Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Fluid Mechanics

Unit ID: ENGRG2302

Credit Points: 15.00

Prerequisite(s): (ENGRG1002 and ENGRG1004)

Co-requisite(s): Nil

Exclusion(s): (ENGIN3301)

ASCED: 030701

Description of the Unit:
The unit will consolidate and further extend the principles of fluid dynamics and apply them to a range of engineering and industrial applications and provide the underlying fluid mechanic concepts involved in fluid flow to enable students to analyse more complex applied phenomena.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate			✔			
Advanced						

Learning Outcomes:

On successful completion of the unit the students are expected to be able to:

Knowledge:

K1. Discern and identify advanced fluid dynamics concepts in industrial applications.

K2. Interpret and relate appropriate analytical and numerical problem-solving methods to industrial applications involving advanced fluid dynamics concepts.

Skills:

S1. Translate theoretical knowledge into a controlled laboratory environment.

S2. Utilise a range of analytical and numerical methods to explicit and implicit advanced fluid dynamics problems.

S3. Distinguish between different solution techniques and methodologies.

Application of knowledge and skills:

A1. Apply advanced analytical and numerical techniques to solve fluid dynamics problems related to industrial applications.

A2. Apply advanced fluid dynamics principles and interpret results gained in a controlled laboratory environment.

Unit Content:

Topics may include:

- Open Channel flows
- Complex industrial piping system design
- Compressible Flow and rocket nozzle design
- Design of pumps and turbines

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, S2-S3, A1	Numerical problems to improve problem-solving skills.	Numerical assignment	20-40%
S1, A2	Practical experience of the advanced fluid dynamics system	Lab report	10-20%
K1, K2, S2, S3, A1	Numerical problems and real engineering scenarios to test students application of key fluid dynamics concepts and problem solving methodology.	Quiz/Tests/Final Exam	40-60%

Adopted Reference Style:

IEEE

Refer to the library website for more information

Fed Cite - referencing tool