dt. Power Semiconductor Switches: Rectifier diodes, fast recovery diodes.

UNIT II SCR PERFORMANCE AND APPLICATIONS 9

Turn on circuits for SCR – triggering with single pulse and train of pulses synchronizing with supply – Thyristor turn off methods, natural and forced commutation, self-commutation series and parallel operations of SCRs. Rectifiers: Single phase and three phase controlled Rectifiers with inductive loads, RL load. Construction & Working of Opto- Isolators, Opto-TRIAC, Opto-SCR.

UNIT III INVERTERS AND VOLTAGE CONTROLLERS 9

Voltage and current source inverters, resonant, Series inverter, PWM inverter. AC and DC choppers – DC to DC converters – Buck, boost and buck – boost.

Single phase and three phase Cyclo-conveters, Power factor control and Matrix Converters. Industrial applications DC and AC Drives DC Motor Speed control Induction Motor Speed Control.

UNIT IV TIMERS & DELAY ELEMENTS, HIGH FREQUENCY POWER HEATING, SENSOR AND ACTUATORS 9

RC Base Constant Timers, Timer Circuits using SCR, IC-555, Programmable Timer and their Industrial Applications, Induction Heating and Dielectric Heating System and Their Applications, Sensors, Transducers, and Transmitters for Measurement, Control & Monitoring : Thermoresistive Transducer, Photoconductive Transducers, Pressure Transducers, Flow Transducers, Level Sensors, Speed Sensing, Vibration Transducers, Variable-Frequency Drives, Stepper Motors and Servomotor Drives.

UNIT V AUTOMATION AND CONTROL 9

Data Communications for Industrial Electronics, Telemetry, SCADA & Automation, AC & DC Drives, Voltage & Power Factor Control through Solid State Devices, Soft Switching, Industrial Robots.

TOTAL :45 CREDITS

COURSE OUTCOMES:

At the end of this course students will be able to:

CO1: Describe the characteristics, operation of power switching devices and identify their ratings and applications.

CO2: Understand the requirements SCR Protection, Describe the Functioning of SCR their Construction and Performance.

CO3: Analyze and Design the Converter Based on SCR for various Industrial Applications.

CO4: Demonstrate ability to understand High Frequency, Heating Systems, Timers, Relevant Sensors & Actuator and their Application in Industrial Setting.

CO5: Demonstrate the ability to understand and apply Data Communication, Telemetry & SCADA System in Industrial Applications.

REFERENCES:

1. Thomas E. Kissell, Industrial Electronics: Applications for Programmable Controllers, Instrumentation and Process Control, and Electrical Machines and Motor Controls, 3rd edition, 2003, Prentice Hall.
2. B. Paul, Industrial Electronic and Control, Prentice Hall of India Private Limited (2004).
3. M.H. Rashid, "Power Electronics: Circuits, Devices & Applications", Prentice Hall of India Ltd. 3rd Edition, 2004.
4. Ned Mohan, T.M. Undeland and W.P. Robbins, "Power Electronics: Converters, Applications and Design", Wiley India Ltd, 2008.
5. M.S. Jamil Asghar, "Power Electronics" Prentice Hall of India Ltd., 2004
6. V.R. Moorthy, "Power Electronics: Devices, Circuits and Industrial Applications" Oxford University Press, 2007.
7. G.K. Dubey, Power Semiconductor Controlled Drives, Prentice Hall inc. (1989).
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IOT BASED SMART CITY STREET LIGHT MONITORING AND CONTROLLING SYSTEM

PHASE II REPORT

Submitted by

DEEPIKA.M

(731222401002)

in partial fulfillment for the award of the degree

of

MASTER OF ENGINEERING

In

APPLIED ELECTRONICS

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

T.N PALAYAM

ANNA UNIVERSITY, CHENNAI-600 025

JUNE 2024

BONAFIDE CERTIFICATE

Certified that this project report titled **"IOT BASED SMART CITY STREET LIGHT MONITORING AND CONTROLLING SYSTEM"** is the bonafide work of **Mrs.M.DEEPIKA (731222401002)** who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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Submitted for the project Viva-Voice Examination held on: 16.08.24

