TISHK INTERNATIONAL UNIVERSITY
FACULTY OF ENGINEERING
Department of CIVIL ENGINEERING,
2020-2021 Spring
Course Information for CE 214 FLUID MECHANISC II

Course Name:	FLUID MECHANISC II

Code	Regular Semester	Theoretical	Practical	Credits	ECTS
CE 214	4	2	2	3	

Name of Lecturer(s)-Academic Title:	Thamir Ahmed - Ass. Prof.
Teaching Assistant:	-
Course Language:	English
Course Type:	Main
Office Hours	4 hours
Contact Email:	thamir.ahmed@tiu.edu.iq Tel:07508867963
Teacher's academic profile:	hydraulics
Course Objectives:	The primary aim of this course is to give engineering majors a strong background fluid flow in closed and open channels. The rules and laws in mechanics will be applied on fluid materials so that students will get in depth understanding of several fluid motion behaviors like steady and unsteady flows. It is designed to provide detail computation for studying, analyzing and design of components of flow systems such as pipes, channels and machines. In this course experimental works are included that can help students to learn and visualize different phenomena related to fluid mechanics in a laboratory environment.
Course Description (Course overview):	Introduction to Flow of the real fluid, Laminar and turbulent flow, Boundary layers, Shear stress of laminar and turbulent flow, Velocity distribution and flow establishment, Correction factor of velocity and momentum heads, Flow through pipes, Flow through Smooth and rough pipes, Friction and minor losses, Compound pipes, Flow in open channels ,types of flow, Mannings and Chezy formulas, best section, Dimensional analysis.

COURSE CONTENT

Week	Hour	Date	Topic
1	2	31/1-4/2/2021	Introduction
2	2	7-11/2/2021	Types of Flow
3	2	14-18/2/2021	Continuity Equation
4	2	21-25/2/2021	Applications
5	2	28/2-4/3/2021	Energy Eqaution
6	2	7-11/3/2021	Applications
7	2	28/3-1/4/2021	Applications
8	2	4-8/4/2021	Momentum Equation
9	2	11-15/4/2021	Midterm Exam
10	2	18-22/4/2021	Midterm Exam
11	2	25-29/4/2021	Flow measurements
12	2	2-6/5/2021	Applications
13	2	9-13/5/2021	Flow over Notches
14	2	16-20/5/2021	Applications

15	2	23-27/5/2021	Flow in Open Channels
16	2	30/5-3/6/2021	Applications
17	2	6-10/6/2021	Final Exam
18	2	13-17/6/2021	Final Exam

COURSE/STUDENT LEARNING OUTCOMES

1	Types of Flow
2	Continuity Equation
3	Energy Eqaution
4	Momentum Equation
5	Open Channel Flow

COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES

(Blank : no contribution, I: Introduction, P: Profecient, A: Advanced)

	Program Learning Outcomes	**Cont.**
1	Apply principles of mathematics, science, and engineering	I
2	Design and conduct experiments, as well as analyze and interpret data accurately.	I
3	Design an engineering system, component, or process to meet desired industrial needs.	I
4	Identify, formulate and solve complex engineering problems	I
5	Apply, in design and construction, the most modern design codes, standards and specifications such as; AISC, ACI, ASCE 7, IBC, etc.	P
6	Use the techniques, skills, and modern engineering tools, such as surveying instruments, and designing software that are necessary for engineering practices.	P
7	Apply knowledge and skills in construction project management and recognition of international standards and methodologies	I
8	Manage to work with multi-disciplinary teams and communicate effectively.	P
9	Identify the moral values that ought to guide the Civil Engineering profession and resolve the moral issues in the profession.	P
10	Apply the principles of sustainable development in their professional duties which go in line with the paramount safety, health and welfare of the public.	I
11	Analyze the impact of engineering solutions in a global and social context	I
12	Identify the need and have the ability to engage in lifelong learning and knowledge of contemporary issues.	I

Prerequisites (Course Reading List and References):	Engineering Mechanics
Student's obligation (Special Requirements):	1-Attendance 2-Effective participation 3-Carry out the class work 4-do the experimental works

Weekly Laboratory/Practice Plan:

Week	**Hour**	**Date**	**Topics**
1	2	31/1-4/2/2021	Introduction
2	2	7-11/2/2021	Applications of Continuity Equation
3	2	14-18/2/2021	Application of Bernoullies Equation with different discharges (1)
4	2	21-25/2/2021	Application of Bernoullies Equation with different discharges (2)
5	2	28/2-4/3/2021	Minor and Major losses (1)
6	2	7-11/3/2021	Minor and Major losses (2)
7	2	28/3-1/4/2021	Minor and Major losses (3)
8	2	4-8/4/2021	Jet Impact (1)
9	2	11-15/4/2021	Jet Impact (2)

	10	2	18-22/4/2021	Midterm
	11	2	25-29/4/2021	Types of flow
	12	2	2-6/5/2021	Flow through Orficies
	13	2	9-13/5/2021	Flow over Weirs (1)
	14	2	16-20/5/2021	Flow over Weirs (2)
	15	2	23-27/5/2021	Flow through open channels (1)
	16	2	30/5-3/6/2021	Flow through open channels (1)
	17	2	6-10/6/2021	Preview
	18	2	13-17/6/2021	Final Exam

Course Book/Textbook:	Fluid Mechanics By Rajput
Other Course Materials/References:	Any related references
Teaching Methods (Forms of Teaching):	Lectures, Practical Sessions, Excersises, Self Evaluation, Case Studies, Demonstration

COURSE EVALUATION CRITERIA

Method	Quantity	Percentage (%)
Attendance	1	5
Participation	1	5
Quiz	1	10
Midterm Exam(s)	1	30
Laboratory	1	10
Final Exam	1	40
Total		**100**

Examinations: Essay Questions, True-False, Fill in the Blanks, Multiple Choices, Short Answers, Matching

Extra Notes:

ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD

Activities	Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours	18	2	36
Practical Hours	18	2	18
Final Exam	1	20	20
Attendance	1	4	4
Participation	1	4	4
Quiz	1	10	10
Midterm Exam(s)	1	15	15
Laboratory	1	20	20
Total Workload			**127**
ECTS Credit (Total workload/25)			**5.08**

Peer review

Signature:	Signature:	Signature:
Name:	Name:	Name:

Lecturer Head of Department Dean