Course Description Form

1. Course Name:
Microcontrollers and Embedded Systems

2. Course Code:
MICON1341

3. Semester / Year:
2nd Semester

4. Description Preparation Date:
23/3/2024

5. Available Attendance Forms:
Personal

6. Number of Credit Hours (Total) / Number of Units (Total)
45/30

7. Course administrator's name (mention all, if more than one name)
Name: Dr. Mohammed Yousif Hasan   Email: mohammed.y.hassan@uotechnology.edu.iq
Dr. Amer Kais Obaid   Email: amer.k.obaid@uotechnology.edu.iq

8. Course Objectives

Course Objectives	**Introducing the student to the basics of microcontrollers and their components.** **Enable the student to find solutions to problems related to microcontrollers and embedded systems.** **Enable the student to design systems based on microcontrollers and embedded systems**

9. Teaching and Learning Strategies

Strategy	1- Presentation of embedded systems that based on microcontrollers. 2- Designing systems based on microcontrollers and embedded systems. 3- Discussing the solutions of some problems related to microcontrollers 4- The above points are accomplished through presentations and solutions to exercises with the participation of students 5-Assigning students some homework, documented reports related to the practical aspect.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	6	**Introduction Microcontroller, Microcomputer, and Microprocessor.**		**Live presentation**	**Discussion**
3-4	6	**Microcontroller Architecture**		**Live presentation**	**Discussion**
5-6	6	**AVR RISC Microcontroller Architecture**		**Live presentation and Tutorials**	**Discussion**
7-8	6	**AVR Program and Addressing Modes**		**Live presentation**	**Discussion and Quiz 1**
9	3				**Mid-term Exam.**
10-11	6	**AVR Instruction Set**		**Live presentation and Tutorials**	**Discussion**
12-13	6	**AVR Hardware Design Issues**		**Live presentation**	**Discussion and Quiz 2**
14-15	6	**Applications**		**Live presentation and Tutorials**	**Discussion**

11. Course Evaluation

20% documented exam
10% Quizzes

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	1.Programming and Customizing the AVR Microcontroller" By: Dhananjay V. Gadre, McGraw-Hill, USA, 2001 2. The AVR Microcontroller and Impeded System using Assembly and C, By: Muhammed Ali Mazidi, Sarmad Naimi and Sepehr Naimi, Prentice Hall, USA 3. 8-bit AVR Microcontroller with 8K Bytes In-System Programmable Flash AT90S8515", Data Sheet, Atmel Co., 2001.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	