

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Fluid Mechanics II		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CIER 223		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	4
Administering Department	CIER	College	Engineering
Module Leader	Aya Louy	e-mail	aya.luay@muc.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	Module Leader's Qualification	PhD
Module Lab.		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Fluid Mechanics I	Semester	3
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Objectives أهداف المادة الدراسية	The course objective is to provide students with the fundamental physical and analytical principles of fluid mechanics through the understanding of the: conservation of mass, conservation of energy, and the conservation of momentum equations. It is expected that the students will gain a fundamental physical and mathematical understanding of this topic rather than memorizing the equations and situations. By this, it is implied that the student will be able to correctly apply the course content (given in the course overview above) to new situations so as to evaluate potential industrial applications of fluid theory through both physical induction and mathematical analysis/computation. Such inductive and analytical reasoning will be taught through classroom examples and homework, while it will be tested on examinations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	On successful completion of this course, student should be able to: <ol style="list-style-type: none">1. Explain and describe how fluid shear stresses resist forces such as gravity and momentum.2. Understand the principals of flow rates and velocity measurement.3. Be able to determine pressure drops for pipe systems and choose appropriate pumps and turbines depending on the application.4. Ability to derive the equation for viscous flow, including laminar flow and turbulent flow .5. Interpret experimental and test results and present these in an appropriate engineering report format .6. Collaborate with others in a team project environment to conduct engineering investigations and produce engineering reports.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <ol style="list-style-type: none">1. Fluid flow under pressure in pipes and closed conduits [9 hr].2. Fluid flow over solid surfaces [9 hr].3. Energy loss in viscous fluid and the steady uniform flow [9 hr].4. Laminar flow in circular horizontal pipes [9 hr].5. Determine and analysis the velocity distribution in circular pipes and turbulent flow [9 hr].6. Conducting and Interpretation the experimental and test results and present these in an appropriate engineering report format [30 hr].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The first objective is to give students fundamentals of Fluid dynamics Mechanics, while the second is to teach them several of the important fields of applications of Fluid Mechanics. Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.
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Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	78	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	5 and 10	LO #1 - #4
	Assignments	2	5% (5)	2 and 12	LO #1, #2, #3, #4 and 6
	Lab.	3	10% (10)	Continuous	All
	Report	3	5% (5)	13	LO #5 and 6
Summative assessment	Midterm Exam	4hr	15% (15)	7	LO #1 - #6
	Final Exam	3hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Fluid flow under pressure in pipes and closed conduits
Week 2	Fluid flow under pressure in pipes and closed conduits
Week 3	Fluid flow under pressure in pipes and closed conduits
Week 4	Fluid flow over solid surfaces
Week 5	Fluid flow over solid surfaces
Week 6	Fluid flow over solid surfaces
Week 7	Energy loss in viscous fluid

Week 8	Energy loss in viscous fluid
Week 9	Steady uniform flow
Week 10	Laminar flow in circular horizontal pipes
Week 11	Laminar flow in circular horizontal pipes
Week 12	Determine and analysis the velocity distribution in circular pipes and turbulent flow
Week 13	Determine and analysis the velocity distribution in circular pipes and turbulent flow
Week 14	Determine and analysis the velocity distribution in circular pipes and turbulent flow
Week 15	Mid-term Exam
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Theoretical principal of flow over weirs
Week 2	Flow over weirs: Experiment preparation and conducting
Week 3	Flow over weirs: Experiment preparation and conducting
Week 4	Flow over weirs: Experiment preparation and conducting
Week 5	Report preparation, submitting and discussion
Week 6	Report preparation, submitting and discussion
Week 7	Assignments
Week 8	Theoretical principal of flow through orifice
Week 9	Flow through orifice: Experiment preparation and conducting
Week 10	Flow through orifice: Experiment preparation and conducting
Week 11	Flow through orifice: Experiment preparation and conducting
Week 12	Report preparation, submitting and discussion
Week 13	Report preparation, submitting and discussion
Week 14	Assignments
Week 15	Final Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Fluid Mechanics , by Victor L. Streeter & Benjamin Wylie 1st SI Metric Edition , McGraw – Hill , 1988	Yes
Recommended Texts	Fluid Mechanics with Engineering Application , By Robert L. Daugherty , Joseph B. Franzini & E. John Finnemore , 8th edition , McGraw Hill, 1985	Yes
Websites	Available	

Grading Scheme				
مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
<p>Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.</p>				