

TECHNOLOGY INTERNSHIP TRAINING PROGRAM IN **EMBEDDED SYSTEM**

4-6 Months Online Program
Comprehensive Modules on Linux,
Embedded C and Automobiles



Real-Time Project Experience

WORK ON LIVE PROJECTS TO BUILD A
PRACTICAL PORTFOLIO.



Industry-Aligned Curriculum

STAY UPDATED WITH IN-DEMAND SKILLS
EMPLOYERS NEED.



Placement-Oriented Training

STRUCTURED SUPPORT TO SECURE
INTERNSHIP & JOB OPPORTUNITIES.



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MASTER PATH

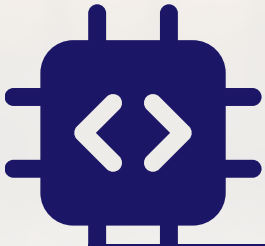
YOUR PATHWAY TO INDUSTRY-READY TECH CAREERS

At Master Path, we prepare graduates and working professionals to become industry-ready through practical, project-based internship training and placement support in high-demand technologies.

Our mission is to bridge the gap between education and employment by providing hands-on learning, real-world projects, and career guidance in fields like Data Analytics, Data Science, Full Stack Development, Embedded Systems, and more.

Whether you are a fresher seeking your first job or a professional looking to upskill, Master Path helps you gain the skills, confidence, and practical exposure needed to secure internship opportunities and placements in top companies.





WHAT ARE EMBEDDED SYSTEMS?

An Embedded System is a combination of hardware and software designed to perform a dedicated function or set of functions within a larger system. Unlike general-purpose computers, embedded systems are built to control, monitor, or assist the operation of equipment, machinery, or devices.

They are "brains inside machines"—tiny computers that help everything from mobile phones to medical devices, smart appliances, automobiles, and industrial robots run efficiently.

Real-World Applications:



- Automobiles – Airbags, ABS, automatic lights
- Smartphones & Gadgets
- Medical Devices – Pacemakers, blood pressure monitors
- Home Appliances – Washing machines, microwaves
- Industrial Automation – Robotics, process control

Why Learn Embedded Systems?



- High demand in IoT, Automotive, Aerospace, Robotics, and Healthcare
- Bridges hardware and software – excellent for tech lovers!
- Opens doors to product design, firmware development, and AI integration

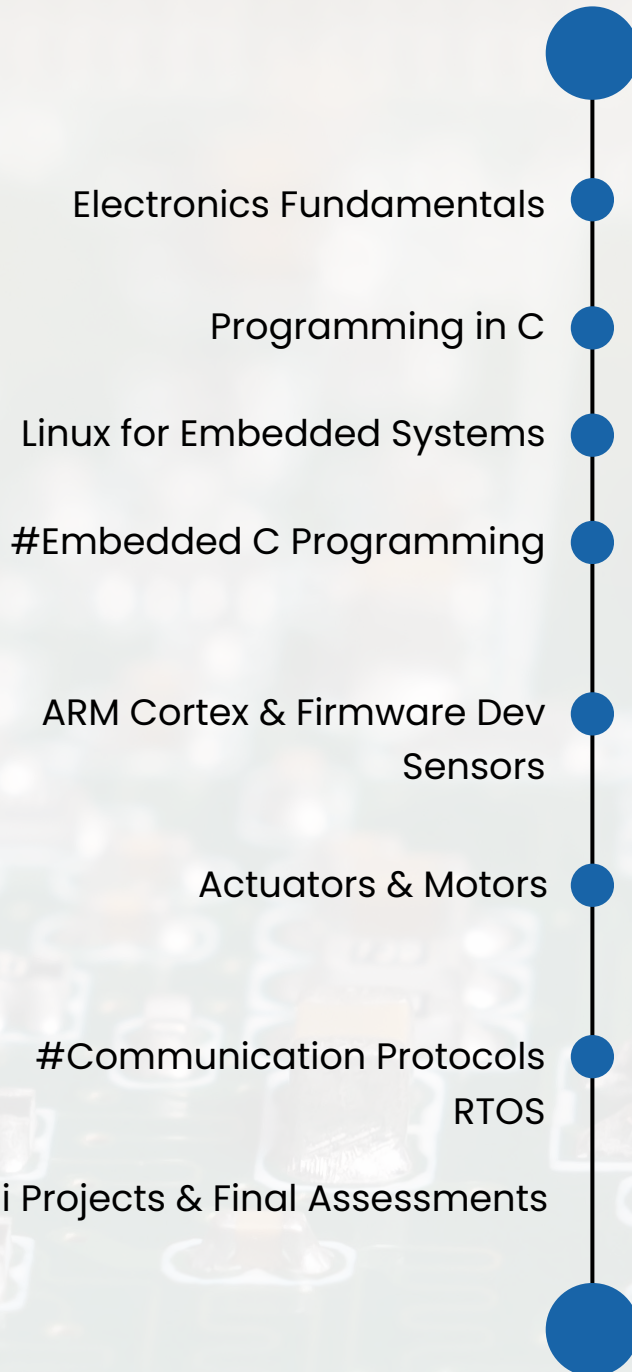
Career Roles:



