IIES Indian Institute of Embedded Systems



Diploma in Embedded Systems

Offline
Online

4 Months

Gain Real Project Experience & Placement

Modules

Programming in c
- Learn C Programming from Scratch
- Hands-on Coding with Real Examples
- Build Strong Foundation for Embedded Systems

Data Structures & Algorithms
- Arrays
- Linked Lists
- Stacks
- Queues
- Trees
- Searching & Sorting Algorithmsms

Basic Electronics
- Digital
- Analog
- Communication

Embedded - C With ARM Cortex - M3
- Embedded C
- ARM Cortex-M3

Unix / Linux Shell Programming
- Basic Shell Commands & File Management
- Shell Scripting & Automation
- Process and System Management in Linux

Networking
- Linux Kernel Architecture Basics
- Device Driver & Kernel Module Concepts
- Linux Networking & Socket Programming

100% Placement Assistance

Placement Assistance
- Resume Building & Profile Preparation
- Mock Interviews & Technical Interview Training
- Job Referrals with Embedded Companies
- Dedicated Placement **till 1 Year**

Program Takeway

Program Takeaway
- Strong Foundation in Embedded Systems & Programming
- Hands-on Experience with Real-Time Projects
- Industry-Ready Skills with Placement Assistance

Project Based Training

Project Based Training
- Work on Real-Time Embedded Projects
- Hands-on Hardware & Programming Practice
- Practical Industry-Oriented Learning

Hiring Domains

Hiring Domains
- Aerospace & Automotive
- IOT & Defence
- Semiconductor & EV Vehicles
- Wireless
- IT Services

1 C Programming

prerequisite

•Basicknowledge of Computer Fundamental.

module outline

- Environment Setup
- Program Structure
- Basic Syntax
- Data Types
- Variables
- Constants
- Storage Classes
- Operators
- Decision Making
- Loops
- Functions
- Scope Rules
- Arrays
- Pointers
- Strings
- Structures
- Unions
- Bit Fields
- Typedef
- Input & Output
- File I/O
- Preprocessors
- Header Files
- Type Casting
- Error Handling
- Recursion
- Variable Arguments
- Memory Management
- Command Line
- Arguments
- Multi-dimensional array
- Enum

projects

- Mini project

2 Data Structures & Algorithms

prerequisite

•basicunderstanding of C programming language, text editor, and execution of programs

module outline

Overview

Environment Setup

Algorithm

- Algorithms Basics
- Asymptotic Analysis
- Greedy Algorithms
- Divide and Conquer
- Dynamic Programming

Data Structures

- Data Structure Basics
- Array Data Structure

Stack & Queue

- Stack
- Expression Parsing
- Queue

Searching Techniques

- Linear Search
- Binary Search
- Interpolation Search
- Hash Table

Linked Lists

- Linked List Basics
- Doubly Linked List
- Circular Linked List

Sorting Techniques

- Sorting Algorithms
- Bubble Sort
- Insertion Sort
- Selection Sort
- Merge Sort
- Shell Sort
- Quick Sort
- Graph Data Structure
- Depth First Traversal
- Breadth First Traversal

Tree Data Structure

- Tree Data Structure
- Tree Traversal
- Binary Search Tree
- AVL Tree
- Spanning Tree
- Heap

Recursion

- Recursion Basics
- Tower of Hanoi
- Fibonacci Series

3 Basic Electronics

prerequisite

•Basic knowledge of Electronics fundamental.

module outline

Digital

- Number conversion Addition and subtraction Logic gates
- Combinational design Encoder Decoder Multiplexer De multiplexer
- Sequential design Flip-flops Shift register Counters

Analog

- Semi-conductors
- Diodes
- Transistors and subtraction
- Logic gates
- BJT Basic theorems { kvl, kcl, thevenin and Norton's theorem}
- Op-amp
- ADC,DAC

Communication

- Amplitude modulation Frequency
- modulation
- Phase modulation
- ASK and FSK modulators
- GPS
- Bluetooth ZIG-BEE
- WIFI

4 Embedded C with ARM - 7

prerequisite

•C programming and Embedded C

module outline

•ARM evaluation system
•Interfacing ADC and DAC
•Interfacing LED and PWM
•Interfacing real time clock & serial port
•Interfacing keyboard and LCD
•Interfacing EPROM and interrupt
• Mailbox
•Interrupt performance characteris-tics of ARM and FPGA.
•Flashing of LEDS.
•Interfacing stepper motor and
•temperature sensor.
•Implementing zigbee protocol with ARM.

projects

•Mini project

5 Unix / Linux Shell Programming

prerequisite

•ProgramminginC and data Structure

module outline

- For Beginners
- Home
- Getting Started
- File Management
- Directories
- File Permission
- Environment
- Basic Utilities
- Pipes & Filters
- Processes
- Communication
- The vi Editor
- Shell Programming
- Shell Scripting
- What is Shell?
- Using Variables
- Special Variables
- Using Arrays
- Basic Operators
- Decision Making
- Shell Loops
- Loop Control
- Shell Substitutions
- Quoting Mechanisms
- IO Redirections
- Shell Substitutions
- Shell Functions
- Manpage Help
- Advanced Unix / Linux
- Regular Expressions
- File System Basics
- User Administration
- System Performance
- System Logging
- Signals and Traps
- Threads
- Multi Threads
- Threads vs Process

