HYDERABAD INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Gowdavelly (Village), Medchal (Mandal), Ranga Reddy (Dist.) – 501401. TS. India.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

STUDENT SKILL DEVELOPMENT CENTER-EEE

Objective: To attain the gap between Industries and academics, students will be trained on core Emerging Technologies through SSDC.

List of Courses

Department : EEE

Center I/C : S V Sathyanarayana

Faculty I/C : Dr.O.P.Suresh & P.Madhavi

Date Of Establish : 22-1-2018

S.NO	Course	Duration
1	ARDUINO	16 Weeks
2	MATLAB	12 Weeks
3	PLC	16 Weeks
4	PYTHON	12 Weeks

SYLLABUS

ARDUINO

Module.1:

- ✓ Course syllabus & course duration
- ✓ Project & Hardware
- ✓ Software (Arduino IDE) & Coding basics
- ✓ Introduction to LED and BUZZER Pin Configuration
- ✓ Interfacing LED (turning ON and OFF and to perform a sequence of operation)
- ✓ Interfacing Buzzer turning ON and OFF

Module.2:

- ✓ Introduction to LDR sensor, pin Configuration
- ✓ Interfacing LDR Sensor & Counter with LDR sensor
- ✓ Introduction to Soil moisture sensor and Pin Configuration
- ✓ Interfacing Soil moisture sensor, setting Level of moisture value
- ✓ Soil moisture value turning ON and OFF of LED/BUZZER

Module.3:

- ✓ Introduction to Smoke Sensor and Pin Configuration
- ✓ Interfacing Smoke Sensor & Setting Level of smoke value (HIGH and LOW) turning ON and OFF of LED/BUZZER
- ✓ Introduction to Display pin configuration
- ✓ Interfacing 16x2 LCD display & Writing program for display text on LCD
- ✓ Introduction to Ultrasonic Sensor Configuration
- ✓ Interfacing ultrasonic sensor & Writing code for measuring specific distance

Module.4:

- ✓ Introduction to PIR sensor and Pin Configuration
- ✓ Interfacing PIR sensor & Writing code for object detection
- ✓ Introduction to relay, pin Configuration
- ✓ Interfacing Relay & Writing code to turn ON and OFF Relay
- ✓ Introduction to LM35, Pin Configuration
- ✓ Interfacing temperature sensor & Writing code to measure temperature

Module.5:

- ✓ Introduction to RFID Reader module and Tag, Pin Configuration
- ✓ Interfacing RFID & Writing code to read RFID data
- ✓ Introduction to L293D Motor Driver and Pin Configuration
- ✓ Interfacing L293D Motor Driver
- ✓ Writing code to drive motor in a forward and backward direction

MATLAB

Module 1:

1. Working with the MATLAB User Interface
    a. Reading data from files
    b. Saving and loading variables
    c. Plotting data
    d. Customizing plots
    e. Exporting graphics for use in other applications

Module 2:

Variables and Expressions

a. Entering commands
    b. Creating numeric variables
    c. Creating character variables
    d. Making and annotating plots
    e. Getting help
    f. Accessing and modifying values in variables

Analysis and Visualization with Vectors

a. Performing calculations with vectors
    b. Creating multiple plots

Module 3:

Automating Commands with Scripts

a. Using the Command History
    b. Creating script files
    c. Running scripts
    d. Dividing code into sections
    e. Publishing scripts

Analysis and Visualization with Matrices

a. Creating and manipulating matrices
    b. Performing calculations with matrices
    c. Calculating statistics with matrix data
    d. Visualizing matrix data

Module 4:

Dates and Times

a. Representing dates and durations

b. Performing calculations with dates and durations

c. Plotting with dates

d. Extracting numeric components of dates and durations

Tables of Data

a. Storing data as a table

b. Operating on tables

c. Extracting data from tables

d. Modifying tables

Conditional Data Selection

a. Logical operations and variables

b. Finding and counting

c. Logical indexing

Analyzing Data from Files

a. Importing from spreadsheets and delimited text files

b. Dealing with missing data

c. Plotting functions

d. Customizing plots

Module 5:

