



# Engineering Program

<b>Specialization</b>	Electro-mechanical program
<b>Course Number</b>	20307211
<b>Course Title</b>	Control Technology
<b>Credit Hours</b>	2
<b>Theoretical Hours</b>	2
<b>Practical Hours</b>	-
<b>Pre-requisite</b>	-





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**Brief Course Description:**

Basic concepts. Open-loop and closed loop control systems. Representation of systems using block diagrams, transfer functions and frequency characteristics. Modes of linear control. Controller tuning. PC-based control systems.

**Course Objectives:**

Upon the completion of this course, the student will be able to:

1. Understand the fundamental control knowledge.
2. Develop creative thinking ability in modern control technology.
3. Develop problem solving skills.
4. Develop learn, how to learn skills and apply learned knowledge in real technical environment.



**Detailed Course Outline:**

Unit Number	Unit Title	Unit Content	Time Needed
1.	Fundamentals of automatic control	▪	
2.	Elements of automatic control system	▪	
3.	Feedback control and control loop diagrams	▪	
4.	Transfer functions of first and second order elements	▪	
5.	Stability of automatic control systems	▪	
6.	Frequency characteristics and their applications in automatic control systems	▪	
7.	Process time lags	▪	
8.	Servo and motion control systems	▪	
9.	Two position control systems	▪	
10.	PID generic controllers	▪	
11.	Controller tuning	▪	
12.	Examples of motion control systems	▪	
13.	Introduction to PC-based control systems	▪	

**Evaluation Strategies:**

Exams		Percentage	Date
Exams	First Exam	20%	
	Second Exam	20%	
	Final Exam	50%	
Homeworks and quizzes		10%	

❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008

**Teaching Methodology:**

- ❖ Lectures and discussions

**Text Book**

1. Industrial control handbook, Hong Kong IGDS 2000, Hong Kong Polytechnic University
2. Modern control technology: Components and systems, second edition, Kallian Delmar

**References**

1. Instrumentation and control, volume 2 of 2-1992, U.S. department of energy. FSC-6910. Washington D.C 20585.

