



Jordan University of Science and Technology
Faculty of Engineering
Civil Engineering Department

CE352 Hydraulics

Summer Semester 2023-2024

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). Hydraulics of pipe networks, analysis and design. Pumps and turbines, Open channel flow. Flow measurements. Hydraulic structures. Seepage. Hydraulic modeling. Groundwater flow. Introduction to Surface Hydrology.

Teaching Method: On Campus

Text Book

Title	Fundamentals of Hydraulic Engineering Systems
Author(s)	Robert J. Houghtalen, Hwang N., and Akan A.O
Edition	4th Edition
Short Name	Textbook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref. 1	Hydraulic Engineering	Roberson, R.J. Cassidy J.J. and Chaudhry M. H.	4th Edition	

Class Schedule & Room

Prerequisites

Line Number	Course Name	Prerequisite Type
233510	CE351 Fluid Mechanics	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Review properties of water. Laminar flow, turbulent flow, discharge, Continuity and conservation of energy., Hydrostatic forces.	
Week 2	Pressurized pipe flow ? Energy? Friction losses and minor losses? Series, parallel, and branching flow? Measurements	
Weeks 3, 4	Water Distribution Systems ? System components? Network simulation? Hydraulic transients	
Weeks 5, 6	Pumps and pump selection	
Weeks 7, 8	Open channel flow ? Steady uniform flow? Specific energy? Hydraulic Jump, Water surface profiles, Measurements.	
Week 9	Hydraulic Structures	
Weeks 10, 11	Groundwater Flow ? Steady, one-dimensional flow? Transient Flow and Well hydraulics.	
Weeks 12, 13, 14	Hydrologic cycle and processes, Rainfall runoff analysis, Drainage basins, Hydrographs Frequency analysis	

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Understand the concepts of hydraulic Engineering	40%	
Analyze and design of pipes, open channels and pipe networks	40%	
Use computer software for the analysis and design of pipe networks	10%	
Develop engineering judgment to design of hydraulic systems, in general	10%	

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

Evaluation	
Assessment Tool	Weight
Quiz 1	50%
Quiz 2	50%

Policy	
Attendance	- Attendance will be taken shortly after the lecture starts - University regulations on attendance will be applied

Home work	- Home work assignments should be submitted on their due date. Late assignment will not be accepted
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