جامعة الشرقية
A' SHARQIYAH UNIVERSITY

Course Descriptor

CVEN350 THERMOFLUIDS ENGINEERING

Proposed Academic Year	2020/2021	**Last Reviewed Academic Year**	2019/2020
Course Code	CVEN350	**Course Title**	**THERMOFLUIDS ENGINEERING**
Credit hours	3	**Level of study**	Third
College / Centre	College of Engineering	**Department**	Environmental Engineering
Co-requisites	MATH305	**Pre-requisites**	MATH203

1. COURSE OUTLINE

This course explains fundamental principles governing fluid mechanics, heat transfer, thermodynamics, and fluid flow. Lectures covering the properties of fluids, fluid statics, momentum, entropy and energy principles, similitude, dimensional analysis, fluid flow, and heat transfer.

2. AIMS

The course provides students with concepts and techniques that enable to understand the fluid mechanics, heat transfer, thermodynamics

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS (Indicative)

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
1. Understand the thermodynamics basics	Lectures	Assignments and in-class tests
2. Understand the fluid mechanics techniques	Lectures	Assignments and in-class tests
3. Ability to analyze and detect the heat transfer coefficient	Lectures	Assignments and in-class tests

4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignments	20%
Mid-term Examinations (two)	40%
Final Examination	40%
TOTAL	**100%**

5. ACHIEVING A PASS

Students will achieve **3** credit hours for this course by passing **ALL** of the course assessments and achieving a **minimum overall score of 50%.**

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NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

LECTURE TOPIC	TIME (HOURS)
Introduction to Thermofliuds and thermodynamics	6
Thermodynamics First law	6
Thermodynamics second law	6
Thermodynamics third law and entropy	3
Carnot cycle	3
Introduction to fluid mechanics 1. Bernoulli Equation analysis 2. Water Hammer 3. Energy losses analysis	6
Fluid laminar and turbulence flow 1. Open channel experiment 2. Sedimentation measurements 3. Reynolds number calculation	6
Introduction to heat transfer	3
Heat transfer coefficient and heat exchanger	6
TOTAL HOURS	45
Plus **RECOMMENDED INDEPENDENT STUDY HOURS**	
TOTAL COURSE HOURS	**45**

7. RECOMMENDED READING

Core text/s:

Engineering Thermofluids Thermodynamics, Fluid Mechanics, and Heat Transfer**,** Massoud Mahmoud, 2005

Library + online resources:

https://www.oercommons.org/courseware/module/10674/overview

https://legacy.saylor.org/me201/Intro/

https://www.oercommons.org/courses/heat-transfer/view