Flow Control

a. Programming constructs

b. User interaction

c. Flow control

d. Loops

Writing Functions

a. Creating functions

b. Calling functions

c. Setting the MATLAB path

d. Debugging with the MATLAB Editor

e. Using break points ,

f. Creating and using structures

INDUSTRIAL AUTOMATION WITH PLC

Module 1:

- ✓ Introduction to PLC hardware
- ✓ Architectural Evolution of PLC
- ✓ Role of PLC in Automation
- ✓ Introduction to the field devices attached to PLC
- ✓ AB PLC fundamental (Block Diagram of PLC)
- ✓ Detail information about PLC component ¬ Power supply ¬ CPU ¬ I/O Modules
- ✓ Communication Cards
- ✓ Various range available in PLC
- ✓ Type of inputs & Outputs
- ✓ Source sink Concept in PLC
- ✓ Scan cycle execution

Module 2:

- ✓ Introduction of PLC software
- ✓ Addressing Concepts
- ✓ Programming instruction arithmetic & logical
- ✓ Leading edge / trailing edge instructions

Module 3:

- ✓ Timer Blocks programming
- ✓ Counter block programming
- ✓ Standard Procedure to be followed in wringing/writing ladder etc
- ✓ Hands on experience on writing programs
- ✓ Creating / Editing a ladder logic
- ✓ Documenting the project

Module 4:

- ✓ Projects on Industrial applications

PYTHON

Module.1:

- ✓ Python Fundamentals & Python Installation
- ✓ Python Operators
  1. Arithmetic Operators
  2. Relational Operators or Comparison Operators
  3. Logical operators
  4. Bitwise operators
  5. Assignment operators
  6. Special operators

Module.2:

- ✓ **Flow Control**
  1. Conditional Statements
  2. Transfer Statements
  3. Iterative Statements
- ✓ **Strings data Type**
  1.Mathematical Operators of the String
  2. Comparison and Removing Spaces of String
  3. Joining and Splitting of strings
  4. Formatting

Module.3:

- ✓ **List and Tuple data Structures**

1.Data Structures

- Creation of list objects
- Accessing elements of list
- Manipulating Elements of list
- Ordering Elements of list

2. Tuple data Structures

- Len
- Count
- Index
- Sorted
- Cmp

- ✓ **Set and Dictionary data Structure**
  1.Creation of Set objects
  2. Important Functions of Set
  3.Mathematical Operations on set
  4. Functions of Dictionary

Module.4:

- ✓ **Functions**
  1.Built-in Functions
  2.User defined Functions
- ✓ **File and Exception Handling**
  1.Types of Files
  2.Types of Errors
- ✓ **Pattern Programs**
  Types of Program Patterns

List of Projects

ARDUINO

Sl. No.	Name of the Project
1	AUTONOMOUS SOLAR CAR TO AVOID ROAD ACCIDENTS
2	CROSSROADS TRAFFIC CONTROLLER USING INTELLIGENT E-SUBWAY SYSTEM
3	TWO STAGED SMART SECURITY FOR SAFE AND SECURED DOOR LOCK ACCESS
4	HOME AUTOMATION WITH PASSWORD-BASED ANDROID APP

INDUSTRIAL AUTOMATION WITH PLC

S.No	Title Of Project
1	Detecting the standing bottles on the conveyor and pushing the fallen bottles out.
2	Setting up a lighting system for users to switch on/off the light whether they are at the bottom or the top of the stairs.
3	Simulation of Start/Stop motor control with latching in PLC programming.
4	Simulation of Controlling the running state of the ceiling-fan by pressing START and STOP and Checking if the ceiling-fan is running normally by pressing TEST.
5	Simulation of controlling the indicators, that only one car can pass through the Entry/Exit so as to prevent car accident between entering and leaving cars, the Entry/Exit of the parking lot is a single lane passage.
6	Simulation of providing lube for the gear box before the lathe spindle starts to run which aims to ensure that the oil pump motor starts first and the main motor starts subsequently.
7	Controlling the motor to run forward when Forward is pressed, run reverse when Reverse is pressed and stop when Stop is pressed.
8	Starting the oil pump motor immediately when START is pressed. The main motor will be started after a 10 sec delay and then the auxiliary motor after a 5 sec delay. In addition, stopping all motors immediately when STOP is pressed.
9	Daily production data maintenance recorded
10	Automatic door open/close control system

PROJECTS - PYTHON PROGRAMMING

Sl. No.	Name of the Project
1	Data handling or Reading of Month Wise Growth of Electricity Performance through CSV File.
2	Data handling or Reading of Electricity Generation through Renewable Energy through CSV File.
3	File handling of Installed Capacity Power Plants through Web Scraping.

