



## **Module Specification**

### **Thermofluid Systems**

Version: 2021-22, v2.0, 07 Jun 2022

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## Part 1: Information

**Module title:** Thermofluid Systems

**Module code:** UFMFTA-15-3

**Level:** Level 6

**For implementation from:** 2021-22

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**Faculty:** Faculty of Environment & Technology

**Department:** FET Dept of Engineering Design & Mathematics

**Partner institutions:** None

**Delivery locations:** Frenchay Campus

**Field:** Engineering, Design and Mathematics

**Module type:** Standard

**Pre-requisites:** Heat Transfer, Power and the Environment 2021-22

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** Not applicable

**Features:** Not applicable

**Educational aims:** See Learning Outcomes

**Outline syllabus:** Compressible flow machines (fans, compressors). Radial and axial flow machines. Limitations of design process. Improving existing designs.

Compressible flow machines (Pumps), selection of pumps, operational issues.

Refrigeration (Vapour compression and absorption), primary and secondary refrigerants, heat pumps.

Air conditioning, psychrometry, mixing of air-streams.

Heating and ventilation systems, combined heat and power (CHP), energy recovery.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** Contact: 36 hours

Assimilation and development of knowledge: 75 hours

Problem solving: 11 hours

Examination preparation: 28 hours

Total: 150 hours

Large group lecture supported by small group tutorial sessions. Additional laboratory demonstrations may be used to illustrate certain points. This material may be provided as video or likewise if student numbers are too high for laboratory visits. Study time outside of contact hours will be spent on going through exercises and example problems.

Scheduled learning includes lectures, tutorials\lab sessions.

Independent learning includes hours engaged with essential reading, assignment preparation and completion.

**Module Learning outcomes:** On successful completion of this module students will achieve the following learning outcomes.

**MO1** Explain operating principles underlying fluid machinery

**MO2** Use a system approach and cost drivers for the selection of fluid machinery

**MO3** Explain the energy use in fluid machines and its relationship to design

**MO4** Demonstrate a fundamental knowledge of refrigeration, air conditioning, heating and ventilation techniques

**MO5** Select and apply the computational techniques and mathematics underpinning the analysis of thermofluid systems

**Hours to be allocated:** 150

**Contact hours:**

Independent study/self-guided study = 114 hours

Face-to-face learning = 36 hours

Total = 150

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ufmfta-15-3.html) via the following link <https://uwe.rl.talis.com/modules/ufmfta-15-3.html>

## Part 4: Assessment

**Assessment strategy:** Assessed by end of year exam (100%).

This subject matter is mainly analytical in nature and therefore amenable to assessment through examination. This ensures that the assessment is of individual ability, which would be difficult to assure in a coursework component.

**Assessment components:**

**Examination (Online) - Component A (First Sit)**

Description: Online Examination: 5 hours

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5

### **Examination (Online) - Component A (Resit)**

Description: Online Examination: 5 hours

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested:

### **Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Mechanical Engineering {Apprenticeship-UCS} {Top-Up} [Sep][FT][Frenchay][2yrs]  
BEng (Hons) 2021-22

Mechanical Engineering [Sep][SW][Frenchay][5yrs] MEng 2018-19

Mechanical Engineering {Foundation} [Sep][FT][Frenchay][5yrs] MEng 2018-19

Mechanical Engineering [Sep][SW][Frenchay][4yrs] BEng (Hons) 2018-19

Mechanical Engineering {Foundation} [Sep][FT][Frenchay][4yrs] BEng (Hons) 2018-19