Internal Examiner

External Examiner

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ABSTRACT

The Massive implementation of internet of things (IoT) is allowing smart City projects and initiatives all over world. Approach of Internet things is to merge the various sensors with ICT solutions. In last few years more than 50 billions objects has been connected for the implementation of smart cities. Internet of things (IoT) communications is the hub of smart City operations. The reason behind the designed of internet of things (lot) is to support the smart city concepts, which aims to use advanced communication technologies for city administration and to promote various services for the citizens. Advanced technologies has made smart cities a versatile parameters for controlling, monitoring and operating in various fields, like(Traffic management, overflowed of garbage's, waste of electricity etc.). The cities are become smarter than ever before in efficient manners without spending much time and manpower. This project is a sincere effort's to list the essentials of 'smart city' and to overcome the problems that face by ordinary cities. Also, the main purpose of this system is to make daily tasks easy and more efficient and it helps to reduce manpower.

6. CONCLUSION

Nowadays resources (water, power, air, etc.) are very precious. This work focused to protect one such resource i.e. energy. Electricity is one of the major losses of energy. Using IoT the street lights ON/OFF is automated based on the weather condition, the working status of the street light is observed. The LDR sensor senses the environmental changes, the ON/OFF of the street lights is made automatically.

Whenever the street light got damaged or not on during night time, the LDR sensor senses it and sends the notification to the authorized person that the light is damaged and the location (using GPS) where the light is damaged. It reduces human efforts, delays in fixing the issues. The automatic control of street lights is used to find the exact location when the street light gets damaged.

FUTURE ENHANCEMENTS

Further, this can be implemented for all the street lamps in rural lamps. Pre-identification of damaged street lights is done based on the expiry of lamps.

There are also several potential future enhancements that could be made to the system, such as integrating with weather data, adding motion detection, using adaptive learning algorithms, incorporating wireless connectivity, and utilizing renewable energy sources.

These enhancements could further improve the efficiency and effectiveness of the street light automation system.

AP4251 **INDUSTRIAL INTERNET OF THINGS** L T P C
3 0 0 3

COURSE OBJECTIVES:

- To understand the fundamentals of Internet of Things
- To learn about the basics of IOT protocols
- To build a small low cost embedded system using IoT
- To apply the concept of I0T in the real world scenario

UNIT I INTRODUCTION AND ARCHITECTURE OF IoT 9

Introduction – Definition and characteristics of IoT – Physical and Logical Design of IoT - Communication models and APIs - Challenges in IoT - Evolution of IoT- Components of IoT - A Simplified IoT Architecture – Core IoT Functional Stack.

UNIT II INDUSTRIAL IoT 9

IIoT-Introduction, Industrial IoT: Business Model and Reference Architecture: IIoT-Business Models, Industrial IoT- Layers: IIoT Sensing, IIoT Processing, IIoT Communication, IIoT Networking

UNIT III IIOT ANALYTICS 9

Big Data Analytics and Software Defined Networks, Machine Learning and Data Science, Julia Programming, Data Management with Hadoop

UNIT IV IOT SECURITY 9

Industrial IoT: Security and Fog Computing - Cloud Computing in IIoT, Fog Computing in IIoT, Security in IIoT

UNIT V CASE STUDY 9

Industrial IOT- Application Domains: Oil, chemical and pharmaceutical industry, Applications of UAVs in Industries, Real case studies: Milk Processing and Packaging Industries, Manufacturing Industries

TOTAL : 45 PERIODS

COURSE OUTCOMES:

Upon completion of this course, student will be able to

CO1: Understand the basic concepts and Architectures of Internet of Things.
CO2: Understand various IoT Layers and their relative importance.
CO3: Realize the importance of Data Analytics in IoT.
CO4: Study various IoT platforms and Security
CO5: Understand the concepts of Design Thinking.

