



Arab Academy for Science, Technology & Maritime Transport
College of Engineering & Technology
Mechanical Engineering (Mechatronics) Program

University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc. Mechanical Engineering

Form no. (12)
Course Specification

1- Course Data

Course Code: ME 461	Course Title: Fluid Mechanics	Academic Year/Level: 4th year / 8th semester
Specialization: Mechanical	No. of Instructional Units 3 credits	Lecture 2 hrs.
		Practical 2 hrs.

2- Course Aim

To enable the student to have a systematic and easily understood account of the basic principles of fluid Mechanics.

3- Intended Learning Outcomes

a- Knowledge and Understanding	Through knowledge and understanding, students will be able to: K1) Concepts and theories of mathematics and sciences, appropriate to the discipline K5) Methodologies of solving engineering problems, data collection and interpretation
b- Intellectual Skills	Through intellectual skills, students will be able to: I1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
c- Professional Skills	Through professional and practical skills, students will be able to:
d- General Skills	Through general and transferable skills, students will be able to:

4- Course Content

Week No.1	Differential analysis of fluid flow
Week No.2	Kinematics of fluids flow
Week No.3	Kinematics of fluids flow (cont.)
Week No.4	Linear Motion, Angular Motion and Deformation
Week No.5	Conservation of Mass and Stream Function
Week No.6	Velocity potential and irrotational flows
Week No.7	General equations of motion (Navier-Stokes equations) / 7th week evaluation
Week No.8	Euler's equations of motion

Week No.9	Basic two-dimensional potential flows
Week No.10	Superposition of plane potential flows
Week No.11	Introduction to compressible fluid flow
Week No.12	Mach number and speed of sound / 12th week evaluation
Week No.13	/ 12th week evaluation Isentropic and Non-isentropic flow of ideal gas.
Week No.14	Normal shock waves
Week No.15	Revision
Week No.16	Final examination

5- Teaching and Learning Methods

- Lectures
- Tutorials
- Reports & sheets
- Laboratories
- Seminars

6-Teaching and Learning Methods for Students with Special Needs

- Lectures
 - Tutorials
 - Reports & sheets
 - Laboratories
 - Seminars
- Academic Support:**
- The general academic advisor appoints an academic supervisor for handicapped students.
 - Continuous follow ups are made for handicapped students after each assessment to evaluate their academic level of achievement

7- Student Assessment

a-Procedures used	1-Written Examinations to assess The Intended Learning Outcomes.	
	2-Class Activities (Reports, Discussions, -----) to assess The Intellectual and general Skills.	
b- Schedule:	Assessment 1	7 th Week Assessment
	Assessment 2	12 th Week Assessment
	Assessment 3	Continuous Assessments
	Assessment 4	16 th Week Final Written Exam
c- Weighing of Assessment	7 th Week Evaluation	30 %
	12 th Week Evaluation	20 %
	Final-term Examination	40 %
	Oral Examination	00 %
	Practical Examination	00 %

	Semester Work	10 %
	Total	100%

8- List of References:

a- Course Notes	N/A
b- Required Books (Textbooks)	<ul style="list-style-type: none"> • Cengel, Yunus.A. , “Fluid Mechanics:Fundamentals & Applications”, McGraw Hill. – Latest Edition
c- Recommended Books	<ul style="list-style-type: none"> • F. M. White, “Fluid Mechanics”, McGraw-Hill, 1994, 3rd edition. • Munson, Young & Okishi, “Fundamentals of Fluid Mechanics”, John Wiley, 1994, 3rd edition • Joseph B. Franzini, and E. John Finnemore, “Fluid Mechanics”, McGraw-Hill, 1997, 9th international edition. • Irving H. Shames, “Mechanics of Fluids”, McGraw-Hill,1992, 3rd edition
d- Periodicals, Web Sites, etc.	N/A

Course coordinator:

Program Manager: