



University of Tehran
School of Electrical and Computer Engineering

Course:	8101463 – Industrial Control Lab.									
Course type:	EE*						CE*			Credit: 1
	Com	E	P	B	Con	D	SW	HW	IT	
	Required	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Elective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Level:	Undergraduate <input checked="" type="checkbox"/> Graduate <input type="checkbox"/>									
Co-requisite(s):										
Prerequisite(s):	Instrumentation and Industrial Control Elements (8101002)									
Prerequisite by topic:	Fundamentals of electrical circuit.									
Textbook(s):	<p>[1] “Measurement and Instrumentation, Theory and Application”, Alan S Morris, Reza Langari, Elsevier Inc , Second Edition,2015.</p> <p>[2] “Fundamentals of Industrial Instrumentation and Process Control”, William C.Dunn, McGraw-Hill, 2010.</p> <p>[3] “Introduction to Instrumentation, Sensors, and Process Control”, William C. Dunn, ARTECH HOUSE, INC.,2006</p> <p>[4] “Instrument Engineers' Handbook”, Bela G. Liptak, Volume 1, Fourth Edition_ Process Measurement and Analysis, 2003.</p>									
Coordinator:	Abbasian, Professor, School of ECE									
Goals:	The goal of industrial control laboratory is to create a link between the materials learned in theoretical course and their practical and industrial applications and introduce students with sensors utilized in industries.									
Outcome:	<p>Upon successful completion of the course, students will be able</p> <ol style="list-style-type: none"> 1. be familiarized with industrial sensors. 2. utilize sensors in practice. 3. Understand how to connect controllers to sensors. 									
Topics:	<ol style="list-style-type: none"> 1) Introduction to microcontrollers 2) Lab of Converters and transmitters 3) Lab of temperature sensors and transmitters 4) Lab of flow, area and moisture sensors 5) Lab of pressure sensors 6) Lab of force and torque sensors 7) Lab of distance and proximity sensors 8) Lab of rotational position and velocity sensors 									
Computer usage:										

Assignments:	7 pre-labs and 8 reports
Projects:	
Grading:	Reports: 40 % Pre-labs: 10 % Laboratory activities: 20 % Final exam: 30%
Further readings:	
Prepared by:	Abassian , Professor, School of ECE
Date:	September 4, 2017

*EE: Electrical Engineering		CE: Computer Engineering	
Com	Communications	SW	Software
E	Electronics	HW	Hardware
P	Power	IT	Information Technology
B	Bioelectronics		
Con	Control		
D	Digital System		