- Embedded Software Engineer
- Firmware Developer
- IoT Developer
- System Validation Engineer

Your Career Path:

Embedded Systems Module



Career Roles After Completion:

- Embedded Engineer
- Embedded Hardware Engineer
- Embedded Software Developer
- Firmware Developer

Value Additions

Roles	Packages
Embedded Engineer	Entry-level (Freshers): ₹3.5 Lakhs to ₹9 Lakhs per year
	Mid-Level (3 years experience): ₹4.2 Lakhs to ₹12 Lakhs per year
	Senior (5+ years experience): ₹8.1 Lakhs to ₹21.9 Lakhs per year

OUR HIRING PARTNERS

Qualcomm



Mercedes-Benz



Power and productivity
for a better world™

ABB

HYUNDAI

MOBIS



HCL

Honeywell



SanDisk®

XILINX®

SIEMENS



SONY
make.believe



AMD



And Many More

PROGRAM OVERVIEW



4-6 Months | Online



Personalized Weekend Mentorship Sessions



Hands-On Exposure with 6+ Tools



18 Weekly Online Mentorship Sessions



Case Studies with Real-World Datasets:
10 hands-on projects and 60+ case studies



Industry Mentor-guided Capstone Project



Dedicated Program Manager



Academic Learning Support (Industry Mentor, GL Coach,
GL Community, Project Discussion Forums, Peer Groups)



Certificate of Completion from MasterPath



World-renowned Faculty and Seasoned Industry Experts



Dedicated Learning and Career Support



Resume Review and Interview Preparation Sessions



MODULE-1

Essentials of C Programming

Goal

An introduction to fundamental C programming concepts essential for embedded systems development

Details

This module helps students rapidly learn and apply embedded system concepts through hands-on C programming. By the end of the module, students will be able to analyse problems and develop effective solutions using advanced features of the C language

