	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al-Anbiyaa College of Engineering Civil Engineering Department	

MODULE DESCRIPTOR FORM

Module Information

Module Title	FLUID MECHANICS	**Module Delivery**	
Module Type	BASIC	**Theory lecture**	
Module Code	CIV036		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	3	**Semester of Delivery**	1
Administering Department	Civil Engineering	**College**	Engineering
Module Leader	Wurood Husieen Qhban	**e-mail**	wurood.hussien@uowa.ed.iq
Module Leader's Acad. Title	Assist Lecturer	**Module Leader's Qualification**	Master
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval	15/09/2024	**Version Number**	1.0

Relation With Other Modules

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents	
Module Aims	1. To review essential grammar of the language. 2. To develop writing skills in engineering topics with focus on enhancing students' abilities to deliver ideas clearly according to academic writing structure, including introduction paragraph, body paragraphs and a conclusion. To improve students' reading and comprehension skills in engineering topics, especially in prosthetics and orthotics engineering, and help them extract relevant information and summarize key points accurately. 4. To enhance students' vocabulary in engineering topics, through reading and listening activities. 5. To improve students' ability to listen effectively to different listening materials in engineering topics, understand the basic ideas, and summarize key points. 6. To improve students' ability to speak and present ideas in front of the class. 7. To enhance students' ability to engage and participate in classes through group reading or discussion.
Module Learning Outcomes	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. Knowledge of open channel flow and the major equation.
Indicative Contents	Indicative content includes the following. 1- <u>Fluid Properties and Type of Fluid</u> This part will explain • Weight Density. • Mass Density. • Specific gravity. • Viscosity.

	• Surface Tension. • Vapor pressure. 2- Pressure and its Measurements includes following concepts • Fluid Pressure at Point. • Pressure Variation in a Fluid at a Rest. • Absolut, Gauge, Atmospheric and Vacuum Pressure. • Piezometer. 3- Hydrostatic Forces on Surface • Vertical and Horizontal Plan Surface Submerge in Liquid. • Inclined Plan Surface Submerge in Liquid. • Curved Surface Submerge in Liquid. 4- Dimensional Analysis and Similarity • The Principle of Dimensional Homogeneity. • The Pi Theorem 5- Real Fluid Flow in Pipe • Flow Classification. • Head Loss—The Friction Factor. • Major Losses. • Mainor Losses. 6- Flow in Open Channel • Chezy Equation. • Manning Equation. • Hydraulic Jump.

Learning and Teaching Strategies	
Strategies	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.

Student Workload (SWL)			
Structured SWL (h/sem)	122	**Structured SWL (h/w)**	8
Unstructured SWL (h/sem)	53	**Unstructured SWL (h/w)**	3.5
Total SWL (h/sem)	175		

Module Evaluation

		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)		

Delivery Plan (Weekly Lab. Syllabus)

	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)

	Material Covered
Week 1	Lab 1: (Viscosity), Capillary property measurement (Capillary)
Week 2	Lab 2: Determination the Centre of Pressure for a Plane Surface
Week 3	Lab 3: (Bernoulli's Equation)
Week 4	Lab 4: (Impact of jet)
Week 5	Lab 5: (Bernoulli's Equation)
Week 6	Lab 6: (Orifice)
Week 7	Lab 7: (Reynolds)

Learning and Teaching Resources

	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	

APPENDIX:

GRADING SCHEME				
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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB 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.