

Bachelor of Science Program in Digital Science and Technology (Thai Program)

Academic Year 2026 – 2030

Faculty of Information and Communication Technology, Mahidol University

Course Description

(1) Internet of Things Courses

Number of credits (Theory – Practice – Self Study)

ITDS 331	Embedded and Cyber-Physical Systems	3 (2 – 2 – 5)
Prerequisite: ITDS 284 Introduction to Internet of Things Co-requisite: None		
Principles of the cyber-physical systems; embedded systems; autonomous systems; process control systems; real-time operating systems; robotic systems; sensor and actuator technologies		
ITDS 334	Internet of Things Data Analytics and Visualization	3 (2 – 2 – 5)
Prerequisite: ITDS 284 Introduction to Internet of Things Co-requisite: None		
The Internet of Things (IoT) data collection and the application in different business sectors; middleware and platforms for the IoT data analytics; the NoSQL database; the IoT data analysis and visualization; the IoT data stream processing		
ITDS 336	Practical Internet of Things	3 (0 – 6 – 3)
Prerequisite: ITDS 284 Introduction to Internet of Things Co-requisite: None		
The Internet of Things (IoT) projects based on actual industrial problems, requiring approval from advisors; writing project reports; presenting IoT projects		
ITDS 337	Internet of Things Communication Technology	3 (3 – 0 – 6)
Prerequisite: ITDS 284 Introduction to Internet of Things Co-requisite: None		
Principles and architecture of the Internet of Things (IoT) communication; the IoT communication and protocols; wireless communication technologies and protocols for both the short-range and long-range coverage including Bluetooth, WiFi, LoRaWAN and cellular network (3G/4G/5G); the edge computing and communications		
ITDS 338	Internet of Things Security and Privacy	3 (3 – 0 – 6)
Prerequisite: ITDS 284 Introduction to Internet of Things Co-requisite: None		
Roles and impacts of the IoT usage; principles of data security and privacy; penetration of the IoT systems; security and privacy in IoT systems; the IoT device management such as digital signatures; device-firmware-update methodologies		

ITDS 339 Special Topic in Network and IoT

3 (3 – 0 – 6)

Prerequisite: ITDS 284 Introduction to Internet of Things

Co-requisite: None

Recent advanced knowledge and techniques in computer networks and IoT; practical deployment of IT in computer networks and IoT; other related topics that can be varied depending on the interests of faculties and students