

# COURSE DETAIL

## TURBOMACHINERY

**Country**

Ireland

**Host Institution**

Trinity College Dublin

**Program(s)**

Trinity College Dublin

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Mechanical Engineering

**UCEAP Course Number**

143

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

TURBOMACHINERY

**UCEAP Transcript Title**

TURBOMACHINERY

**UCEAP Quarter Units**

5.00

**UCEAP Semester Units**

3.30

## Course Description

Turbomachinery is an essential technology for delivering the power and propulsion needed for society, particularly in rapidly developing economies. This course integrates the fundamental principles of fluid mechanics and thermodynamics in order to analyze compressible flows and high speed turbomachinery. The course instills students with an awareness of different power and propulsion applications and the importance of high efficiency energy conversion devices to minimize environmental impact, both in a national and global context. The course provides an understanding of the unique issues associated with transonic flows and basic tools to analyze these. That understanding underpins a detailed treatment of design calculations for high speed turbomachinery, including aerodynamic performance, instability, losses, and structural limitations on performance. The course covers the most important types of turbomachines; centrifugal compressors, radial turbines, axial compressors, and axial turbines. Students also gain an appreciation of the manufacturer and user perspectives, such as costs, safety, durability, flexibility, and noise.

### Language(s) of Instruction

English

### Host Institution Course Number

MEU44B10

### Host Institution Course Title

TURBOMACHINERY

### Host Institution Course Details

<https://www.tcd.ie/media/tcd/engineering/pdfs/current-students/MEU44B10,-MEP55M...>

### Host Institution Campus

### Host Institution Faculty

### Host Institution Degree

**Host Institution Department**

Engineering

**Course Last Reviewed**

2024-2025

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