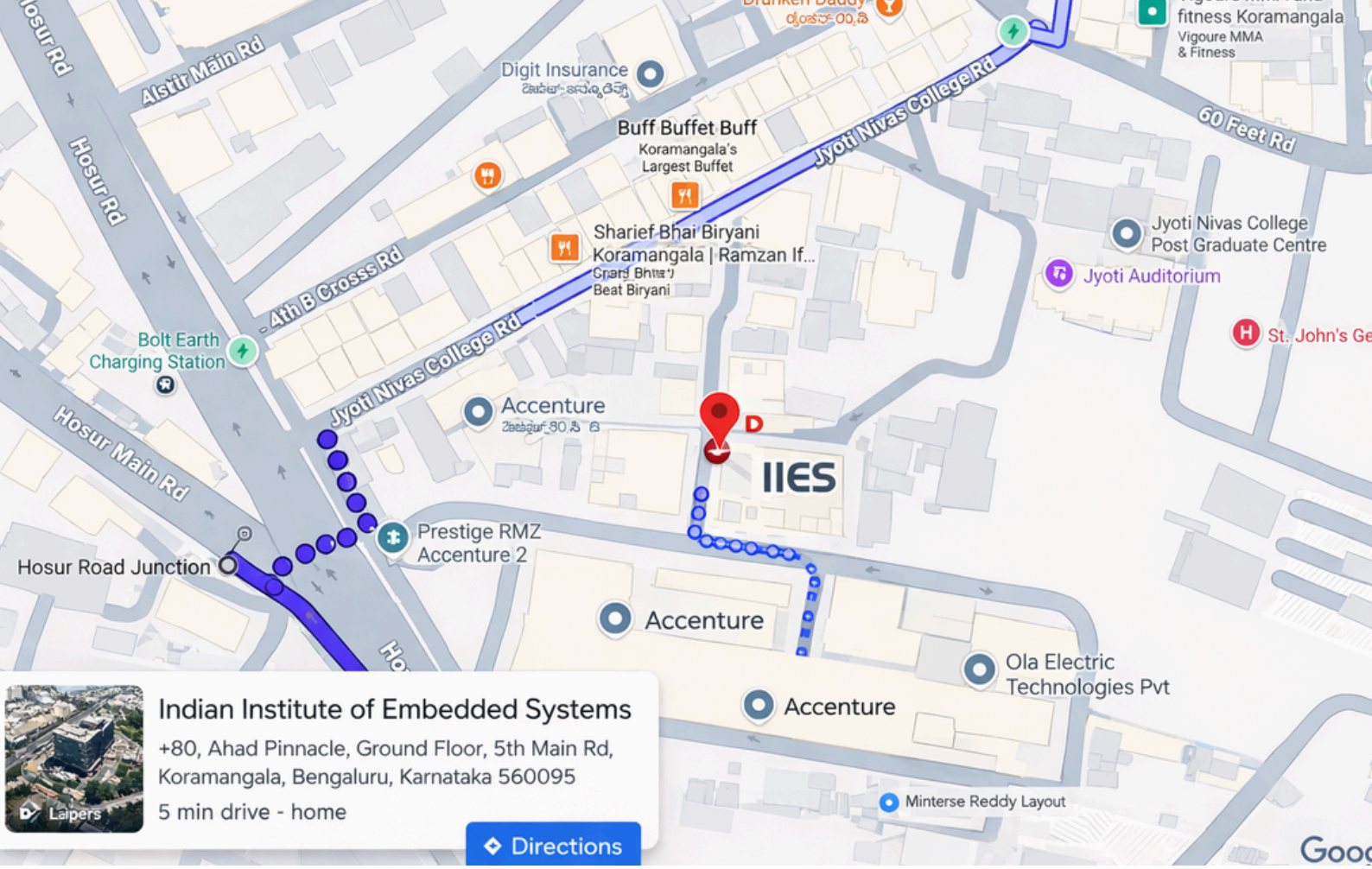
6 Networking

prerequisite

•Knowledge of Linux

module outline

- Introduction
- Features
- Architecture
- Components
- Computer Network
- Types
- Topologies
- Transmission Modes
- Models
- Models
- OSI Model
- TCP/IP Model
- Physical Layer
- Digital Transmission
- Transmission Media
- Guided Media
- UnGuided Media
- Multiplexing
- Switching
- Switching Modes
- Switching Techniques
- Data Link layer
- Data Link layer
- Error Detection
- Error Correction
- Data Link Controls
- Network Layer
- Network Layer
- Network Addressing
- Routing
- Network Layer Protocols
- Routing Algorithm
- Distance Vector
- Link State Routing
- Transport Layer
- Transport Layer Protocols
- Application Layer
- Client & Server Model
- Application Protocols
- DNS
- FTP
- Telnet
- SMTP
- SNMP
- HTTP
- Network Security
- Security
- Privacy
- Digital Signature
- PGP



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