Course Description Form

1. Course Name:	
Control systems I	
2. Course Code:	
WBM-52-04	
3. Semester / Year:	
First Semester- 2025 / 2026	
4. Description Preparation Date:	
1 – 12 – 2025	
5. Available Attendance Forms:	
Class Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75 \ 3	
7. Course administrator's name (mention all, if more than one name)	
Name: **Qayssar Ayad Ahmed** Email: **qayssar.ayad@uowa.edu.iq**	
8. Course Objectives	
Course Objectives	• Building the student scientifically and qualifying him to understand the applications of digital control in some scientific and engineering fields, especially electrical and mechanical applications. • Building and preparing the student psychologically to play his role as a reliable engineer in this field. • Urging the student to be creative and think about specialization projects and keep pace with the development taking place in this field in terms of the basis of digital control in engineering work systems. • Identify the types of digital control and some of their practical applications.
9. Teaching and Learning Strategies	
Strategy	The main strategy that will be adopted in developing the main features of this module to encourage student's participation in the exercises, while at the same time refining and expanding their critical thinking skill. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the

	students. Building and preparing the student psychologically to play his role as an engineer.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	6	Learning Outcome:1 and 2	Introduction to Control System. Classification of control systems.	Lectures DATA SHOW	Quizzes and classroom activities
3-4	6	Learning Outcomes: 1 and 2	Transfer function representation Negative feedback, mathematical models, examples	Lectures DATA SHOW	Quizzes and classroom activities
5-6	6	Learning Outcomes: 1 and 2	Block diagram elements and representation, examples	Lectures DATA SHOW	Quizzes and classroom activities
7-8	6	Learning Outcomes: 1 and 2	Reduction rules an examples	Lectures DATA SHOW	Quizzes and classroom activities
9-10	6	Learning Outcomes: 1 and 2	Types of inputs and stability of the systems with examples	Lectures DATA SHOW	Quizzes and classroom activities
11-12	6	Learning Outcomes: 1 and 2	First and second order systems with examples.	Lectures DATA SHOW	Quizzes and classroom activities
13-14	6	Learning Outcomes: 1 and 2	Elements and representation of signal flow graph, introduction to state space domain	Lectures DATA SHOW	Quizzes and classroom activities

11. Course Evaluation

Quizzes (4%), Assignment (3%), lab. (10%), attendance (3%), Mid exam (30%), FINAL exam (50%)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Modern Control Engineering, (5th Edition) By: Katsuhiko Ogata. Mechanical Engineering, University of Minnesota.

	2- Control Systems Engineering, (6th Edition) By: Norman S. Nise. Electrical and Computer Engineering Department at California State Polytechnic University.
Main references (sources)	Modern Control Engineering, (5th Edition)
Recommended books and references (scientific journals, reports…)	1- Internet files. 2- All solid scientific journals and sites that are related to the broad concept of engineering control
Electronic References, Websites	Tracking Scientific websites to view recent developments in the prescribed subject For fifth year students.