CIHAN UNIVERSITY-SULAIMANIYA

Course Outline

2026

Address:
Chwarchra-Opposite to Family Mall
Sulaymaniyah City
Kurdistan Region–Iraq
Tel: 07714695656,
email: presidency@sulicihan.edu.krd

MODULE DESCRIPTION FORM

Module Information					
Module Title	**Internet of Things (IOT)**				
Module Type	Theory			☐ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar** ☐ **Report** ☐ **Extra activity**	
Module Code					
Language	English				
ECTS Credits	**5**				
Module Level			**Semester of Delivery**		**3rd**
Administering Department	Computer Science		**College**	Science	
Lecturer	Sherko Hama Law Murad				
Academic Title	A. teacher		**Qualification**		M.Sc.
Module Tutor	No		**e-mail**	Sherko.murad@sulicihan.edu.krd	
Peer Reviewer Name			**e-mail**	Sherko.murad@sulicihan.edu.krd	
Scientific Committee Approval Date			**Version Number**	1	
Cycle of Study	Bachelor		**Form of Education**	Full time	

Relation with other Modules			
Prerequisite module	N/A	**Semester**	
Co-requisites module	N/A	**Semester**	

Cihan University-Sulaimaniya?
College of

Department:
Discipline:
Stage:

Total Contact Hours:	**52**
Total Self Study Hours:	**110**
Total No. Hours:	**162**
ECTS:	**06**

No. of Weeks	Contact Hours					Self-Study					
	Theoretical	Practical	Lab	Project	Visit	Quiz	Reading	Assignment	Report	Midterm Exam.	Final Exam.
1st Week (Registration)											
2nd Week	2	2					2			10	20
3rd Week	2	2				2	2	6			
4th Week	2	2				2	2				
5th Week	2	2				2	2		8		
6th Week	2	2					2				
7th Week	2	2					2				
8th Week	2	2					2			10	
9th Week	2	2				2	2	8			
10th Week	2	2				2	2				
11th Week	2	2					2				
12th Week	2	2				2	2		8		
13th Week	2	2				2	2				
14th Week	2	2					2				
15th Week (Pr. Final Ex											
16th Week (Final Exam.)											
TOTAL	**26**	**26**				**14**	**26**	**14**	**16**	**20**	**20**

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Registration
Week 2	Introduction to IOT 2.1 What is IOT? 2.2 genesis of IoT 2.3 Benefits of IOT 2.4 Understand various challenges IoT implementation is facing.
Week 3	2.1 IoT Application Types 2.2 Smart City Solution 2.3 All-in-One Smart Home Solution 2.4 IoV Solution 2.5 Industrial IoT Solution
Week 4	3. IoT Today 3.1 Developmental Trends of the IoT Industry 3.2 IoT Fragmentation and Its Solutions
Week 5	Data Collection Technologies 4.1 Sensing Technologies 4.2 Tag Identification Technologies 4.3 Location Data Collection Technologies
Week 6	5. IoT Communications Technologies 5.1 Wired Communications Technologies 5.2 Wireless Communications Technologies
Week 7	**MIDTERM EXAM 1**
Week 8	8. IoT Communications Protocols 8.1 Basics of Network Communications 8.2 Common IoT Protocols
Week 9	9. IoT Device-Cloud Connection Development 9.1 Device-Cloud Connection Overview 9.2 Product Development 9.3 Device Development 9.4 Application Development 9.5 Routine Cloud Management
Week 10	RFID Application
Week 11	Higher -performance embedded Computing
Week 12	Business Aspects of the internet of things
Week 13	Radio frequency identification technology
Week 14	Power line communication
Week 15	Review
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)	
	Material Covered
Week 1	Registration
Week 2	Lecture
Week 3	Lecture
Week 4	Lecture
Week 5	Lecture, assignment
Week 6	Lecture
Week 7	**MIDTERM EXAM 1**
Week8	Lecture
Week9	Lecture
Week 10	Lecture
Week 11	Lecture
Week 12	Lecture
Week 13	Lecture
Week 14	Lecture
Week 15	Review
Week 16	Practical final exam

Module Aims, Learning Outcomes and Indicative Contents	
Module Objectives	Internet of Things (IoT) cover the foundational concepts, technologies, and applications of interconnected devices in various domains. These sessions typically begin with an overview of IoT, defining its core principles and exploring its role in creating smart environments. The lectures delve into the architecture of IoT systems, highlighting the integration of sensors, actuators, edge devices, and cloud platforms that enable seamless communication and automation.
Module Learning Outcomes	• Understand **IoT Fundamentals**: Gain a comprehensive understanding of the core principles, architecture, and components of IoT systems, including sensors, actuators, and network protocols. • Develop **IoT Applications**: Acquire the skills to design, program, and implement IoT applications using platforms like Arduino, Raspberry Pi, or ESP32. • **Explore Communication Protocols**: Learn about IoT communication protocols such as MQTT, CoAP, Zigbee, and Bluetooth, and understand their role in enabling seamless device connectivity. 543

Learning and Teaching Strategies	
Strategies	Learning and teaching strategies over the Internet of Thinking (IoT) involve leveraging real-time, edge-based computing and interconnected systems to enhance education. These strategies focus on using IoT devices, such as smart sensors and AI-enabled tools, to create interactive, adaptive, and personalized learning experiences. They emphasize real-time feedback, hands-on collaboration, and data-driven insights to bridge the gap between theoretical knowledge and practical application.

Module Evaluation

Assessment Types		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	3%	29th	
	Assignments	1	3%	5th	
	Projects / Lab.	1	14%	9th	
	Report		0%		
	Presentation		0%		
Summative assessment	**Midterm Exam**	2hr	30%	7th	
	Prefinal Pr. Exam	2hr	15%	15th	
	Final Exam	3hr	35%	16th	
Total assessment			100% (100 Marks)		

Learning and Teaching Resources

	Text	Available in the Library?
Required Texts	• David Hanes *et al.*, "Io Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things", 1stEdition, 2018, Pearson India.	No

Recommended Texts	• Mayur Ramgir, "Internet of Things: Architecture, Implementation and Security", 1stEdition, 2020, Pearson India .	No
Websites	https://online.stanford.edu/courses/xee100-introduction-internet-things	

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	**A** - Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C - Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

- **Cycle of studies - choose one of the three options: Bachelor «1», Master «2», PhD. «3»**
- **(Exam: Oral Examination, Written Exam), and (Continous Evaluation(CE), Portfolio).**
- **Discipline status (Content) - for the Bachelor level, choose one of the options: FD (Fundamental (General) Discipline), PF (Preparatory Disciplines in the Field), SD (Specialty Disciplines), CD (Complementary Disciplines), DU (Disciplines based on the University's options).**
- **Discipline status (compulsoriness) - choose one of the options**
  a. MD (Mandatory discipline)
  b. OD (Optional Discipline)
  c. ED (Elective (Facultative) Discipline).

Approved by Head of the Branch / Department

Signature	
Date	
Name	

Approved by Curriculum Development Committee and Bologna Process Committee

Signature	
Date	
Name	