Jordan University of Science and Technology

Faculty of Engineering

Chemical Engineering Department

CHE244 Fluid Mechanics For Chemical Engineers - JNQF Level: 7
First Semester 2024-2025

Course Catalog
3 Credit Hours. Fluid static. continuity equation, energy equation (Bernoulli's equation), flow measuring devices, fluid friction of flowing systems, Momentum balance, Dimensional analysis, pumps types and their performance curves.
Teaching Method: On Campus

Text Book	
Title	Fluid Mechanics for Chemical Engineers
Author(s)	Noel de Nevers
Edition	4th Edition
Short Name	1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	Engineering Fluid Mechanics	Donald F. Elger (Author), Barbara A. LeBret, Clayton T. Crowe, John A. Roberson	12th Edition	
3	Fluid Mechanics	White F., Xue H.	9th Edition	
4	Fluid Mechanics Fundamentals and Applications	Cengel Y, Cimbala J.	3rd Edition	

Instructor	
Name	**Prof. Mohammed Al-Saleh**
Office Location	CH2L2-3

Office Hours	
Email	mhsaleh@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: CH2109

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
222030	CHE203 Fundamentals Of Chemical Engineering	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Introduction and Overview	From **1**, From **2**
Weeks 3, 4, 5	Fluid Statics	From **1**
Week 6	The overall Material Balance and Component Mass Balances	From **1**, From **3**
Week 7	The Overall Energy Balance	From **1**, From **4**
Weeks 8, 9	The Extended Bernoulli Equation	From **1**
Weeks 10, 11, 12	Pressure Drop and Friction Loss in Pipes	From **3**
Weeks 13, 14	Momentum Balance	From **1**, From **2**
Week 15	Pump and compressors	From **2**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Describe fluid types and physical quantities related to fluid mechanics [1SO1] [1L7K1]	14%	
Solve pressure-related problems for static fluids [1SO1] [1L7S2]	16%	
Apply mass and energy balances on fluid flow systems [1SO1] [1L7K1]	2%	
Apply Bernoullis equation for flow measuring devices to calculate the fluid volumetric flow rate [1SO1] [1L7S1]	24%	
Apply mechanical energy balance equation for systems including friction and/or shaft work [1SO1] [1L7S1]	24%	

Estimate pressure drop and friction loss in fluid flow systems. [1SO2] [1L7S3]	10%	
Describe pump and compressor types, their performance, uses and limitations [1SO2] [1L7S3]	10%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
80	20					

Relationship to NQF Outcomes (Out of 100%)			
L7K1	L7S1	L7S2	L7S3
16	48	16	20

Evaluation	
Assessment Tool	**Weight**
First Exam	20%
Second Exam	20%
Third Exam	20%
Final Exam	40%

Policy	
Course Policy	Jordan University of Science and Technology (JUST) is committed to the highest standards in academic excellence, integrity and honesty. Students are advised to familiarize themselves with JUST rules and regulations regarding cheating, attendance and general behavior. (http://www.just.edu.jo/aboutjust/Regulations/129_147.pdf)

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