MUTAH UNIVERSITY
Faculty of Engineering
Department of Electrical Engineering

Course Syllabus

Course Code	Course Name	Credits	Contact Hours
0401490	Introduction to Internet of Things	3	3 T

INSTRUCTOR/COORDINATOR

Name	
Email	
Office Hours	9:00-10:00 (Sun, Tues, Thurs)

TEXTBOOK

Title	IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things
Author/Year/Edition	David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton, Jerome Henry/2017
Other Supplemental Materials	
Title	The Silent Intelligence: The Internet of Things
Author/Year/Edition	Daniel Kellmereit/2013

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

This course aims to present the fundamental principles and architecture of IoT, discuss, examine, and evaluate the key technological components underpinning IoT , learn how to practically Design, Code and Build IoT solutions and review key technological applications of IoT. The main topics includes : Introduction to IoT, Revision of Basic Programming and IoT IDE, Software Development for IoT Embedded Systems, IoT architecture and components including different IoT Architectures and the major components of IoT (Hardware & Software), IoT microcontrollers, sensors for data acquisition and actuators, IoT Connectivity Technologies, IoT Connectivity Protocols, Data Storage and Cloud Systems, Data Analytics and Applications, IoT Security and security standards, Ethics in IoT Networks and Applications, Key enabling Technologies and Applications in IoT.

B. Pre-requisites (P) or Co-requisites (C)

Microprocessor and Embedded Systems (0405486) **(P)**

C. Course Type (Required or Elective)
Elective
SPECIFIC GOALS
A. Course Learning Outcomes (CLOs)
CLO1: Understand the definitions, operating principles, components and use of IoT Systems [1]. **CLO2.** Demonstrate advanced knowledge about the architecture, the key technologies and protocols/standards used in IoT Systems [1]. **CLO3.** Analyse and effectively use available frameworks/platforms to design, program, and implement IoT systems [2]. **CLO4.** Explore the relationship between IoT, cloud computing, and big data and be able to identify necessary security measures [4].
B. Student Learning Outcomes (SOs) Addressed by the Course

1	2	3	4	5	6	7
✓	✓		✓			

BRIEF LIST OF TOPICS TO BE COVERED		
List of Topics	**No. of Weeks**	**Contact Hours**
Introduction to IoT	1	3
Revision of Basic Programming and IoT IDE	1	3
Software Development for IoT Embedded Systems	2	6
IoT architecture and components	2	6
IoT Microcontrollers, Sensors for Data Acquisition and Actuators	1	3
IoT Connectivity Technologies	1	3
IoT Connectivity Protocols	1	3
Data Storage and Cloud Systems	1	3
Data Analytics and Applications	1	3
IoT Security and security standards	1	3
Ethics in IoT Networks and Applications	1	3
Key enabling Technologies and Applications in IoT	1	3
Total	*14*	*42*

EVALUATION

Assessment Tool	Due Date	Weight (%)
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, …etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

ABET's Students Learning Outcomes (Criterion # 3)		
	Relationship to program outcome	
ABET 1-7		
1.	✓	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2.	✓	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3.		an ability to communicate effectively with a range of audiences.
4.	✓	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5.		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6.		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7.		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.