



Course Syllabus
According to JORDAN National Qualification
Framework (JNQF)

Course Name: Fluid mechanics

Course Number: 04033131

General Course Information:

Course title	Engineering Statistics
Course number	4033131
Credit hours	Three Credit hours (Theory)
Education type	[Face-to-Face]
Prerequisites/corequisites	403200 - 403221
Academic Program	Civil engineering
Program code	403
Faculty	Engineering
Department	Civil engineering
Level of course	3 rd year
Academic year /semester	First Semester 2021-2022
Awarded qualification	B.Sc
Other department(s) involved in teaching the course	Non
Language of instruction	English
Date of production/revision	2/01/2022

Course Coordinator:

Coordinator's name	Eng. Dua'a Almajali
Office No	4249
Office Phone extension number	2662
Office Hours	Sun, Tue, Thu (12:00-01:00)
Email	Duaa.almajali@iu.edu.jo

Other Instructors:

Instructor name	
Office No	
Office Phone extension number	
Office Hours	
Email	

Course Description(English/Arabic):

English	Fluid properties, static and dynamics of fluids, buoyancy and floating, kinematics of fluids, energy factors in steady flow and applications of momentum and flowing forces, atmospheric pipe flow, lifting forces, drag forces for submerged bodies in compressible and non-compressible fluids..
Arabic	خصائص الموائع، المائع الساكن والمتحرك، قوة الطفو، معادلة الطاقة للتدفق الثابت وتطبيقاته، معادلة الزخم.

Textbook: Author(s), Title, Publisher, Edition, Year, Book website.

Learson and Faber “Elementary of statistics” 4th edition, Pearson 2012

References: *Author(s), Title, Publisher, Edition, Year, Book website.*

1. Engineering Fluid Mechanics, by Crowe, Elger, *et. al*, John Wiley and Sons, 9th edition, 2009

Course Educational Objectives (CEOs):

1.	Introduce fluid mechanics and establish its relevant applications in civil engineering.
2.	Develop the fundamental principles underlying the fluid statics and dynamics
3.	Demonstrate how these principles are used for the analysis and design of fluids structures and conveyance systems.

Intended Learning Outcomes (ILO's):

1.	Subject Intended learning outcomes (ILOs) describe what students are expected to know and be able to do at the end of the course. These outcomes are related to the knowledge, skill and competence that students acquire:	Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	Descriptors**
2. A	Knowledge and Understanding:				
3. A1	Understand the basic concepts of fluid mechanics and fluid properties	1	1	4	K
4. A2					
5. B	Intellectual skills:				
6. B1	Analyze and solve problems related to variation of pressures in a fluid at rest, stability of bodies and fluid statics	2	1		
7. B2	Analyze and solve problems related to fluid dynamics and its application	2	1		
8. B3					
9. C	Subject specific skills:				
10. C1	Apply the basic equations of continuity and energy in civil engineering applications	2	1	2	S
11. C2	To analyze structures such as plane trusses and frames using principles of equilibrium of particles and rigid bodies	3	1	3	S
12. C3					
13. C4					
14. D	Transferable skills:				
15. D1					
16. D2					
17. D3					

***Bloom Taxonomy Levels**

Level#	1	2	3	4	5	6
Level Name	Knowledge	Comprehension	Application	Analysis	Evaluation	Synthesis

**** Descriptor (National Qualification Framework Descriptors): K : Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the (CE) program will demonstrate:		Descriptors**		
		K	S	C
1.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	✓		
2.	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.			✓
3.	An ability to communicate effectively with a range of audiences.		✓	
4.	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.			✓
5.	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.		✓	
6.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.		✓	
7.	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	✓		✓

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule

✓ Face to Face

Week	First Hour + Second Hour + Third Hour	Ach. ILOs	Ach. PLOs	Descriptors*
1	18. Introduction to course, overview and requirements	19. A1	20. 6	S
2	Fluid properties	21. A1	6	S
3	22. Fluid Static	23. C1	1	K
4	24. Fluid Static	25. A1	26. 6	S
5	27. Fluid Static	28. A1	29. 6	S
6	30. Fluid Static	31. A1	32. 6	S

7	33. Flowing Fluids and Pressure Variation	34. A1	35. 6	S
8	36. Flowing Fluids and Pressure Variation	37. A1	38. 6	S
9	39. Control Volume Approach and Continuity Equation	40. A1	41. 6	S
10	Control Volume Approach and Continuity Equation	42. C2	43. 1	K
11	44. Momentum Equation	45. A1	46. 6	S
12	47. The Energy Equation	48. A2	49. 6	S
13	Dimensional Analysis and Similitude	50. A2	51. 6	S
Final Exam				

* K: Knowledge, S: Skills, C: Competency

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Interactive videos

Practice Labs

Discussion Forums

Quizzes

Other Interactive online activities

Reports

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences from exams and handing in assignments on time:

Midterm exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safety procedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) **20%**
- Midterm **30%**
- Final Exam **50%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the IU E-Learning Platform at: <https://elearn.iu.edu.jo/course/view.php?id=2105>
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools implemented in the course:

- ✓ Final Exam
- ✓ Midterm Exam
- ✓ Homework
- ✓ Discussion Forums
- ✓ Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching
- Others: Quiz

Responsible Persons and their Signatures:

Course Coordinator	Eng. Dua'a Al-Majali	Completed Date	1/4/ 2022
		Signature	
Received by (Department Head)	Dr. Ibrahim Varooqa	Received Date	15/ 4 / 2022
		Signature	