MENG332 – Systems Control			
Eastern Mediterranean University **Faculty of Engineering**			
Department: Mechanical Engineering			
Program Name: Mechanical Engineering		**Program Code:** 23	
Course Code: MENG332	**Course Title:** Systems Control	**Credits:** 4 Cr	**Year/Semester:** 2017-2018 Fall
☒Engineering or Area Core ☐Engineering Course offered by other programs ☐Engineering or Area Elective ☐Mathematics and Basic Sciences ☐General Education			
Prerequisite(s): MENG331			
Catalog Description: Control engineering mathematics, complex variables and Laplace transforms. Initial and final value theorems. Introduction to practical controllers and control principles. Mathematical modeling of dynamic systems, transfer functions and block diagrams, transient response analysis, stability analysis. Analysis of systems, deviation of transfer function and frequency response for various systems, devices and elements.			
Instructor Name: Assoc. Prof. Dr. Qasim Zeeshan		**Office no:** ME141	**Office Tel:** 6301361
Course Web Page: http://me.emu.edu.tr/zeeshan/courses.htm			
Textbook(s): **R. C. Dorf and Robert H. Bishop, Modern Control Systems, Prentice Hall, 11th edition, 2007.**			
Indicative Basic Reading List : **Katshuhiko Ogata, Modern Control Engineering, 5th Edition, Pearson.**			
Topics Covered and Class Schedule: (4 hours of lectures and 1 hour of tutorial and lab per week) Week 1 Introduction to Control Systems Weeks 2-3 Mathematical Models of Systems Weeks 3-4 Feedback Control System Characteristics Weeks 4-5 Performance of Feedback Control Systems Weeks 5-6 Stability of Linear Feedback Systems Weeks 6-7 The Root Locus Method Weeks 8-9 **Midterm Examination** Week 10-11 Frequency Response Method Weeks 11-12 Stability in the Frequency Domain Weeks 12-14 The Design of Feedback Control Systems Week 15 **Final Examination**			

Lecture and Tutorial Learning Outcome	Student Outcomes	Performed Assessments and Percentage
• Learning of the importance of systems control theory and its application into real life • Defining of physical system and its components • Understanding open and closed loop systems • Application of Laplace theory and final value theory in system conversions • Block diagram identification and reduction in the modeling of complex systems. • Evaluation of systems stability by frequency responses methods, root Hurwitz and root Locus methods	**a, h, e**	Midterm Exam: 30% Homework: 5% Quiz: 5% Project: 10% Final Examination: 40%

Lab. Experiment Title and Lab. Equipment Used	Lab Learning Outcome	Student Outcomes	Performed Assessments and Percentage
Design and Simulation of control system problems using Matlab software	Understand the concept of control and design in a system. Tackle almost all control problems using Matlab software Work as a team and convey the results of experiments through the lab sheets.	**e**	Lab Works and Lab Attendance %10

Contribution of Course to Criterion 5
Credit Hours for:
Mathematics & Basic Science : 0
Engineering Sciences and Design : 4
General Education : 0

Important Notes:
University rules and regulations are applied to this course.

NG Policy: Students who fail to attend/submit any of the aforementioned assessments will deserve NG Grade.