Working Models

S.No	Name of Working Model
1	Mini E-Scooter
2	Smart Bin
3	LC Meter Using Using Arduino
4	Speed Control of Dc Motor Using Arduino
5	Arduino based Automatic controlling of loads
6	Speed Control of DC Motor Using PLC
7	Wireless Charging of Electric Vehicle using Solar Energy
8	Generation of Electricity Using Pedaling Technology

Events Conducted

S. No	Year	Title of the program	Date of the program
1	2018-2019	Industrial Automation with PLC and SCADA	31-08-2018 to 01-09-2018
2	2019-2020	Industrial Automation with PLC	13-02-2020 to 15-02-2020
3	2020-2021	Industrial Automation with various controllers	03-04-2021
4	2020-2021	Electrical Vehicles-Your Opportunity to grow	16-06-2021
5	2021-2022	Industrial Automation with PLC & SCADA	30-11-2021
6	2021-2022	Hands-on Session on PLC Programming & SCADA	28-12-2021

Certifications

S.No	Title of Certification	No.of Students
1	MATLAB	51
2	PLC Programming	109
3	PYTHON	02

List of Papers Published in Journals/Conferences

S.No	Roll No/EMP ID	Name of the Student/ Faculty/Author	Title of Paper	Name of Journal	ISSN	Year
1	HTM488	S.V.SATYANARAYANA	Three Phase fault Rectification using Multi Functional DVR	IJRAT	2321-9637	2019
2	16E55A0203	I.RANJITH				
3	16QN5A0204	K.ARUN				
4	16E55A0210	N.KIRAN KUMAR				
5	HTM488	S.V.SATYANARAYANA	Review Paper on PLC and its applications in industrial Automation	IJRCS	2456-6683	2020
6	17E51A0213	G. SAI RAJASRI				
7	HTM407	P.MADHAVI	Automated Irrigation System using PLC	IJCRT	2320-2882	2020
8	16E51A0209	BALAPURAM AARTHI REDDY				
9	16E51A0212	BODDU NANDINI				
10	16E51A0219	GINNARAM VYSHNAVI				
11	17E55A0214	P. VIJAYA LAKSHMI				
12	HTM488	S.V.SATYANARAYANA	Motor Controlling in Industries Using PLC	JES	0377-9254	2020
13	HTM407	P.MADHAVI				
14	18E55A0205	B.SRINIVAS				
15	18E55A0209	B.KASINADH				
16	HTM488	S.V.SATYANARAYANA	Review Paper on PLC and its applications in industrial Automation	IJRCS	2456-6683	2020
17	17E51A0213	G. SAI RAJASRI				
18	HTM488	S.V.SATYANARAYANA	Automation of Parking slot system Analysis with IOT	Solid State Technology	0038-111X	2020
19	17E51A0213	G. SAI RAJASRI				
20	18E55A0201	AALA MADHU	Control Scheme and Performance Analysis of Dual-Frequency Single-Phase Grid-Connected inverter interfaced with Weak and Distorted Grids.	Mukt Shabd	2347-3150	2021
21	17E51A0219	KUNTE NAVYA SRI				
22	18E55A0217	RANGRECE VINAY KUMAR				
23	18H15A0203	MOHAMMED ADIL				
24	18H15A0205	MOHAMMED MOIZ UDDIN				
25	18E55A0203	B.Dheeraj	Design and Fabrication of customized automatic Library Books	IJAEMA	0886-9367	2021
26	18E55A0219	S.Devender				
27	18E55A0220	S.Anirudh				
28	15E51A0214	K.Ramu				

			issue and return machine integrated with smart card			
29	17E51A0214	K. Abhishek Kumar	MONITORING OF STREET LIGHTS USING GSM MODULE	Mukt Shabd	2347-3150	2021
30	17E51A0227	R.Hemalatha				
31	17E51A0233	T.Sindhuja				
32	17E51A0234	V.Devi Maha Lakshmi				
33	17E51A0210	D.SWATHI	DC-DC Boost Converter Using Lab view	Mukt Shabd	2347-3150	2021
34	17E51A0220	K.PRAVALIKA				
35	18E55A0212	ABDUL GHANI				
36	18E55A0221	T.ASMITHA				
37	18E55A0205	B.SRINIVAS	IOT based Feeder Control	Mukt Shabd	2347-3150	2021
38	18E55A0204	B.SHEERISHA				
39	18E55A0209	B.KASINADH				
40	17E51A0201	A.NIKHITHA				

