**The Hong Kong University of Science and Technology**

**UG Course Syllabus Template (Simplified version uploading to SENG website)**

**System Modeling, Analysis and Control**

ELEC3200

4 Credits

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

Exclusions: CENG 4120, MECH 3610

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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:**

[List specific assessed tasks, exams, quizzes, their weightage, and due dates; perhaps, add a summary table as below, to precede the details for each assessment.]

| Assessment Task | Contribution to Overall Course grade (%) | Due date |
|---|---|---|
| Homework | 20% | Week 4, 7, 10, 13 |
| Laboratory | 5% (bonus) | Week 10, 11 |
| Mid-Term Examination | 30% | Week 9 |
| Final Examination | 50% | May 17-29, 2025 |

* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

**Required Texts and Materials**

Textbook:

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.