



DRIVES YOU TO INDUSTRY

EMBEDDED SYSTEMS COURSE

CLASSROOM, LIVE ONLINE,
& BLENDED LEARNING

2203

STUDENTS
PLACED IN 2021



All India Educational
Excellence Award
Winner for
3 years in a row



100%

GENUINE PLACEMENT
ASSISTANCE



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.
- E-Learning classes with online video courses delivered by industry-experienced lecturers.



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 630 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 Entrance Examination**.
- It will be conducted once every quarter.
- Visit our website www.vectorindia.org to register for our entrance test.

Test Syllabus

- Basics of C programming (without Data structures)
- Microprocessor 8085/8086 (architecture, assembly language, and interfacing)
- Digital electronics
- 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
- Holistic online learning program
- 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.

Criteria	Minimum Attendance	Minimum Internal Score	Mock & Assessment Interview
Theory	75%	40%	Recommendation
Lab	75%	40%	Recommendation
Communication	75%	40%	Recommendation
Aptitude	75%	40%	Not Applicable

THE RESULT

Industry-Ready Professionals

EMBEDDED SYSTEMS COURSE OVERVIEW

Programming

C
C++
ASM

Operating
Systems

Linux
Internals

Networking

TCP/IP
CAN

RTOS

RT-Linux

Hardware

8051
ARM

Communication skills

Aptitude skills

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 & 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

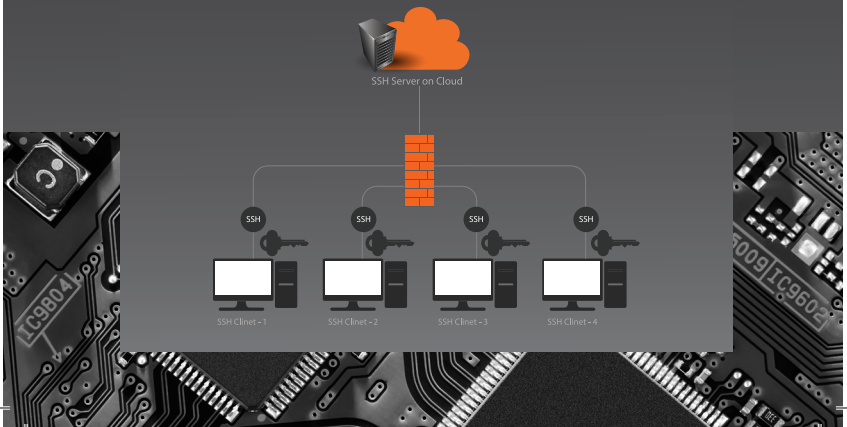
MINI PROJECT 1



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, 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 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

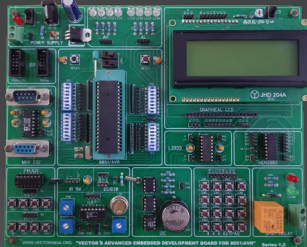
- LEDs, LCD, and Switches
- Seven Segment Display
- Keypad Matrix

Protocols

- I2C and SPI

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



Vector 8051 Board

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.
- 630+ Campus Drives conducted during in 2021.
- 2203 Students placed in 2021.
- Remarkable & ever-improving placement record.
- Consistent record of 300+ MNCs for Campus drives every year.
- Our recent highest package received is 15.4 LPA.
- Maintaining an average package of 4.5 lakhs per annum.

You can check current placements in the placement link at
www.vectorindia.org/placement_record.html

2021



Premier MNCs & R&D companies that recruited from us



And many more



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