Course description form

1. Course Name: Control II
2. Course Code: WBM-52-04
3. Semester/Year: Second/2023-2024
4. Date this description was prepared: 03/20/2024
5. Available forms of attendance: Weekly attendance - theoretical hall + practical laboratory
6. Number of study hours (total)/number of units (total): 90 hours/semester (3 theoretical hours per week + 3 practical hours)/3 units
7. Name of the course administrator (if more than one name is mentioned)
the name: Asst. Lecturer qaysar Ayad Email:qaysar.ayad@uowa.edu.iq ‘

8. Course objectives	
Objectives of the study subject	• Building the student scientifically and qualifying him to understand the applications of digital contr in some scientific and engineering fields, especiall 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 i this field in terms of the bas 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	1-The methodical book, as well as lectures and solvi mathematical problems. 2-Scientific library. 3- Visual presentation methods (data show) using t PowerPoint program or displaying PDF files to clar the lecture items, drawings and shapes. 4-Useful educational sites on the Internet. 5The teacher delivers detailed theoretical lectures, a students participate during the lecture in solving so engineering problems. 6- Adopting the homework method to solve t exercises by students. 7- The teacher is familiar with the basic concepts engineering control techniques and their scienti applications, which enhances the method of learni and teaching.

10. Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Surprise exams and classroom activities	Lectures DATA SHOW	Introduction to Discrete-Time Control System. Review of Mathematical Foundation.	Introduction to digital engineering control systems and methods of representing systems	6	1-2
Surprise exams and classroom activities	Lectures DATA SHOW	Analysis of Discrete-Time Systems. Design of Conventional Discrete-Time Controllers.	Analysis of digital control systems and design of a traditional digital controller	6	3-4
Surprise exams and classroom activities	Lectures DATA SHOW	State-space modeling	Introduction to theory state space	6	5-6
Surprise exams and classroom activities	Lectures DATA SHOW	controllability and observability	How to analyze using the method (controllability and observability)	6	7-8

Surprise exams and classroom activities	Lectures DATA SHOW	Sampling theorem Z-transform	the definition, z-transform And analysis methods	6	9-10
Surprise exams and classroom activities	Lectures DATA SHOW	Design of digital control systems using state-space methods	How to design a digital controller using state-space methods	6	11-12
Surprise exams and classroom activities	Lectures DATA SHOW	Digital PID controllers and tuning	Recognition digital PID controllers	6	13-14

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

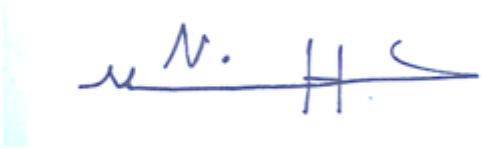
- Attendance + cup = 10%
- Monthly exam = 30%
- Practical laboratory = 10%
- Final exam = 50%
- Final total = 100%

12. Learning and teaching resources

1.Modern Control Engineering, (5th Edition) By: Katsuhiko Ogata. Mechanical Engineering, University of Minnesota	Required prescribed books
2.Control Systems Engineering, (6th Edition) By: Norman S. Nise. Electrical and Computer Engineering Department at California State Polytechnic University	Main references (sources)
-Internet files. -All solid scientific journals and sites that are related to the broad concept of engineering control	Recommended books and references (Scientific journals, reports,)

tracking Scientific websites to view recent developments in the prescribed subject For fifth year students.	Electronic references, Internet sites...

إسم التدريسي: م.م. حارث نوفل عبدعلي

التوقيع: 

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