



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

NR241 Principles Of Irrigation And Drainage

Second Semester 2022-2023

Course Catalog

3 Credit Hours. This course will cover the irrigation importance, agricultural drainage, sources of water, pumps, hydraulics flow, and water flow measurements in pipes and canals. It will conclude the soil water relations, soil water content and salt problems in soil and water. And it will deal with calculations of crop water consumptive, and water use efficiency, irrigation methods (surface, sprinkler, and drip irrigation).

Text Book

| | |
|--------------------------|-------------------------------------|
| Title | Irrigation principles and practices |
| Author(s) | Israelsen, O. W. and V. E. Hansen |
| Edition | 3rd Edition |
| Short Name | Ref#1 |
| Other Information | |

Instructor

| | |
|------------------------|---------------------------|
| Name | Prof. Naji Almfleh |
| Office Location | M1L1 |
| Office Hours | |
| Email | nmfleh@just.edu.jo |

Class Schedule & Room

Section 1:
Lecture Time: Sun, Tue : 10:30 - 11:30
Room: C5020

Tentative List of Topics Covered

| Weeks | Topic | References |
|---------|---|----------------------|
| Week 1 | Water for irrigation and drainage | Chapter 1 From Ref#1 |
| Week 2 | Irrigation, drainage, tube wells, pumps | Chapter 1 From Ref#1 |
| Week 3 | Water flow measurements in canals and pipes | Chapter 2 From Ref#1 |
| Week 4 | Water flow measurements in canals and pipes | Chapter 2 From Ref#1 |
| Week 5 | Soil Water relations | Chapter 3 From Ref#1 |
| Week 6 | Soil water relations | Chapter 3 From Ref#1 |
| Week 7 | Soil water measurements | Chapter 3 From Ref#1 |
| Week 8 | Salt problems in soil and water | Chapter 4 From Ref#1 |
| Week 9 | Irrigation efficiencies | Chapter 5 From Ref#1 |
| Week 10 | Consumptive use | Chapter 6 From Ref#1 |
| Week 11 | Consumptive use | Chapter 6 From Ref#1 |
| Week 12 | Furrow and border irrigation methods | Chapter 7 From Ref#1 |
| Week 13 | Sprinkler irrigation | Chapter 8 From Ref#1 |
| Week 14 | Sprinkler irrigation | Chapter 8 From Ref#1 |
| Week 15 | Drip irrigation | Chapter 9 From Ref#1 |
| | Drip irrigation | Chapter 9 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 principles of tube wells, pumps, and water flow measurements methods [10PLO1, 10PLO2, 10PLO5] | 30% | |
| To understand the different aspects of soil-water relations [5PLO1, 5PLO2] | 10% | |
| 3- To introduce the students to the methods of measuring soil water content [5PLO1, 5PLO2] | 10% | |
| To understand the salt problems in soil and water [10PLO1, 5PLO2] | 15% | |
| 5- To introduce the students to irrigation efficiencies and consumptive use of water. [7PLO1, 8PLO2] | 15% | |
| 6- To understand the principles of Surface irrigation methods (border and furrow irrigation, sprinkler and drip irrigation methods) [10PLO1, 10PLO2] | 20% | |

| Relationship to Program Student Outcomes (Out of 100%) | | | | | | | | |
|--|------|------|------|------|------|------|------|------|
| PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 |
| 47 | 43 | | | 10 | | | | |

| Evaluation | |
|-----------------|--------|
| Assessment Tool | Weight |
| mid exam | 50% |
| final exam | 50% |

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