

# Embedded Systems Basics

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## Learning made Simple, Visual, and Interactive

Explore the world of embedded systems through the THORS Embedded Systems Basics course. This course introduces the learners to the components, working principle, and types of embedded systems, simultaneously detailing the binary and decimal number systems, the microprocessor, and the microcontroller. In addition, the course provides a comprehensive understanding of the terminology associated with electronics and embedded systems.

Credit Hours **2**

## Learning Objectives

- Identify the different components of an embedded system.
- Understand the binary and decimal number systems.
- Learn the major terminology associated with embedded systems.
- Explore the functioning of a microprocessor.
- Explain the working principle of an embedded system.
- Identify the different types of embedded systems.

## Table of Contents

### I. Embedded System Components

- **Hardware**
  - I/O Devices
    - Input Devices
    - Output Devices
    - Analog-to-Digital Converter
- **Electronic Memory**
  - Sequential-Access Memory (SAM)
  - Random-Access Memory (RAM)
  - Read-Only Memory (ROM)
  - Read-Write Memory (RWM)

### II. Embedded System Operation

- **Bit and Byte**
- **Number System**
  - Binary Number System
  - Decimal Number System
  - Working Principle of an Embedded System
- **Types of Embedded Systems**
  - Performance-Based
    - Small-Scale Embedded Systems
    - Medium-Scale Embedded Systems
    - Sophisticated Embedded Systems

