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Department of Mechanical Engineering	
Control Systems and Measurements Laboratory (67550)	
Total Credits	**1**
major compulsory	
Prerequisites	P1 : Control Systems I (67471) P2 : Transducers &Interfacing (67481)

Course Contents

Practical experiments related to the given topics in the courses of devices and engineering measurements, automatic control systems. Individual or group students should perform short projects related to the design of measurement systems.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Ability to conduct experiments and analyze and interpret data related to sensors, transducers, PID controllers and closed-loop control processes	B	40 %
2	Apply knowledge of static and dynamic characteristics of complete measurement system components	A	15 %
3	Ability to use the devices of the lab properly and to write scientific report	K	35 %
4	Be able to work in team	D	10 %

Textbook and/ or Refrences

Laboratory Manuals, Handouts and Data Sheets

Assessment Criteria	Percent (%)
Mid. Term Exam	20 %
Quizzes	5 %
Laboratory Work	35 %
Final Exam	40 %

Course Plan

Week	Topic
1	Introduction to Transducers and Interfacing Laboratory
2	Explanation of the Laboratory Experiments (Group I)
3	Experiment No. 1: Potentiometer Position Transducer and Signal Conditioner (G22)
4	Experiment No. 2: Position Transducer with Linear variable Differential Transformer (LVDT) and Signal Conditioner Trainer (G27)
5	Experiment No. 3: Flow Rate Transducer (G26)
6	Experiment No. 4: Proximity Sensors (G29)
7	Experiment No. 5: Level - Pressure Transducer (G30A) Midterm Exam
8	Explanation of the Laboratory Experiments (Group II)
9	Experiment No. 6: Speed &Position transducer and control(G36A)
10	Experiment No. 7: 3 Phase Induction Motor Speed Control (G37)
11	Experiment No. 8: Pressure Control (G35)
12	Experiment No. 9: Level Control (G30B)
13	Experiment No. 10: PWM Speed Regulator of a DC Motor (G14)
14	Final Exam