



DRIVES YOU TO INDUSTRY

# EMBEDDED SYSTEMS

**576+**  
MNCs HIRED  
IN 2023



**1512**  
STUDENTS RECRUITED  
IN 2023

Qualcomm

Mercedes-Benz

BOSCH

SONY  
make.believe

HCL

# 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 Bengaluru, Pune, Noida, Chennai and Hyderabad.



# ADMISSION

We offer a 6-month 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 576 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 course is based on our VECTOR **Online Scholarship Test**.
- Students can attempt the scholarship test at any time.
- Visit our website [www.vectorindia.org](http://www.vectorindia.org) to register for our 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](http://www.vectorindia.org)

Apply online



## WHAT WE OFFER

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

## TRAINING PROCESS

- 6-days a week, theory(1.5-2 hrs) and practical (3hrs) sessions
- Daily theory and lab assignments
- Theory & Lab exams every alternate week
- Module wise theory and lab exams
- Mock interviews & project guidance
- Parallel classes will be conducted when 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

## THE RESULT

Industry-Ready Professionals

# EMBEDDED SYSTEMS COURSE OVERVIEW



**4 MINI PROJECTS**

**Optional Modules based on MNC's requirements**

IoT

Linux Device Drivers

Python

**1 MAJOR PROJECT**

Android System Programs  
Autosar  
Automotive Domain

Communication Skills

Aptitude Skills

# PRACTICAL C

- Why C in Embedded Systems
- ANSI Standard
- Fundamentals of C
- Conditional Statements
- Loops
- Functions
- Arrays
- Strings
- Storage Classes
- Structures & Unions
- 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

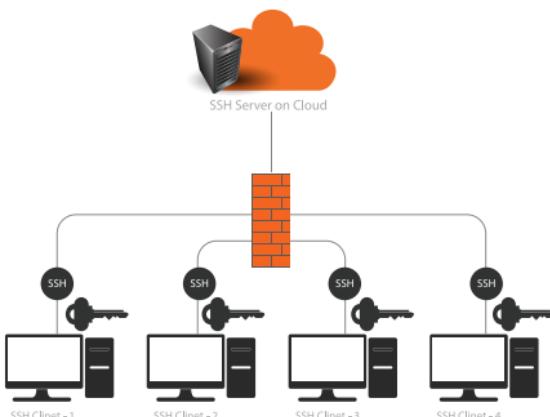
## MINI PROJECT 1



# 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 2



# NETWORKING AND TCP/IP APPLICATIONS

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

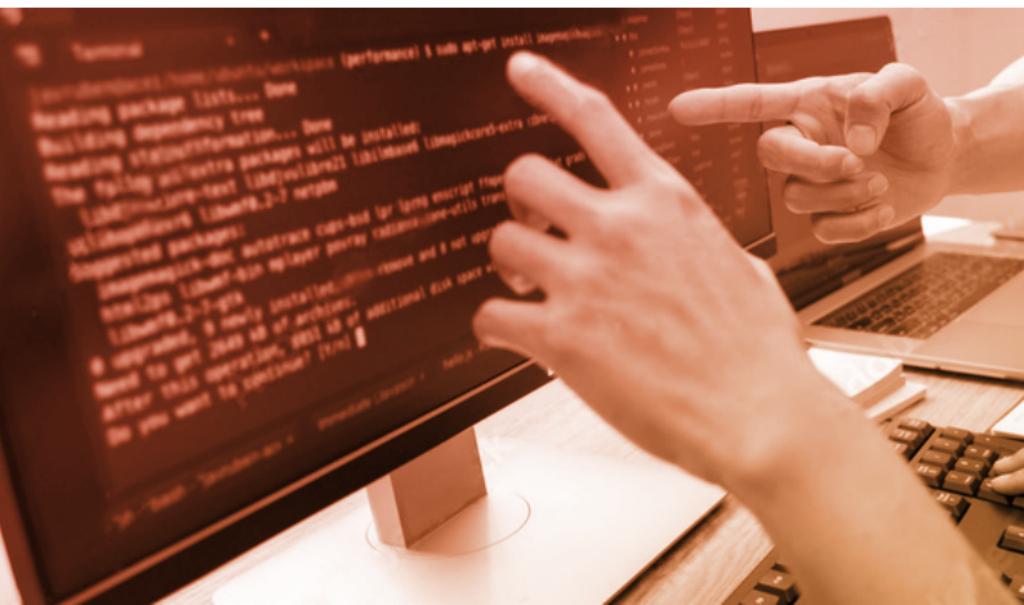
# SOCKET PROGRAMMING

- 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 3

# 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



# 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 Interfaces

- LEDs, LCD, and Switches
  - Seven Segment Display
  - Keypad Matrix

## 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



## MINI PROJECT 4

# 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 Semiconductors
- 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

# RTOS RT - LINUX

- RT-Linux
- Different types operating systems
- RTOS basics - Linux as Real Time
- RTOS Introduction (Hard Real Time, Soft Real Time)
- Latency in Linux and Priority Inheritance
- Linux 2.6 features for realtime
- 2.6 Kernel 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

## PLACEMENT HIGHLIGHTS

- 100% genuine placement assistance.
- 576+ Campus Drives conducted in 2023.
- 1512 Students placed from 2023.
- Remarkable & ever-improving placement record.
- Consistent record of 500+ MNCs for Campus drives every year.
- Our recent highest package received is 17.85 LPA.
- Maintaining an average package of 4 lakhs per annum.

You can check current placements in the placement link at  
[www.vectorindia.org/placement\\_record.html](http://www.vectorindia.org/placement_record.html)

## Premier MNCs & R&D companies that recruited from us

Qualcomm



Power and productivity  
for a better world™ ABB

HYUNDAI  
**MOBIS**



**HCL**

**Honeywell**



**SanDisk®**

**XILINX®**

**SIEMENS**



**L&T Technology Services**



**SONY**  
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**ANALOG DEVICES**

**AMD**

**American Megatrends**  
Invent. Future. ▶

And many more

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