

The Hong Kong University of Science and Technology

Course Title: Mechanisms of Machinery

Course Code: MECH3030

Credits: 3

Pre/Co-Requisites: MECH2020

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Course Description

This course will mainly cover topics on kinematic analysis of mechanisms (position, velocity, and acceleration analysis of solid bodies and mechanisms) and design/synthesis of mechanisms (how to determine the geometry of a mechanism to achieve kinematic goals). The lectures will emphasize mathematical rigor and be presented with a bent for planar mechanisms. The course will also expose students to relevant hands-on experiences using, for example, software tools such as MATLAB and SolidWorks.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Homework	10%
Tutorial assignments and MATLAB labs	10%
Mid-term exam	35%
Final exam	45%

Required Texts and Materials

(1) Lecture PPT notes; (2) Kinematics, Dynamics, and Design of Machinery, 3rd Edition, K. Waldron et al., Wiley.

[Optional] Additional Resources

The main textbook is K. Waldron, G. Kinzel, and S. Agrawal, "Kinematics, Dynamics, and Design of Machinery," Wiley (available in the library for Reserve 1-day; e-version is also available (up to 3 users at the same time)). Also, the second reference textbook is R. Norton, "Kinematics and Dynamics of Machinery," McGraw-Hill.