Achievements

S.No	Roll No	Name of the Student	Event Participated	Title of Project	Achievement
1	19E55A0202	A.Venu Gopal	Patent Filing as a NP	MINI ELECTRIC SCOOTER	Patent Published
2	18E51A0220	S.Prem Kumar			
3	18E51A0209	G.Dhanunjay			
4	19E55A0205	Ch.Ajay Kumar			
5	19E55A0201	A.Srihari			
6	17E51A0203	Ashish Yadav	PELS JAMBOREE-PROJECT EXPO ,IEEE Power Electronics Society of St.Joseph's College of Engineering,Chennai	PLC based Multi-channel Fire Detection & Alarm System	Best Project
7	17E51A0207	Chandulal devasoth			
8	17E51A0211	E . pavan kalyan			
9	17E51A0213	G. Sai Rajasri			
10	18E55A0202	A. Hari Prasad			
11	18E55A0203	B.Dheeraj	PELS JAMBOREE-PROJECT EXPO ,IEEE Power Electronics Society of St.Joseph's College of Engineering,Chennai	Design and Fabrication of customized automatic Library Books issue and return machine integrated with smart card	Best Project
12	18E55A0219	S.Devender			
13	18E55A0220	S.Anirudh			
14	15E51A0214	K.Ramu			
15	17E51A0210	D.SWATHI	BIT-TECH FEST 2021,Bannari Amman Institute of Technology,Tamilnadu	"Ac-Dc-Ac Single-Phase Multilevel Six-Leg Converter with Reduced Number	Certificate of Merit
16	17E51A0220	K.PRAVALIKA			
17	18E55A0212	ABDUL GHANI			

18	18E55A0221	T.ASMITHA		of Controlled Switches. "	
19	18E55A0210	K.LAKSHMAN	BIT-TECH FEST 2021,Bannari Amman Institute of Technology,Tamilnadu	Solar power vehicle/car with ultrasonic sensors Lcd voltage display	Certificate of Merit
20	18E55A0211	M.SRI SAI CHARAN			
21	17E51A0205	B.MAHESH			
22	16E51A0202	ACHYUTH BALLA			
23	17E51A0203	Ashish Yadav	Tech Vistara	Smart Parking Slot Monitoring System Using IOT	First Prize
24	17E51A0207	Chandulal devasoth	Tech Vistara		
25	17E51A0211	E . pavan kalyan	Tech Vistara		
26	17E51A0213	G. Sai Rajasri	Tech Vistara		
27	18E55A0202	A. Hari Prasad	Tech Vistara		
28	17E51A0212	G Manikanta	Tech Vistara	Modeling of a battery management system for supercapacitors coupled EV Batteries	Second Prize
29	17E51A0216	K Chaitanya	Tech Vistara		
30	17E51A0217	Uday Kiran	Tech Vistara		
31	17E51A0231	Shiva Sriram	Tech Vistara		
32	17E51A0222	M. Durga Bhavana	Tech Vistara	Air Humidifying Mask	Third Prize
33	17E51A0223	N. Lakshmi Prasanna	Tech Vistara		
34	17E51A0228	S. Bhargav	Tech Vistara		
35	18E55A0213	Praneeth Paul	Tech Vistara		
36	18E55A0216	Prem Sagar	International Conference in Recent Developments in Power Engineering(ICRDPE)	Modelling and Analyzing of Bi-directional Electric Vehicle Charger	Certificate Of Appreciation
37	18E55A0222	T.Nagesh			
38	18E55A0218	S.Naveen			
39	18E55A0206	B.Venkata Ganesh			
40	17E51A0213	G.Sai Rajasri	International Conference in Recent Developments in Power Engineering(ICRDPE)	PLC Based Multi Channel Fire Detection and Alarm System	Certificate Of Appreciation