

# COURSE DETAIL

## FUNDAMENTALS OF AERONAUTICAL ENGINEERING

**Country**

Hong Kong

**Host Institution**

University of Hong Kong

**Program(s)**

University of Hong Kong

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Engineering

**UCEAP Course Number**

118

**UCEAP Course Suffix****UCEAP Official Title**

FUNDAMENTALS OF AERONAUTICAL ENGINEERING

**UCEAP Transcript Title**

AERONAUTICAL ENG

**UCEAP Quarter Units**

6.00

**UCEAP Semester Units**

4.00

## Course Description

Aviation is a rapidly expanding sector in developing economies like those in Asia. Aeronautical engineering is the foundation of aviation as a mode of transport. Together with space flight, aeronautics has been a driving force behind many of the modern technological development in the past century or so. This course aims to provide students with a solid foundation in the most important aspects of aircraft design and operation. The underlying science is common with many technological branches in general mechanical engineering, but it also has distinctive features that make aeronautics more challenging and interesting. For example, flow around aircraft is compressible with possible presence of shock waves while ordinary flows in engineering is low-speed and incompressible. The engine has similar thermodynamic cycles like that found in a gas turbine power plant but its main output is not derived from the turbine. Materials used in aircraft design must have the lowest possible weight for a given strength requirement. Specifically, the course will cover the following topics: aerodynamics and propulsion, materials and structures; safety and some aspects of operation and maintenance of aircrafts. Topics include: history of aeronautical science; wing aerodynamics; propulsion; flight mechanics; systems and airframe structures; fatigue-crack growth; crack monitoring; damage tolerance; metallic materials; composites; fibre-reinforced laminates; high-temperature alloys for turbines; creep damage.

### Language(s) of Instruction

English

### Host Institution Course Number

MECH3416

### Host Institution Course Title

FUNDAMENTALS OF AERONAUTICAL ENGINEERING

### Host Institution Campus

### Host Institution Faculty

**Host Institution Degree**

**Host Institution Department**

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