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IOT BASED SMART SAFTEY DEVICE FOR WOMENS

PHASE II REPORT

Submitted by

BAKYALAKSHMI P

(731222401001)

in partial fulfillment for the award of the degree of

MASTER OF ENGINEERING IN

APPLIED ELECTRONICS

J.K.K MUNIRAJAH COLLEGE OF TECHNOLOGY
T.N. PALAYAM, GOBI-638 506.

DEPARTMENT OF APPLIED ELECTRONICS

ANNA UNIVERSITY, CHENNAI

JUNE 2024

BONAFIDE CERTIFICATE

Certified that this project report titled **"IOT BASED SMART SAFETY DEVICE FOR WOMENS"** is the bonafide work of **Mrs.BAKYALAKSHMI.P (731222401001)** who carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other project report 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.MURUGESAN.M.E.,Ph.D.,

HEAD OF THE DEPARTMENT

ELECTRONICS AND COMMUNICATION ENGINEERING

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SIGNATURE

Mrs.U.SASIKALA.,M.E.,

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Submitted for the Viva-Voce examination held on 16.08.2024

Internal Examiner

External Examiner

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ABSTRACT

Women's safety has become the primary concern all over the world. According to the official records, the numbers of assaults are rising considerably. On top of that the victims are threatened that if they try to tell anyone about it they might kill them; due to this the victims don't dare to lodge a police station. The main purpose of building this security system to save the victim before any mishap takes place and to provide a highly reliable security system. In this project, a device consists of an ESP 8266, a touch sensor, a buzzer and a node MCU. On applying certain pressure to the pressure sensor, a signal is sent to the buzzer. If the signal received is higher than the threshold value then the buzzer which is placed on the streetlight will produce an alarm. Hearing the alarm if any passer by listens to it they will come immediately to help the person in need. Simultaneously Gsm sent the current location to the police station with help of the Gps device. To build a completely portable safety device which can be useful for women to protect them at times when they are faced with danger and are in need of help, This will help prevent from any mishap happening to women and provide a higher safety system.

Key Words : Buzzer, ESP 8266, MCU, Pressure Sensor.

CHAPTER 6

CONCLUSION

6.1 CONCLUSION

The women safety device serves its purpose effectively by providing tracking information. The response of the device is fast and its may assist the user to live safe in any place. This prototype may be in addition developed similarly to make a wearable device. The design may be made extra compact and lighter in weight so that it could be easily transportable and person friendly. It can have provisions to enter multiple contact information as in keeping with the consumers requirements. More defense capabilities may be added which can be managed by numerous monitoring system.

6.2 FUTURE SCOPE

Our project idea gives an extension to design a system which shall make every place and every hour safer for women again. A system which shall re-establish how very gregarious mankind is. We can add a camera and microphone to the Arduino. By using this we can capture the images and record the audio of the person, who are in trouble and save them.

INTERNSHIP

AP4072 **PCB DESIGN** L T P C
3 0 2 4

COURSE OBJECTIVES:

- Understand the need for PCB Design and steps involved in PCB Design and Fabrication process.
- Familiarize Schematic and layout design flow using Electronic Design Automation (EDA) Tools.
- Understand basic concepts of transmission line, crosstalk and thermal issues
- Design (schematic and layout) PCB for analog circuits, digital circuits and mixed circuits.
- Schematic creation & interpretation

UNIT I INTRODUCTION TO PRINTED CIRCUIT BOARD 9

Introduction to Printed circuit board: fundamental of electronic components, basic electronic circuits, Basics of printed circuit board designing: Layout planning, general rules and parameters, ground conductor considerations, thermal issues, check and inspection of artwork.