Duration

2 Weeks (Theory + Lab sessions)

Platform

Windows and Linux

Tools

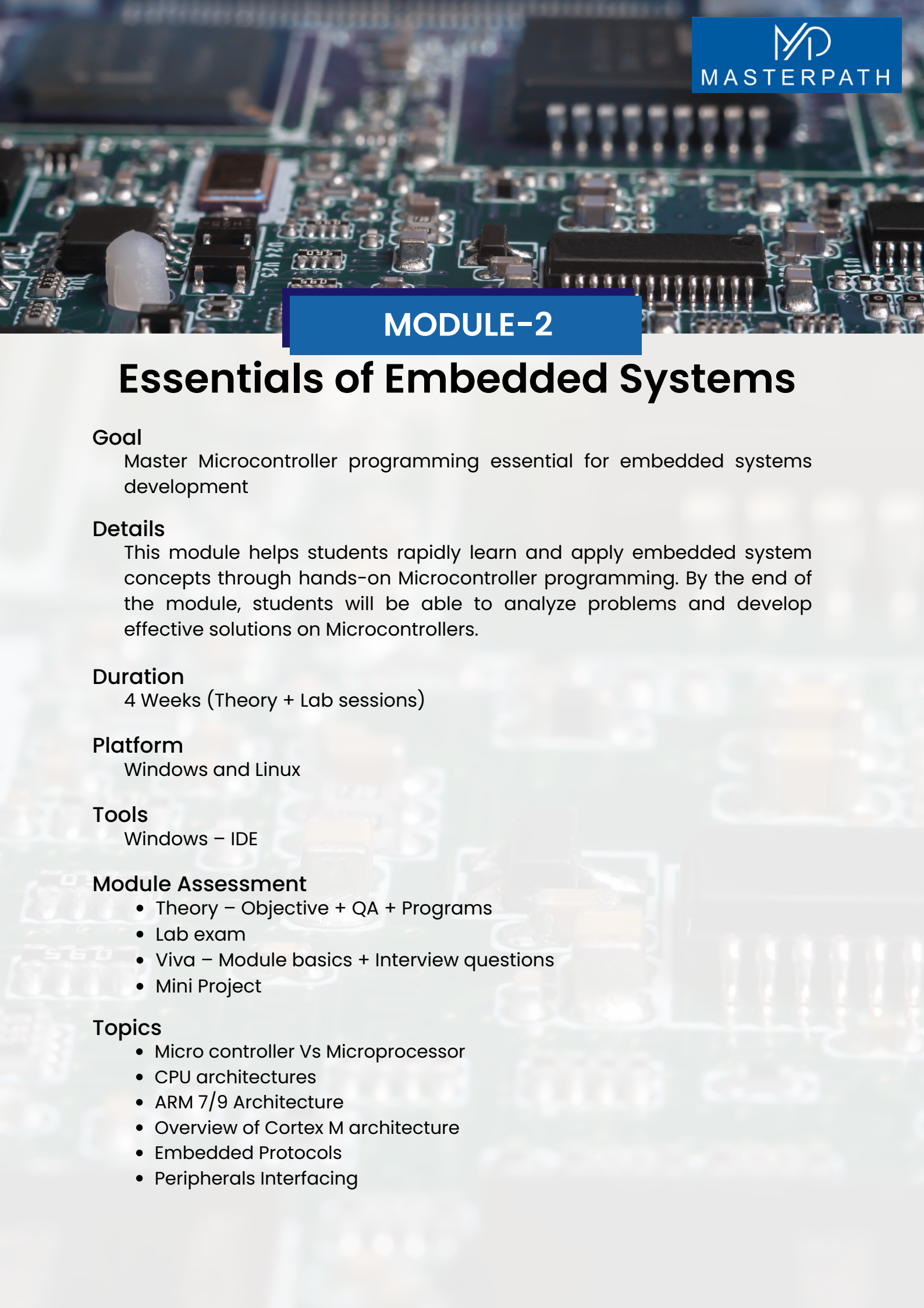
Windows – IDEs, Linux – vi/vim editor, gcc, gdb, git

Module Assessment

- Theory – Objective + QA + Programs
- Lab exam
- Viva – Module basics + Interview questions

Topics

- Introduction to Linux environment
- Essential shell commands, Vi editor
- Assembler, Compiler, Linker, Hex generator, Loader
- History of C, Structure of a C program
- Variables, Constants Vs Enumeration
- Data Types and Sizes
- Storage Classes
- Debugging a sample C Program
- Coding guidelines, Coding style/documentation



MODULE-2

Essentials of Embedded Systems

Goal

Master Microcontroller programming essential for embedded systems development

Details

This module helps students rapidly learn and apply embedded system concepts through hands-on Microcontroller programming. By the end of the module, students will be able to analyze problems and develop effective solutions on Microcontrollers.

Duration

4 Weeks (Theory + Lab sessions)

Platform

Windows and Linux

Tools

Windows – IDE

Module Assessment

- Theory – Objective + QA + Programs
- Lab exam
- Viva – Module basics + Interview questions
- Mini Project

Topics

- Micro controller Vs Microprocessor
- CPU architectures
- ARM 7/9 Architecture
- Overview of Cortex M architecture
- Embedded Protocols
- Peripherals Interfacing

```
var h = today.getHours();  
var m = today.getMinutes();  
var s = today.getSeconds();  
m = correctTime(m);  
s = correctTime(s);  
document.getElementById("clock").innerHTML +=  
    //calling the function every second  
    set Timeout(start, 1000);  
var t
```

MODULE-3

Advanced C Programming

Goal

Advanced C coding concepts to master Embedded Systems Programming

Details

This module enables students to acquire advanced C programming skills required for embedded system programming. By the end of this module, students gain expertise in writing C programs to resolve complex embedded problems

Duration

2 Weeks (Theory + Lab sessions)

Platform

Windows and Linux

Tools

Windows – IDEs, Linux – vi/vim editor, gcc, gdb, git

Module Assessment

- Theory – Objective + QA + Programs
- Lab exam
- Viva – Module basics + Interview questions
- Mini Project

Topics

- Pointers and Arrays
- String Handling
- Function Pointers
- Command line arguments
- Static and Dynamic Memory Allocation
- Memory Leaks and Dangling Pointers
- Structure Padding and Alignment
- Union and Bit fields
- Using Typedefs and Enumerations
- Embedded C Programming
- Best Practices and Pitfalls



MODULE-4

Linux OS

Goal

Master essential Linux concepts for embedded systems programming

Details

This module equips students with essential Linux OS concepts and Linux internals required for embedded systems programming. By the end of the module, students will be able to apply Linux OS principles to effectively solve complex embedded system challenges.

