



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

CE758 Surface And Subsurface Modelling

First Semester 2023-2024

Course Catalog

3 Credit Hours. The course in the first part talks about modeling the hydrologic surface processes for the design of hydraulic structures (Culverts, Bridges, etc.) and management of flood. In the second part it talks about the groundwater simulations, governing equations, modeling protocol, conceptual model (hydrogeologic setting and hydrologic stresses, etc.), the numerical representation of the processes, the solution methods and outputs interpretation. The hydraulic modeling framework is coupled with solute transport and the transformations associated with it.

Text Book

Title	Applied Groundwater Modeling-Simulation of Flow and Advective Transport
Author(s)	Mary P. Anderson, William W. Woessner, AND Randall J. Hunt
Edition	2nd Edition
Short Name	1
Other Information	Elsevier 2015, Pages 533

Course References

Short name	Book name	Author(s)	Edition	Other Information
2	HEC-HMS Technical Reference Manual	usace.army	1st Edition	https://www.hec.usace.army.mil/software/hec-hms/documentation/HEC-HMS
3	HEC-RAS Hydraulic Reference Manual	usace.army	1st Edition	https://www.hec.usace.army.mil/software/hec-ras/documentation/HEC-RAS

Instructor

Name	Dr. Mohanned Al-Sheriadeh
Office Location	-

Office Hours	Sun : 12:30 - 14:30 Tue : 12:30 - 14:30 Wed : 10:30 - 11:30 Thu : 11:30 - 13:30
Email	alsheria@just.edu.jo

Class Schedule & Room
Section 2: Lecture Time: Sun, Tue : 11:30 - 12:30 Room: E2114

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Models an Modeling protocol	From 1 , From 2
Weeks 2, 3, 4, 5	Hydrologic modeling (Model=HEC-HMS)	From 2
Weeks 6, 7, 8, 9	Hydraulic modeling (HEC-RAS)	From 3
Weeks 10, 11, 12, 13, 14, 15, 16	Groundwater modeling (MODFLOW 6 or Flex)	From 1

Relationship to Program Student Outcomes (Out of 100%)						
SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7

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