UNIT II DESIGN RULES FOR PCB 9

Design rules for PCB: Design rules for Digital circuit PCBs, Analog circuit PCBs, high frequency and fast pulse applications, Power electronic applications, Microwave applications,
PCB Technology Trends: Multilayer PCBs. Multiwire PCB, Flexible PCBs, Surface mount PCBs, Reflow soldering, Introduction to High-Density Interconnection (HDI) Technology.

UNIT III INTRODUCTION TO ELECTRONIC DESIGN AUTOMATION(EDA) TOOLS FOR PCB DESIGNING 9

Introduction to Electronic design automation(EDA) tools for PCB designing: Brief Introduction of various simulators,SPICE and PSPICE Environment, Selecting the Components Footprints as per design, Making New Footprints, Assigning Footprint to components, Net listing, PCB Layout Designing, Auto routing and manual routing. Assigning specific text (silkscreen) to design, Creating report of design, creating manufacturing data (GERBER) for design.

UNIT IV INTRODUCTION PRINTED CIRCUIT BOARD PRODUCTION TECHNIQUES 9

Introduction printed circuit board production techniques: Photo printing, film-master production, reprographic camera, basic process for double sided PCBs photo resists, Screen printing process, plating, relative performance and quality control, Etching machines, Solders alloys, fluxes, soldering techniques, Mechanical operations

UNIT V PCB DESIGN FOR EMI/EMC 9

PCB design for EMI/EMC: Subsystem/PCB Placement in an enclosure, Filtering circuit placement, decoupling and bypassing, Electronic discharge protection, Electronic waste; Printed circuit boards Recycling techniques, Introduction to Integrated Circuit Packaging and footprints, NEMA and IPC standards.

SUGGESTED ACTIVITIES:

1. Using any Electronic design automation (EDA) software, Practice following PCB Design steps (Open source EDA Tool KiCad Preferable or equivalent) Example circuit: Basic RC Circuit Schematic Design: Familiarization of the Schematic Editor, Schematic creation,

Annotation, Netlist generation Layout Design: Familiarization of Footprint Editor, Mapping of components, Creation of PCB layout Schematic Create new schematic components Create new component footprints.

2. Fabricate single-sided PCB, mount the components and assemble in a cabinet for any one of the circuits mentioned below.
3. Regulator circuit using 7805.
4. Astable or Monostable multivibrator using IC555
5. RC Phase-shift or Wein-bridge Oscillator using transistor.
6. 4 bit binary /MOD N counter using D-Flip flops.
7. Design a 8051 Development board having Power section consisting of IC7805, capacitor, resistor, headers, LED,Serial communication section consisting of MAX 232, Capacitors,DB9 connector, Jumper, LEDs, Reset & Input/ output sections consisting of89C51 Microcontroller, Electrolytic Capacitor, Resistor, Jumper, Crystal Oscillator, Capacitors.
8. Touch plate switches – transistorized or 555 based
9. Doorbell/cordless bell
10. Clapping switch and IR switch
11. Blinkers
12. Cell charger, battery charger, mobile charger
13. Fire/smoke/intruder alarm
14. Liquid level controller
15. Audio amplifiers

COURSE OUTCOMES:

Upon the completion of this course, students will demonstrate the ability to:

CO1: Appreciate the necessity and evolution of PCB, types and classes of PCB.

CO2: Understand the steps involved in schematic, layout, fabrication and assembly process of PCB design.

CO3: Apply advanced techniques, skills and modern tools for designing and fabrication of PCBs.

CO4: Apply the knowledge and techniques to fabricate Multilayer, SMT and HDI PCB.

CO5: Design (schematic and layout) and fabricate PCB for simple circuits.

