



DRIVES YOU TO INDUSTRY



EMBEDDED SYSTEMS

WITH

GEN AI

614

MNCs Hired in 2025

700

Self Placed in 2025

1306

Students Recruited
in 2025

THE INSTITUTE

- Directors with over a decade of rich industry experience in Design Development, Training & Recruitment.
- A state-of-the-art Programming Lab with 1:1 student to system ratio.
- A well-equipped H/W Lab with 8051, ARM, PIC and AVR boards.
- A/C class rooms with LED projectors and equally distributed sound systems.
- A dedicated Placement Cell with operations in Hyderabad, Bengaluru and Chennai.



ADMISSION

We offer a 6-months comprehensive training program with a well-integrated approach that gives you hands-on experience on a spectrum of embedded applications. Our 100% genuine placement assistance speaks for itself with more than 614 MNCs recruiting our students in the span of a year.

- No fees for admission test
- Working professionals with relevant experience are eligible for direct admission

Admission Process

- The Admission into Embedded Systems with Gen AI course is based on our VECTOR INDIA **Online Scholarship Test**.
- Students can attempt the scholarship test at any time.
- Visit our website www.vectorindia.org to register for our online scholarship test.

Test Syllabus

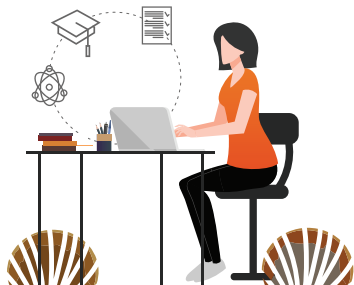
- Basics of C programming (without Data structures)
- Digital electronics
- Microprocessor 8085/8086 (architecture, assembly language, and interfacing)
- General aptitude

SCHOLARSHIPS

Admission Test	Final Degree Score	Fee Waiver
>80%	>60%	50%
70% to 79.9%	>60%	25%
50% to 69.9%	>70% / GATE Score	10%

🔍 www.vectorindia.org

Apply Online



WHAT WE OFFER

- High quality practical/application oriented training
- Genuine placement assistance
- Lateral placement assistance for the next 6 months
- Industry accepted course content
- Lab with 1:1 system ratio

TRAINING PROCESS

- 6-days a week, theory (3hrs) and practical (3hrs) sessions
- Daily theory and lab assignments
- Alternate week Theory & Lab exams
- Module wise theory and lab exams
- Mock interviews & project guidance
- Parallel classes will be conducted whenever required

ELIGIBILITY FOR PLACEMENTS

- Candidates must meet all the following criteria to be eligible for placement assistance.
- Students should undergo Vector Shortlisting Test(VST) for every 3 months if they have not secured a placement in any company within three months of becoming eligible for Campus Placements.

Criteria	Minimum Attendance	Minimum Internal Score	Mock & Assessment Interview
Theory	75%	40%	Recommendation
Lab	75%	40%	Recommendation
Communication	75%	40%	Recommendation
Aptitude	75%	40%	Recommendation



Programming

C, C++

**Operating
Systems**

LINUX, INTERNAL

Networking

TCP/ IP, CAN

EMBEDDED SYSTEMS

WITH

GEN AI

COURSE OVER VIEW

RTOS

RT-LINUX

Hardware

8051 ARM

Additional Module

GEN AI

Communication Skills

Aptitude

4 MINI PROJECTS

1 MAJOR PROJECT

Optional Modules based on MNC's requirements

IoT

Linux Device Drivers

Python

Android System programs

Autosar

Automotive Domain

PRACTICAL C

- Why C in Embedded Systems
- ANSI Standard
- Fundamentals of C
- Conditional Statements
- Loops
- Functions
- Arrays
- Strings
- Storage Classes
- Structures & Union
- Enumerated Data Types
- Bit Operations
- Pointers
- Dynamic Memory Allocation
- File Handling Concepts
- Raw Data Handling
- Low-level Programming
- Command Line Arguments
- Compiler in Practical
- Data Structures
- Sorting and Searching Techniques
- Concepts and Real Time Exposure
- Development Tools and Environment
- Make Utility and Multi-File programming
- Industry Coding Standards
- Object / Executable File Format
- Debugging Large Programs

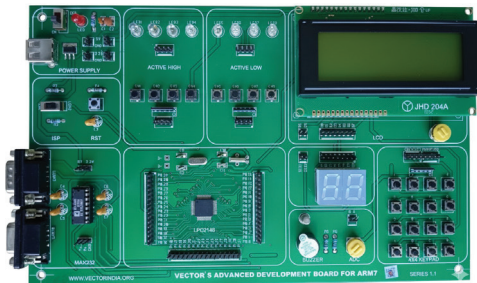
MINI PROJECT 1



ARM

- Introduction
- Core Features
- Version History
- Data flow model
- Registers
- CPU Modes
- Memory Organization
- Interrupts
- Pipelining
- ARM Assembly Language programming
- Addressing Modes
- ARM 7 Instruction Set (20/80% rule of assembly language)
- Usage of Keil IDE
- Demonstrating ARM ISA
- Demonstrating THUMB ISA
- ARM Embedded C language implementation
- Exposure to an ARM7 CPU Core based microcontroller
- LPC2114-ARM7 based microcontroller from philips semiconductor
- On-chip system peripherals
- Bus structure (AMBA)
- Memory map
- Phase locked loop
- VPB divider
- Pin connect block
- On-chip user peripherals
- General purpose I/O: demo using switch & LED
- Vectored interrupt controller (VIC)
- External interrupts: demos

