



Jordan University of Science and Technology
Faculty of Agriculture
Natural Resources & Environment Department

NR447 Irrigation Systems Design

First Semester 2020-2021

Course Catalog

3 Credit Hours. To introduce the students to: Design of irrigation systems, Crop water requirements, surface irrigation methods, Irrigation systems layout, Components of irrigation systems (Drip, Sprinkler), Selecting of irrigation systems, Evaluation of irrigation systems, Practices of irrigation systems, Theoretical and practical applications of irrigation systems.

Text Book

Title	Sprinkle and trickle irrigation
Author(s)	Israelsen, O. W. and V. E. Hansen
Edition	1st Edition
Short Name	Ref#1
Other Information	John Wiley and Sons, Inc. New York.

Instructor

Name	Dr. Naji Almfleh
Office Location	M1L1
Office Hours	Sun : 09:00 - 10:00 Sun : 11:00 - 12:00 Mon : 09:00 - 10:00 Mon : 12:00 - 13:00 Tue : 12:00 - 13:00 Wed : 09:00 - 10:00
Email	nme fleh@just.edu.jo

Class Schedule & Room

Section 1:

Lecture Time: Sun, Tue : 10:00 - 11:00

Room: منصة الكترونية

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	surface and subsurface irrigation	Chapter 1 From Ref#1
Week 2	surface and subsurface irrigation	Chapter 1 From Ref#1
Week 3	soil-water-plant relations	Chapter 3 From Ref#1
Week 4	Sprinkle and trickle agro-irrigation	Chapter 5 From Ref#1
Week 5	sprinkle irrigation planning factors	Chapter 6 From Ref#1
Week 6	set sprinkler uniformity and efficiency	Chapter 7 From Ref#1
Week 7	layout of set sprinkler systems	Chapter 8 From Ref#1
Week 8	pipeline hydraulics and economics	Chapter 9 From Ref#1
Week 9	set sprinkler lateral design	Chapter 9 From Ref#1
Week 10	types and components of trickle system	Chapter 17 From Ref#1
Week 11	clogging and filtration	Chapter 18 From Ref#1
Week 12	trickle irrigation planning factors	Chapter 19 From Ref#1
Week 13	emitter selection and design criteria	Chapter 20 From Ref#1
Week 14	trickle lateral design	Chapter 22 From Ref#1
Week 15	trickle manifold design	Chapter 23 From Ref#1
Week 16	Irrigation practices design	Chapter 24 From Ref#1

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
To introduce the students to the design of surface irrigation (border and furrow irrigation methods) [1PLO1, 1PLO2]	33%	
2- To introduce the students to the design of pressurized irrigation (sprinkler irrigation) [1PLO1, 1PLO2]	33%	
3- To introduce the students to the design of drip irrigation [1PLO1, 1PLO2]	11%	
4- To introduce the students to the clogging of emitters and water filtration [1PLO1, 1PLO2]	11%	

5- To introduce the students irrigation practices and to mathematical problems and solution [1PLO1, 1PLO2]	12%	
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Relationship to Program Student Outcomes (Out of 100%)								
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
50	50							

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