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 362**	Course Title: **Hydraulics**		Academic Year/Level: **3rd** year / **6th** semester
Specialization: **Mechanical**	No. of Instructional Units	Lecture	Practical
	3 credits	**2 hrs.**	**2 hrs.**

2- Course Aim

The subject aims at providing the student with the fundamental knowledge of incompressible flow, and easily understanding the basic principle of hydrostatics and hydrodynamics.

3- Intended Learning Outcomes

y- 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
z- Intellectual Skills	**Through intellectual skills, students will be able to:**
aa- Professional Skills	**Through professional and practical skills, students will be able to:**
bb- General Skills	**Through general and transferable skills, students will be able to:** G1) Collaborate effectively within multidisciplinary team

4- Course Content

Week No.1	Introduction to Fluid Mechanics.
Week No.2	Physical Properties of Fluids
Week No.3	Fluid Statics
Week No.4	Forces on submerged surfaces and buoyancy
Week No.5	Introduction to fluids kinematics
Week No.6	Dynamics of incompressible flow
Week No.7	Flow Measurements / 7th week evaluation
Week No.8	Velocity measurement
Week No.9	Similitude and dimensional analysis

Week No.10	Similitude and dimensional analysis (Cont.)
Week No.11	Flow through pipes
Week No.12	Flow through pipes (Cont.) / 12th week evaluation
	/ 12th week evaluation
Week No.13	Pumps (Types).
Week No.14	Pumps (Performance)
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 Assessment 2 Assessment 3 Assessment 4	7th Week Assessment 12th Week Assessment Continuous Assessments 16th Week Final Written Exam
c- Weighing of Assessment	7th Week Evaluation 12th Week Evaluation Final-term Examination Oral Examination Practical Examination Semester Work	30 % 20 % 40 % 00 % 00 % 10 %

	Total 100%

8- List of References:

a- Course Notes	N/A
b- Required Books (Textbooks)	• Munson, Young and Okiishi "Fundamentals of Fluid Mechanics ", Wiley, 1998, 3rd Edition. •
c- Recommended Books	• Aldor C. Peterson, "Applied Mechanics: Fluids", 5th edition, 1985. • White, "Fluid Mechanics", McGraw-Hill, 1994, 3rd edition • Tyler G. Hicks, and T. W. Edwards,"Pumps Applications Engineering", McGraw-Hill, 1980, 4th edition. •
d- Periodicals, Web Sites, etc.	N/A

Course coordinator: **Program Manager:**