

The Hong Kong University of Science and Technology

UG Course Syllabus

System Modeling, Analysis and Control

ELEC 3200

4 Credits

Exclusion(s): CENG 4120, MECH 3610

Prerequisite(s): (ELEC 2100 OR ELEC 2100H) AND [MATH 2350 OR (MATH 2111 AND MATH 2351)]

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Course Description

This course introduces basic concepts, tools and techniques for modeling, analysis, and control of dynamical systems. The course starts from the use of differential equations to model continuous time systems. Examples from a variety of Electronic and Computer Engineering disciplines will be given to illustrate the modeling process. Then, basic tools needed for analyzing the behavior of dynamical systems will be presented. Finally, techniques for controlling their behavior will be introduced. Throughout the course, laboratory experiments demonstrating the use of these analysis/design tools will be included.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Mid-Term	30%
Homework (4 sets)	20%
Lab (2 sets)	5% (bonus)
Final examination	50%

Required Texts and Materials

L. Qiu and K. Zhou, Introduction to Feedback Control, Prentice Hall, 2009.

Additional Resources

K. J. Åström and R. M. Murray, Feedback System: an introduction for scientists and engineers, Prentice Hall, 2011