TOTAL : 45+30=75 PERIODS

REFERENCES

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3. Complete PCB Design Using OrCAD Capture and PCB Editor,Kraig Mitzner Bob Doe Alexander Akulin Anton Suponin Dirk Müller, 2nd Edition 2009.
4. Introduction to System-on-Package, Rao R ,Tummala,&MadhavanSwaminathan, McGraw Hill, 2008
5. EMC and Printed circuit board ,Design theory and layout, Mark I Montrose IEEE compatibility society
6. Electronic Product Design Volume-I by S D Mehta, S Chand Publications
7. Open source EDA Tool KiCad Tutorial: http://kicad-pcb.org/help/tutorials/
8. PCB Fabrication user guide page: http://www.wikihow.com/Create-Printed-Circuit-Boards , http://www.siongboon.com/projects/2005-09-07_home_pcb_fabrication/
9. http://reprap.org/wiki/MakePCBInstructions#Making_PCBs_yourself
10. PCB Fabrication at home(video): https://www.youtube.com/watch?v=mv7Y0A9YeUc,
11. https://www.youtube.com/watch?v=imQTCW1yWkg

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AP4203 **EMBEDDED SYSTEMS** L T P C
3 0 2 4

COURSE OBJECTIVES:

- Learn Embedded design challenges and design methodologies
- Study general and single purpose processor
- Understand bus structures
- Design a state machine and concurrent process models
- Know about Embedded software development tools and RTOS.

UNIT I EMBEDDED SYSTEM OVERVIEW 9

Embedded System Overview, Design Challenges – Optimizing Design Metrics, Design Methodology, RT-Level Combinational and Sequential Components, Optimizing Custom Single-Purpose Processors.

UNIT II GENERAL AND SINGLE PURPOSE PROCESSOR 9

Basic Architecture, Pipelining, Superscalar and VLIW architectures, Programmer's view, Development Environment, Application-Specific Instruction-Set Processors (ASIPs) Microcontrollers, Timers, Counters and watchdog Timer, UART, LCD Controllers and Analog-to-Digital Converters, Memory Concepts.

UNIT III BUS STRUCTURES 9

Basic Protocol Concepts, Microprocessor Interfacing - I/O Addressing, Port and Bus-Based I/O, Arbitration, Serial Protocols, I2C, CAN and USB, Parallel Protocols - PCI and ARM Bus, Wireless Protocols - IrDA, Bluetooth, IEEE 802.11.

UNIT IV STATE MACHINE AND CONCURRENT PROCESS MODELS 9

Basic State Machine Model, Finite-State Machine with Datapath Model, Capturing State Machine in Sequential Programming Language, Program-State Machine Model, Concurrent Process Model, Communication among Processes, Synchronization among processes, Dataflow Model, Real-time Systems, Automation: Synthesis, Verification : Hardware/Software Co-Simulation, Reuse: Intellectual Property Cores, Design Process Models

UNIT V EMBEDDED SOFTWARE DEVELOPMENT TOOLS AND RTOS 9

Compilation Process – Libraries – Porting kernels – C extensions for embedded systems – emulation and debugging techniques - RTOS - System design using RTOS.

TOTAL : 45 PERIODS

SUGGESTED ACTIVITIES:

1: Insist students to write a requirements form for a smart phone
2: Compare the use of different Microcontrollers for a particular ESD.
3: Application of a protocol for a specified application.
4: Write a Embedded C code for a given task.
5: design an embedded system for any type of real time application

PRACTICAL LIST:

Exercise - 1

Comparative study of software development tools and design steps with respect to FPGA based and Non - FPGA based (defined logic) embedded system development.
(For Example: consider any Spartan FPGA board for FPGA based Embedded System Consider any cortex- M based board for Non - FPGA based Embedded system)

Exercise - 2

Implement adder and decoder logic blocks in any one of the FPGA chip based development board.

Exercise - 3

Design and development of UART protocol logic block in any one of FPGA chip based development board.

Exercise - 4

Consider on board LEDS (any four) and timer logic block of cortex- M board. Write a program which enables LEDS to glow in different timing.

Exercise - 5

Consider on board switches and (2x16) LCD display develop a program which displays the status of switch activation.

Exercise - 6

Demonstrate GPIO based I/O interfacing by considering LM 35 temperature sensor and cortex- M board.

