



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

NR444 Agricultural Drainage
Second Semester 2021-2022

<b>Course Catalog</b>
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2 Credit Hours. This course will cover the introduction to agricultural drainage, types of drainage systems, water flow toward the drainage systems, and designing the drainage systems.

<b>Text Book</b>
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<b>Title</b>	Drainage engineering
<b>Author(s)</b>	James N. Luthin
<b>Edition</b>	7th Edition
<b>Short Name</b>	Agricultural drainage
<b>Other Information</b>	

<b>Instructor</b>
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Name	Prof. Naji Almfleh
Office Location	M1L1
Office Hours	
Email	nmfleh@just.edu.jo

<b>Class Schedule &amp; Room</b>
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Section 1:  
 Lecture Time: Sun, Tue : 10:00 - 11:00  
 Room: G2123

<b>Tentative List of Topics Covered</b>
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Weeks	Topic	References
Week 1	Understand the drainage importance and types of drainage systems	From <b>Agricultural drainage</b>

Week 2	Understand the drainage importance and types of drainage systems	From <b>Agricultural drainage</b>
Week 3	Understand the soil water relations with drainage system	From <b>Agricultural drainage</b>
Week 4	Understand the soil water relations with drainage system	From <b>Agricultural drainage</b>
Week 5	Soil water relations	From <b>Agricultural drainage</b>
Week 6	Types of drainage system, Advantages and disadvantages of drainage types	From <b>Agricultural drainage</b>
Week 7	Rainfall and runoff related to drainage	From <b>Agricultural drainage</b>
Week 8	Rainfall and runoff related to drainage	From <b>Agricultural drainage</b>
Week 9	Determining the nature and extent of surface drainage	From <b>Agricultural drainage</b>
Week 10	Static soil water system and Dynamic soil water system	From <b>Agricultural drainage</b>
Week 12	Designing drainage system (discharge of drains)	From <b>Agricultural drainage</b>
Week 13	Designing drainage system (discharge of drains)	From <b>Agricultural drainage</b>
Week 14	Designing drainage system (spacing between drains)	From <b>Agricultural drainage</b>
Week 16	Solving problems in designing drainage system (depth of drains)	From <b>Agricultural drainage</b>

<b>Mapping of Course Outcomes to Program Student Outcomes</b>	<b>Course Outcome Weight (Out of 100%)</b>	<b>Assessment method</b>
1- Introduce the students to the importance of drainage, types of drainage [5PLO1, 5PLO2]	10%	mid exam
2- Introduce the students the soil water relations with drainage system [5PLO1, 5PLO2, 5PLO6]	15%	mid exam
3- Applying the hydraulics flow measurements in agricultural drainage [5PLO2, 5PLO4]	10%	mid exam
Learning the relation of rainfall-runoff and agricultural drainage [5PLO2, 5PLO4, 5PLO5]	15%	mid exam
5- Determining the nature and extent of subsurface drainage problem, drainage investigation [5PLO2, 5PLO5]	10%	final
6- Understanding the laws for static and dynamic flow of water in drainage system [5PLO4, 5PLO5]	10%	final
7- Designing the drainage system [10PLO7, 10PLO8, 10PLO9]	30%	final

<b>Relationship to Program Student Outcomes (Out of 100%)</b>								
PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9
10	25		15	15	5	10	10	10

<b>Evaluation</b>	
<b>Assessment Tool</b>	<b>Weight</b>

mid exam	50%
final	50%

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