

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Fluid Mechanics I		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 212		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	3
Administering Department	CIER	College	Engineering
Module Leader	Prof. Dr. Mahmoud Saleh Al-Khafaji Asst. Prof. Dr. MohammedAli A. Shaban	e-mail	mahmoud.s.al-khafaji@ced.nahrainuniv.edu.iq mohammed.a.akram@nahrainuniv.edu.iq
Module Leader's Acad. Title	Professor + Assistant Professor	Module Leader's Qualification	PhD +PhD
Module Lab.	MSc. Kutaiba Abdulhadi Abbood	e-mail	kqkq1984@yahoo.com
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	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	Graduation of civil engineers qualified to work in their various fields of specialization: 1. Providing the student with the necessary skills and mechanisms to deal with the latest developments in scientific and technical progress in their field of specialization. 2. Special care for outstanding students and enabling them to put forward their ideas. 3. Providing the student with high skill and the ability to solve problems and teamwork. 4. - Instilling the spirit of diligence and perseverance and encouraging them to create and innovate.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding the principles of fluid mechanics and the properties of static fluids. 2. Learning the effect of fluid movement and the energy line on the fluid path 3. An ability to study of the amount of energy needed to move fluids 4. An ability to Apply momentum equations and the effect of fluids on Facilities 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. - the properties of fluids the properties of fluids, fluid static's, and the underlying framework of concepts, definitions, dimension and units, and basic equations for fluid dynamics are discussed [12 hr] - the Hydrostatic of fluids The study of fluid at rest and its properties and measuring Instruments of hydrostatic and all pressure forces acting on their surface [16 hr] - Fluid Kinematics Study the parameter of fluid motion without studying force like the principle of conservation of energy (Bernoulli equation) and their application [12 hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The first objective is to give students fundamentals of Fluid 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.

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	Introduction to fluid
Week 2	Dimensions and unites
Week 3	Fluid and flow properties
Week 4	Solving some example and daily exam
Week 5	Introduction to fluid hydrostatic
Week 6	Scales of pressure measurement
Week 7	Instrument of pressure measurement
Week 8	Force on plan area

Week 9	Force on inclined plan area
Week 10	Mid-term exam
Week 11	Force on curved surface area
Week 12	Fluid Kinematic
Week 13	Principle of conservation of energy
Week 14	Application on Bernoulli Equation
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 center of pressure
Week 2	Center of pressure : Experiment preparation and conducting
Week 3	Center of pressure : Experiment preparation and conducting
Week 4	Center of pressure : 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 impact of jet
Week 9	Impact of jet : Experiment preparation and conducting
Week 10	Impact of jet: Experiment preparation and conducting
Week 11	Impact of jet: 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
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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

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.