

#### AG Groups:

- Active Galaxy (An Engineering Idea), Chennai
- M.Phil Project center (A Research Institute for M.Phil / PHD), Chennai
- IJADST (International Journal)
- AG Welfare Association, Chennai

## **Internship (ECE/EEE/EIE/CSE/IT) – (20 Hours)**

**3 days – 6 hours/day | 5 days – 4 hours/day | 10 days – 2 hours/day**

### **Course structure (ARM LPC2148/Cortex-M4)**

#### **1. Overview**

##### **Embedded System (ARM CORTEX) introduction & Software installation**

- Introduction to Embedded System (ARM CORTEX)
- Introduction to ARM Cortex platform
- Introduction to Microprocessor
- Introduction to Programming Language
- Introduction to software tool chain

#### **2. Learning of I/O with Real time implementation**

- ❖ **Experiment 1: Single GPIO access**
  - ❖ Single port register access - Single LED toggle
- ❖ **Experiment 2: Multiple GPIO access**
  - ❖ Full port register access - Bar graph LED toggle
- ❖ **Experiment 3: 7-Segment LED display interface**
  - ❖ Single port register access method - 7-Segment display
- ❖ **Experiment 4: 7-Segment LED display interface**
  - ❖ Full port register access method (Hexadecimal method)
- ❖ **Experiment 5: Button interface**
  - ❖ Digital input sensing – Push button interface
  - ❖ Pull-Up logic & Pull-Down logic
- ❖ **Experiment 6: Test task**
  - ❖ Combination of Digital input and output
- ❖ **Experiment 7: 16\*2 LCD interface**
  - ❖ 4bit data mode & Scrolling display
- ❖ **Experiment 8: 16\*2 LCD interface task**
  - ❖ Increment counter & Decrement counter
- ❖ **Experiment 9: ADC on LCD**
  - ❖ Variable resistor (analog input reading)
  - ❖ 8Bit ADC calculation and resolution talk

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- M.Phil Project center (A Research Institute for M.Phil / PHD), Chennai
- IJADST (International Journal)
- AG Welfare Association, Chennai

- ❖ **Experiment 10: Sensor interface**
  - ❖ Current sensor interface
  - ❖ Sensor calibration & Sensor sensitivity calculation
- ❖ **Experiment 11: Test task**
  - ❖ Combination of ADC and LCD task
- ❖ **Experiment 12: HW/SW Serial port initialize**
  - ❖ 9600 baud rate, 8-Bit data, No parity, 1-stop bit configuration
- ❖ **Experiment 13: Serial communication method**
  - ❖ Synchronous & Asynchronous Serial Programming
  - ❖ UART Tx & Rx interrupt
- ❖ **Experiment 14: ADC on serial port**
  - ❖ Sensor data on serial port
- ❖ **Experiment 15: Hand shaking serial port**
  - ❖ Serial port request and acknowledgement method
- ❖ **Experiment 16: Test task**
  - ❖ Sensor HUB design task
- ❖ **Experiment 17 : DC motor control**
  - ❖ DC motor ON/OFF
- ❖ **Experiment 18 : DC motor direction control**
  - ❖ DC motor forward
  - ❖ DC motor Reverse
- ❖ **Experiment 19 : DC motor speed control**
  - ❖ PWM pulse generation & Duct cycle calculation
  - ❖ DC motor speed control
- ❖ **Experiment 20: Buzzer control**
  - ❖ Digital Buzzer ON/OFF
- ❖ **Experiment 21: Push button interface**
  - ❖ Single button interface
- ❖ **Experiment 22: Matrix keyboard interface**
  - ❖ Matrix button interface
- ❖ **Experiment 23: Password matching**
  - ❖ OTP generation & OTP verifying and access control

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- M.Phil Project center (A Research Institute for M.Phil / PHD), Chennai
- IJADST (International Journal)
- AG Welfare Association, Chennai

❖ **Experiment 24: Switch interrupt**

- ❖ Switch read Polling method
- ❖ Switch read interrupt method

❖ **Task competition**

- ✓ On spot logical task in embedded program
- ✓ Time level completing task
- ✓ Performance evaluation

**MESSAGE FROM FOUNDER & CEO**

**Dear Client,**

Greetings from our aspect,

We are providing the best solutions for the evergreen technologies like

- **EMBEDDED SYSTEM's**
- **ROBOTICS**
- **INTERNET OF THINGS (I.O.T)**
- **MATLAB**
- **FPGA**
- **RASPBERRY PI**
- **DATA MINING**
- **BIG DATA**
- **JAVA**
- **ANDROID**
- **DOTNET**

**Note:**

"Active Galaxy professionally assists Research scholars and others who want to do their thesis / Journal / Books / Products. The institute's senior faculty members will discuss whatever ideas the Research scholars have an assist to quickly transform them into research-based concepts to proceed further into practical working."

All the very best for your future endeavors.

**\*\*AG Plus:**

1. **Learn & Interact with renowned Industry Experts.**
2. **Hands on experience.**
3. **Doorstep Project delivery & Services.**

Thanks & Warm Regards...  
**GOPALAKRISHNAN SUBRAMANIAM,**  
FOUNDER & CEO,  
ACTIVE GALAXY.