

Course Title	Course Code	Credit Hours
AI and Internet of Things	AE-496	2-1

Textbook:

- Arshdeep Bahga, V. Madiseti, "Internet of Things: A Hands-on Approach",

Reference Book:

- Kai Hwang, Jack Dongarra, Geoffrey C. Fox, "Distributed and Cloud Computing: From Parallel Processing to the Internet of Things", Elsevier Science.

Course Objectives:

In this course the students will understand IoT technologies, including device programming, sensing, actuating, and protocols. Students will be able to design IoT systems, solve industry problems, and implement embedded firmware through hands-on projects.

Course Outline:

- Introduction to Computer Internetworking Fundamentals
- Overview of IoT Circuits and Device Architecture
- Basics of Arduino Programming for IoT Devices
- Practical Applications of IoT in Automotive Systems
- Wired Infrastructure for IoT Networks
- Cloud-Based IoT Infrastructure and Its Benefits
- Wireless IoT Infrastructure and Its Implementations
- Radio Frequency Modulation in IoT Communication
- Media Access Control (MAC) Protocols in IoT Networks
- Mesh Routing Techniques for IoT Devices
- Service Discovery Methods in IoT Environments
- Enterprise Infrastructure and Its Role in IoT
- Key Networking Devices Used in IoT Setups
- Physical Infrastructure and Wiring Considerations for IoT
- Core Networking Principles Relevant to IoT Systems