Duration

2 Weeks (Theory + Lab sessions)

Platform

Linux OS

Tools

Linux – vi/vim editor, gcc, gdb, git

Module Assessment

- Theory – Objective + QA + Programs
- Lab exam
- Viva – Module basics + Interview questions
- Mini Project

Topics

- Introduction to Linux, History of Linux
- Linux Kernel Versions, Features of Linux
- Linux Kernel Architecture
- Inter Process Communication
- Memory Management in Linux
- Virtual File System, VFS Architecture
- Introduction to EXT2FS / EXT3FS
- Basic Build Environment

MODULE-5

Linux Device Drivers

Goal

Master Linux device driver concepts essential for embedded systems programming

Details

This module equips students with essential Linux device driver concepts for embedded systems programming. By the end, students will be able to apply these principles to develop solutions for complex embedded system challenges.

Duration

2 Weeks (Theory + Lab sessions)

Platform

Linux OS

Tools

Linux – vi/vim editor, gcc, gdb, git

Module Assessment

- Theory – Objective + QA + Programs
- Lab exam
- Viva – Module basics + Interview questions
- Mini Project

Topics

- Overview of Linux Kernel
- Introduction to Device Drivers
- Types of Device Driver
- Relationship between Kernel and Driver
- Modular Program Vs. Application Program
- Implementing Kernel Locking Mechanism Character Device Driver Development
- Registering & Un-registering a character device Driver
- Creating a device file and testing character device driver
- Overview of Block Driver Architecture

MODULE-6

REAL TIME OPERATING SYSTEM (RTOS)

Goal

Master essential RTOS concepts for embedded systems programming

Details

This module equips students with essential RTOS concepts and Linux internals required for embedded systems programming. By the end of the module, students will be able to apply RTOS principles to effectively solve complex embedded system challenges.

Duration

1 Week (Theory + Lab sessions)

Platform

Free-RTOS

Tools

Windows – IDE

Module Assessment

- Theory – Objective + QA + Programs
- Lab exam
- Viva – Module basics + Interview questions
- Mini Project

Topics

- What are Real Time Systems
- Types and Examples of Real Time Systems
- Monolithic, Micro and Nano Kernels
- Scheduling algorithms
- Introduction to Free RTOS
- Task Management
- Inter Task Communication
- Timer and Interrupt Handling
- Memory Management

MODULE-7

Projects

Goal

Gain hands-on experience with current industry technologies

Details

Students would be working on developing solutions in the areas related to below technologies using agile methodologies – scrum (Sprint Kick-Off, Sprint Planning, Daily Standup, backlog management, retrospective, sprint demo)

Duration

4 Week (Theory + Lab sessions)

Technologies

IoT protocols, AWS, Vehicle networks, GPS, Wireless networking, Python scripting

Tools

- Build systems - Buildroot and Yocto ()
- Code repositories - GitHub/git(),
- Project Management Tools - Jira, confluence
- Software Design Tools - draw.io (UML Diagrams)
- Unit Testing - gTest (Unit Testing)
- code documentation - doxygen
- Static Analysis - Lint, Cppcheck
- Code Review - git

Module Assessment

- Sprint Retrospective meetings
- Sprint/Project Demos
 - Sprint Demo
 - Design walkthrough
 - Code walkthrough

GET ACCESS TO MASTER PATH CAREER ADVANTAGE

SKILL SHOWCASE PROJECTS



Work on real-world projects during your program and build a portfolio that demonstrates your skills to recruiters and hiring managers.

MOCK INTERVIEWS & RESUME POLISHING



Get your resume professionally reviewed and participate in mock interviews to build confidence and improve your chances of cracking top company interviews.

PERSONALISED CAREER MENTORSHIP



Receive one-on-one guidance from experienced mentors to shape your career path and gain insights on industry expectations.

DEDICATED PLACEMENT SUPPORT



Gain access to our placement cell, which connects you to curated opportunities with hiring partners, ensuring a smooth transition from learning to earning.

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