

	<p>Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa.... civil Department</p>	
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MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Fluid Mechanics		Module Delivery
Module Type	Basic		Asst Lect.wurood hussien <input checked="" type="checkbox"/>
Module Code	CIV036		Theory
ECTS Credits	7		Asst Lect.wurood hussien <input checked="" type="checkbox"/>
SWL (hr/sem)	175		Lecture
			Asst Lect.ali makki <input checked="" type="checkbox"/> Lab
			<input checked="" type="checkbox"/> Tutorial
			<input type="checkbox"/> Practical
			<input type="checkbox"/> Seminar
Module Level	2	Semester of Delivery	3
Administering Department	CIV	College	ENG
Module Leader	Asst.lect. wurood hussin	e-mail	wurood.karim2010m@gmail.com
Module Leader's Acad. Title		Module Leader's Qualification	Master
Module Tutor	Asst.lect. wurood hussin	e-mail	E-mail wurood.karim2010m@gmail.com
Peer Reviewer Name	Asst.lect. wurood hussin	e-mail	

Scientific Committee Approval Date	15/09/2024	Version Number	1.0
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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 Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. Introducing students to the basic concepts of fluid mechanics engineering and the general fluid flow sector 2. Defining the properties of the fluid. 3. Study the concept of pressure at rest (hydrostatic pressure). 4. Defining the energy equation or Bernoulli's equation and its applications. 5. Defining the continuity equation (the continuity equation) and its applications. 6. Study the concept and mechanism of applying dimensional analysis. 7. Calculating major and secondary losses. 8. Hydraulic design of open channels.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Knowledge of the properties of fluid . 2. Knowledge of methods of measuring and calculating atmospheric and absolute pressure, and laboratory pressure. 3. Calculating the hydrostatic forces generated by the fluid at rest 4. Calculating the hydraulic forces generated by the fluid in the flow. 5. Determine the type of the flow. 6. Calculating major and secondary losses. 7. Knowledge of open channel flow and the major equation.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <ol style="list-style-type: none"> 1- <u>Fluid Properties and Type of Fluid</u> This part will explain <ul style="list-style-type: none"> • Weight Density. • Mass Density.

	<ul style="list-style-type: none"> • Specific gravity. • Viscosity. • Surface Tension. • Vapor pressure. <p>2- <u>Pressure and its Measurements</u> includes following concepts</p> <ul style="list-style-type: none"> • Fluid Pressure at Point. • Pressure Variation in a Fluid at a Rest. • Absolut, Gauge, Atmospheric and Vacuum Pressure. • Piezometer. <p>3- <u>Hydrostatic Forces on Surface</u></p> <ul style="list-style-type: none"> • Vertical and Horizontal Plan Surface Submerge in Liquid. • Inclined Plan Surface Submerge in Liquid. • Curved Surface Submerge in Liquid. <p>4- <u>Dimensional Analysis and Similarity</u></p> <ul style="list-style-type: none"> • The Principle of Dimensional Homogeneity. • The Pi Theorem <p>5- <u>Real Fluid Flow in Pipe</u></p> <ul style="list-style-type: none"> • Flow Classification. • Head Loss—The Friction Factor. • Major Losses. • Minor Losses. <p>6- <u>Flow in Open Channel</u></p> <ul style="list-style-type: none"> • Chezy Equation. • Manning Equation. • Hydraulic Jump.
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>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 type of simple experiments involving some sampling activities that are interesting to the students.</p>
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem)	122	Structured SWL (h/w)	8
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الحمل الدراسي المنتظم للطالب خلال الفصل		الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	53	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	3	10% (10)	5, 9 and 13	LO #3, 5 and 6
	Assignments	2	10% (10)	2, 12	LO # 3,4,6, and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10%(10)	-	-
Summative assessment	Midterm Exam	2 hr	20% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Fluid Properties.
Week 2	Pressure variation in static fluid.
Week 3	Forces on plane surfaces.
Week 4	Forces on curved surfaces.
Week 5	Continuity equation.
Week 6	Energy equation (Ideal fluid).
Week 7	Mid-term Exam + Application of Energy equation.
Week 8	Application of Energy equation.
Week 9	Momentum equation.
Week 10	Flow of real fluid.
Week 11	Dimensional analysis
Week 12	Fluid flow in pipes: Friction losses

Week 13	Fluid flow in pipes: Minor losses.
Week 14	Flow in open channels
Week 15	Flow in open channels
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: ايجاد لزوجة السوائل (Viscosity), (Capillary) قياس الخاصية الشعرية
Week 2	Lab 2: ايجاد مركز الضغط لسطح مستوي مغمور بشكل شاقولي في سائل Determination the Centre of Pressure for a Plane Surface
Week 3	Lab 3: معادلة برنولي (Bernoulli's Equation)
Week 4	Lab 4: ارتطام البثق (Impact of jet)
Week 5	Lab 5: معادلة برنولي (Bernoulli's Equation)
Week 6	Lab 6: حساب معامل السرعة والتصريف من خلال فتحة صغيرة (Orifice)
Week 7	Lab 7: ايجاد انماط الجريان (Reynolds)

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Elementary fluid mechanics" by Johan K. Vennard, Robert L. Street.	Yes
Recommended Texts	Fluid Mechanics and Hydraulics", by Shaum Series.	No
Websites	https://library.uoh.edu.iq/admin/ebooks/53960-fluid-mechanics-4th-ed---f.-white.pdf	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group	A - Excellent	امتياز	90 - 100	Outstanding Performance

(50 - 100)	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.