Exercise - 7

Development of one interfacing scheme which transmits data from one cortex- M board to another cortex- M board using on chip CAN logic blocks.

Exercise - 8

Consider on board EPROM IC of Cortex- M board by utilizing on chip I2c logic block transmit data to EPROM IC and receive stored data from EPROM IC.

Exercise - 9

Consider on board LEDs (4 Nos) of Cortex - M board. Demonstrate time management service concept of RTOS for glowing all four LEDS in different timings.

Exercise - 10

Consider two ultrasonic sensors which are interfaced with cortex- M board. Both are located some distance (2 meters) apart vertically so that the system can identify the movement of object in term of distance. consider data reception and display of each sensor as two different tasks by RTOS. Establish a RTOS based system to recognize the height of moving object.

Objective:

a. Able to understand embedded system design flow in FPGA chip based and Non - FPGA chip based embedded development boards.
b. Able to create simple logic blocks in FPGA chip based boards.
c. Able to understand interfacing scheme for Non - FPGA board scheme for Non - FPGA board
d. Able to utilize RTOS functions for interfacing practice

COURSE OUTCOMES:

At the end of the course the student will be:

CO1: Able to design an Embedded system
CO2: Understand a general and single purpose processor
CO3: Explain different protocols

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Gmail ELECTRONICS COMMUNICATION <jkkmctece2013@gmail.com>

INTERNSHIP REQUISITION

2 messages

ELECTRONICS COMMUNICATION <jkkmctece2013@gmail.com> Fri, Feb 23, 2024 at 09:15 AM
To: power supplies <gbro@gmail.com>

Sir,

On behalf of J.K.K.Munirajah College of Technology, we wish to request for permission to do Project Internship training at your company Universal Power supplies.

We wish to undertake our student a Project Internship training at your company from 13.03.24 onwards upto two months to complete their project. As per the curriculum, the student needs to join a two month long internship and attain a certificate after satisfactory training. It will be a golden opportunity for the students as they will get to learn a lot of new things. We believe that your company will give relevant knowledge and training during this internship to complete their project.

Our student P.bakyalakshmi is intend to participate in this Project Internship. Please allow our student to do Project Internship at your company and meet your skilled employee. Thank you in advance.

With Regards,
HoD/ECE

ECE DEPARTMENT

ECLON WELCOMES U ALL..

INTERNSHIP.pdf
164K

power supplies <gbro@gmail.com> Sat, Feb 24, 2024 at 11:12 AM
To: ELECTRONICS COMMUNICATION <jkkmctece2013@gmail.com>

Dear Sir,
With great pleasure we welcome the listed student from your attached letter, to do project internship training in our company from 13.03.2024 onwards.

Best Regards,
UPS

UPS

UNIVERSAL POWER SUPPLIES

Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506

UNIVERSAL POWER SUPPLIES

Department of R & D Centre,
Varanapuram, Bhavani, Tamil Nadu 638301

Phone: 099421 07795
Website: www.gbro.in

Date: 17.05.2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the student **Ms.P.BAKYALAKSHMI (Reg. No: 731222401001)** M.E.-Applied Electronics Second Year from J.K.K.Munirajah College of Technology, T.N.Palayam, Gobi, has satisfactorily completed her Internship during the period of 13.03.2024 to 17.05.2024.

She worked on the project titled **"IOT BASED SMART SAFETY DEVICE FOR WOMENS"** under our guidance.

During the above mentioned period her conduct and behavior remains good, We wish her all the best for future.

For

Electronics R & D Manufacturing
Universal Power Supplies

Project Manager
UNIVERSAL POWER SUPPLIES
Opp. Bhavani G.H.,
Bhavani - 638 301.
Contact : 88833 96669

Principal
J.K.K.Munirajah College of Technology
(Autonomous)
T.N.Palayam, Gobi (Tk),
Erode (Dt) - 638 506