

Faculty of Engineering & Technology

Control Systems 2

Information :

Course Code :	CMP 472	Level	:	Undergraduate	Course Hours :	3.00- Hours

Department : Specialization of Electronics & Communication

Instructor Information :

Title	Name	Office hours
Lecturer	Sameh Abdelhaleem Mohamed Abdelsalam	
Teaching Assistant	Youmna Elsayed Abd Elalem Mohamed Sayed Ahmed	

Area Of Study :

ADevelop student knowledge about the fundamentals of digital control systems. Arepare students to analyse and design digital control systems.

Arain students to evaluate the performance of digital control system

Description :

Optimal control of continuous systems, Stability of closed loop systems, Discrete control systems, Z-Transform, Modified Z-Transform, Impulse T.F., Static error, Jury stability analysis, Frequency response, Classical design of D.T.C. system, Design of D.T.C. with dead zone.

Course outcomes :

a.Knowledge and Understanding: :				
1 -	Explain the fundamentals of z-transform technique and digital control systems.			
2 -	Demonstrate the principles of stability analysis and steady-state errors of digital control systems.			
b.Intellectual Skills: :				
1 -	b1. Apply z-transform technique for solving digital control system design problems.			
2 -	b2. Design and analyze the performance of digital control systems.			
3 -	b3. Evaluate the stability test of digital control systems.			
4 -	b4. Use software tools in designing and evaluating digital control systems.			

Course Topic And Contents :

Торіс	No. of hours	Lecture	Tutorial / Practical
Digital control systems definition	5	3	2
Z-transform properties and theorems	10	6	4
Inverse Z-transform using different methods	10	6	4
Impulse sampling and data hold	5	3	2
Pulse transfer function	10	6	4

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Course Topic And Contents :				
Торіс	No. of hours	Lecture	Tutorial / Practical	
Mapping between the s-plane and z-plane and Jury stability analysis	10	6	4	
Transient and steady-state response, error analysis	15	9	6	
Design based on the root-locus method	10	6	4	

Teaching And Learning Methodologies :

Interactive Lecturing.

Discussion.

Problem Solving.

Course Assessment :				
Methods of assessment	Relative weight %	Week No	Assess What	
<i>″Á</i> Final exam :	40.00			
o In Class Quizzes	20.00			
o Mid-Term exams	30.00			
o Performance	10.00			

Recommended books :

1. Text Book:

Katsuhiko Ogata, Discrete-Time Control Systems, Prentice-Hall International, Inc., 2nd edition, 1995.