MINI PROJECT 2



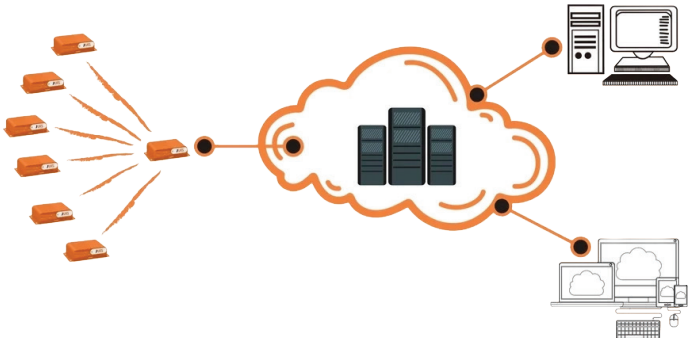
OBJECT ORIENTED PROGRAMMING WITH C++

- Overview
- Characteristics
- Function Overloading
- Scope Resolution Operator
- Classes in C++
- Access Specifiers
- Constructor and Destructor
- Static members and Functions
- Friend Classes and Friend Functions
- Operator Overloading
- Data Conversions
- Inheritance and Polymorphism
- Exception Handling and Templates
- Input and Output Streams

LINUX INTERNALS

- Introduction
- Kernel Architecture
- Shell and Services
- System Calls
- Error Handling
- Linker and Loader
- Static Library Implementation
- Dynamic Library Implementation
- Process Management
- Interrupts/Signals
- File Management
- Inter Process Communication
- Pipe
- FIFO
- Message Queue
- Shared Memory
- Client-Server properties
- Semaphore
- Multithreading
- Memory Management
- Virtual Memory
- Shell Scripting

MINI PROJECT 3



NETWORKING AND TCP/ IP APPLICATIONS

- Network Structure
- Classifications and Technologies
- Switching and Routing
- Gateway, Repeater, Hub and Bridge
- OSI & TCP/IP Protocol Layers
- Physical & Logical Addresses
- ARP & RARP Networking and TCP/IP Applications
- Inter Protocol
- Routing Protocol and IP Datagrams
- Error and Control Messages (ICMP) UDP
- Transfer Control Protocol
- TCP Networking Applications
- (FTP, TFTP, TELNET, DNS, DHCP, SMTP, POP3, IMAP, SNMP)

SOCKET PROGRAMMING

- Overview
- Concurrent Processing
- Programming Interface
- Socket Interface
- Client/ Server Design
- Concurrent Connection-Oriented Servers
- Socket Calls for TCP and UDP
- Single Process
- Concurrent Servers
- Remote Procedure Call
- Implementation of TFTP/SMTP

MINI PROJECT 4



MICROCONTROLLER INTEL - 8051

Introduction Overview of Architecture of 8051 Low-level programming concepts Middle Level Programming concepts.

- Cross Compiler
- Embedded C Programming
- Embedded C Debugging
- Memory Models
- Library Reference
- #pragma Directive

On-Chip Peripherals

- Ports: input/output
- Timers & Counters
- Interrupts and UART

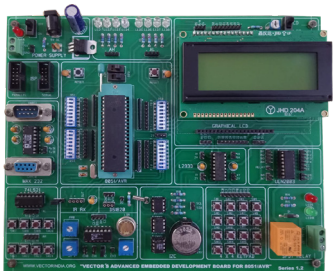
External Interface

- LEDs, LCD and Switches
- Seven segment display
- Keypad Matri

Protocols

Selective discussion during project development

- A/D & D/A Converter
- Stepper Motor and DC Motor
- RTC: DS1307
- ADC: MCP3201
- IR, ZIGBEE, GSM, GPS, USB MMC
- SD, Ethernet MAC, CAN Protocol



RTOS RT - LINUX

- RT-Linux
- Different types operating systems
- RTOS introduction (Hard real time, soft real time)
- Latency in linux and priority inheritance
- Linux 2.6 features for realtime
- 2.6 kernal compilation
- RT-Linux patching
- Linux RTPREEMPT patches
- Configuring the kernel with RT-PATCH
- Implementation of real time application
- Measuring and comparing scheduling latency in standard linux and RT-linux with the latest RT patches
- Linux real-time API
- Porting RT-LINUX on ARM and application development

FINAL PROJECT

GEN AI

- **Introduction to Generative AI and LLMs (ChatGPT, Copilot, Perplexity)**
- **AI-Assisted Firmware Development**
- **Prompt Engineering for Code Generation**
- **Using AI Tools with Wokwi Simulator**
- **Cursor AI for Automated Library Integration & Pin Mapping**
- **Generating and Modifying Code for Real Hardware (Arduino, LPC2148)**
- **AI-Based Code Debugging & Optimization**

Activities

- **AI-generated LED blink code**
- **AI-assisted OLED & RTC display setup**
- **Porting code to custom hardware using Generative AI**

PLACEMENT HIGHLIGHTS

- 100% genuine placement assistance.
- 614 campus drives conducted in 2025.
- 1306 students placed in 2025.
- And 700 self placed in 2025.
- Remarkable & ever-improving placement record.
- Consistent record of 500+MNCs for campus drives every year.
- Our recent highest package received 21.71 LPA.
- Maintaining an average package of 4.0 LPA.

You can check current placements in the placement link at

www.vectorindia.org/placement_record.html



Our Premier MNCs and R&D Companies that recruited from us

Qualcomm



Mercedes-Benz



Power and productivity
for a better world™ **ABB**

HYUNDAI
MOBIS



HARMAN



HCL

Honeywell



SanDisk®

XILINX®

SIEMENS



SONY
make.believe



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