Course Description وصــف مقــرر دراســي

متطلب متزامن Co-Req.	متطلب سابق Pre-Req	تمارين TU	عملي LB	نظري LT	الساعات CR	اســـــــم المقـــــــرر Course Title	رقم ورمز المقرر Course Code
467 همك ME 467	- -	-	2	-	1	معمل ديناميكا النظم والتحكم الآلى System Dynamics and Automatic Control Laboratory	468 همك ME 468

محتويات المقرر :

تجارب لدعم نظرية التحكم و تشمل: التحكم السرفو فى وضع وسرعة المواتير الكهربية , التحكم فى الإهتزاز الميكانيكى الخطى والإلتوائى, التحكم الجيروسكوبى , التحكم فى الحركة البندولية , التحكم فى مستوى السائل, التحكم فى الضغط، التحكم فى درجة الحرارة ؛ المحاكاة الرقمية للمنظومات الخطية بإستخدام حزمة البرامج (MATLAB)

Course Contents:

Experiments in support of control system theory including : servo control of electrical motors, control of linear and torsional vibrations, control of gyroscopic motion, control of pendulum motion, hydro-mechanical liquid level control, pressure control, pneumatic servomechanism, vibration control; digital simulation of linear systems using a software package (MATLAB).

Course Objectives:

(1)Ability to identify, formulate, and solve linear process dynamics problems, applying knowledge of mathematics, vibration, system dynamics, other sciences, and engineering. (2) Ability to use techniques, skills, and modern engineering tools necessary for the practice of mechanical engineering. (3) Ability to design and conduct laboratory experiments, as well as to analyze and interpret data, in particular to determine the efficacy of control designs. (4) Ability to design a control system to meet desired needs for a given process. (4) Capacity for continuing development in understanding and expertise in process dynamics and control.

Evaluation Methods:

1. Midterm exams
2. Lab. Reports
3. Final exam

Text Book and References:

Vibration Testing, Theory and Practice, Kenneth McConnell, J. Wiley.
Modern control engineering, Ogata, Prentic Hall.
Theory and Feedback Control of Dynamic Systems, Franklin, Powell and Naeini,Addison Wesley
Design of Mech. Measurements, Figliola and Beasley,Wiley.
Vibration Spectrum Analysis, Goldman, Industrial Press Inc

توقيع رئيس القسم: توقيع عميد الكلية: