

The Hong Kong University of Science and Technology

[Course Title] **Mechanical Engineering for Modern Life**

[Course Code] **MECH 1906**

[No. of Credits] **3 Credits**

[Any pre-/co-requisites] **NO**

Name of Course Instructor: Hong Tao

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Course Description

This course aims to provide students with a comprehensive introduction about the key sub – areas of Mechanical and Aerospace Engineering, preparing them for essential understanding of this field. This course is structured with four major modules which are *Aerospace Engineering; Mechanics and Materials; Thermo-fluids; Design and Manufacturing*. Each module focuses on a series of specific topics and incorporates application cases / demo kits which are carefully selected to engage students' involvement, enhance their understanding, and enrich students' learning experience.

By the end of this course, students should be able to understand the following:

Course Topics: 1. Introduction; 2. Engineering Ethics;

Module I – Aerospace Engineering

3. Aerospace Engineering
4. Aerodynamics (1)
5. Aerodynamics (2)
6. Propulsion
7. Gas Turbine

Module II – Materials and Mechanics

8. Statics and Dynamics
9. Solid Mechanics
10. Engineering Materials
11. Metals
12. Polymers

Module III – Design and Manufacturing

13. Controls
14. Robots and Automation
15. Engineering Design
16. Manufacturing
17. Mechanism of Machinery

Module IV – Thermo-Fluids

18. Thermodynamics
19. Heat and Heat Transfer
20. Fluid Mechanics (1)
21. Fluid Mechanics (2)
22. Energy and Energy Utilization

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Assignments	22%
In-class quizzes	22%
Mid – term exam	28%
Final project reports	28%

More information about this course:

Required Texts and Materials

There is NO required textbook. This course is based on lecture notes which are prepared from a wide range of references.

Plagiarism and Academic Dishonesty:

Any form of plagiarism or academic dishonesty will not be tolerated in this course. Any plagiarized (in part or in full) homework assignment(s) and/or project report(s) will receive a zero on the first incidence. Any further incidences will be reported to the department according to the HKUST Policy on Academic Integrity (<https://registry.hkust.edu.hk/resource-library/regulations-student-academic-integrity>)