The Hong Kong University of Science and Technology

Course Title: Aircraft Design

Course Code: MECH 3620

No. of Credits: 3 Credits

Pre-requisites: MECH 1907, MECH 3640, MECH 3650, Co-requisites: MECH 3660, MECH 3670

Course Instructor: Zhenyu Gao

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Course Description

Students will work in teams to develop a conceptual design for a complete flight vehicle, using knowledge and skills acquired in the Aerospace Engineering Major curriculum. The course components include aircraft design overview, aircraft sizing: constraint analysis, aircraft sizing: mission analysis and weight estimation, aircraft configurations, aerodynamic and wing design, cockpit and fuselage layout design, propulsion system, aircraft structures, aircraft stability, weight and balance, landing gear design, empennage design, cost analysis, and course review and optimization. The teams will present their proposed designs via oral presentations and written reports.

Assessments:

[List specific assessed tasks, exams, quizzes, their weightage]

Assessment Task	Contribution to Overall Course grade (%)
Group design project	80%
Individual take-home quizzes	15%
Class participation	5%

Required Texts and Materials

Lecture notes and Pluto notebooks

[Optional] Additional Resources

1. Daniel P. Raymer. Aircraft Design: A Conceptual Approach. AIAA, 5th edition, 2012.

2. Jack D. Mattingly, William H. Heiser, Keith M. Boyer, Brenda A. Haven and David T. Pratt. Aircraft Engine Design, Third Edition. AIAA, 2018