SULTAN QABOOS UNIVERSITY

COURSE OUTLINE

PROGRAM: Water Technology

1. Course Code	SWAE3311	
2. Course Title	Environmental Soil Physics	
3. Credits	3 CR, 12 CP, 6 ECTS	
4. Pre-requisite Course(s)	SWAE220, MATH1106, PHYS2101	
5. Co-requisite Course(s)		
6. Equivalent Course(s)		
7. Incompatible Course(s)		
8. Course Category	☐ University Requirement	☐ University Elective
	☐ College Requirement	☐ College Elective
	☐ Department Requirement	☐ Department Elective
	☒ Specialization Requirement	☐ Specialization Elective
	☐ Other (specify):	
9. Course Owner	College: Agricultural and Marince Sciences	Department: Soils, Water, & Ag. Eng.
10. Course Type	☐ Lecture	☒ Lecture/Lab
	☐ Lecture/Seminar	☐ Lecture/Studio
	☐ Lecture/Tutorial	☐ Lecture/Lab/Tutorial or Seminar
	☐ Tutorial	☐ Laboratory (Practical)
	☐ Field or Work Placement	☐ Studio
	☐ Seminar	☐ Internship
	☐ Workshop	☐ Project
11. Language of Instruction	English	

12. Course Description

This course introduces the physical properties of the soil; such as structure, physical constituents, and soil-water system. It deals with the physical mechanisms that take place through soils; e.g., movement and availability of soil water and transport of solutes. Some applications to soil and water management are also discussed. Laboratory sessions are complementary to lecture topics. They introduce the methods for quantifying soil physical properties; such as texture, density, soil water content, and transport of water and solutes.

13. Teaching/Learning Strategies

14. Assessment Components and Weight [%]

☒ Quizzes 20	☒ Practical 15	☐ Other (specify): 5 (Participation)
☐ Homework assignments	☐ Project	
☒ In-term examination(s) 40	☒ Final examination 40	

15. Grading Method

☒ A-F Scale ☐ Pass/Not passed

16. Textbook(s) and Supplemental Material

Introduction to Environmetnal Soil Physics

17. Matching Course Objectives with Program Outcomes and SQU Graduate Attributes

SQU Graduate Attributes

A. SQU graduates should be able to:	B. SQU graduates possess	C. SQU graduates should
1. apply the knowledge and skills relevant to the specialization 2. communicate effectively and use information and communication technologies 3. critically analyze complex information and present it in simple clear manner	1. interpersonal communication skills and alignment with culture of international labour market to assist them in practical life and in living successfully 2. skills and motivation for independent learning and engagement in lifelong learning and research 3. work ethics and positive values, and intellectual independence and autonomy 4. teamwork skills and display potential leadership qualities	relish good citizenship qualities, be conscious of their national identity and be socially responsible, engage in community affairs and be mindful of contemporary issues.

#	Intended Student Learning Outcome /Course Learning Objective	Relevant Program Outcome(s)	Applicable Attribute(s)
1.	Discuss and be familiar with the physical properties of the soil	Provide the required knowledge and skills to solve water resources management problems in arid regions	
2.	Analyze given soil physical problems in terms of phenomena and pertinent parameters	Develop an ability to identify, formulate and solve technical problems in the field of water resources	
3.	Measure common soil physical properties	Impart technical skills, modern problems solving tools, on-the-job training to the students to enable them contribute effectively in the Omani water sector	
4.	Discuss and be familiar with basic transfer mechanisms of water, chemicals, heat, and gases in soil	Develop abilities to communicate effectively, to work in multi-disciplinary teams, and to understand professional and ethical responsibility	
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16. Student Responsibilities

It is the student's responsibility to know and comply with all University Academic Regulations relevant to participation in this course. These regulations specifically include attendance requirement and students` academic code of conduct.

For attendance, it is the student's responsibility to be punctual and to attend all classes.

Students are expected to perform their work with honesty and avoid any academic misconduct, which is defined as the use of any dishonest or deceitful means to gain some academic advantage or benefit. This can take many forms, including but not limited to, the following: copying, plagiarism, collusion and forging documents. For full details, please refer to the Undergraduate Academic Regulations and to the Student Academic Misconduct Policy.

Additionally, this course requires that you:

COURSE INFORMATION			
Course Code	SWAE3311	**Course Title**	Environemtal Soil Physics
Semester/ Year	Fall 2017	**Section(s)**	10/11
Day, Time, and Place			

Course Coordinator	Dr. Salem Ali Al Jabri		
Office Location	240	**Office Hours**	
Office Tel. Ext.	3629	**Email**	salmej@squ.edu.om

Tentative Schedule

Week	Lecture #	Topic/Material to be covered	Assessment
1	1	Soil physics in perspective	
2	2	General soil physical properties	
3	2	General soil physical properties	
4	3	Soil solid phase (texture)	
5	4	Soil solid phase (specific surface)	Test One
6	5	Soil solid phase (mineral composition)	
7	6	Soil solid phase (soil structure)	
8	7	Soil water content	Midterm Exam
9	7	Soil water content	
10	8	Properties of water in relations to soil	
11	9	Soil water potential energy	
12	10	Soil water potential energy	
13	11	Soil water characteristics	Test Two
14	12,13	Saturated/unsaturated water flow, Darcy's law	
15	14	Soil water intake	
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17			

APPENDIX A: INSTRUCTORS OF MULTIPLE SECTIONS					
Section	**Instructor**	**Day, Time, and Place**	**Office Location and Extension**	**Email**	**Office Hours**

APPENDIX B: ADDITIONAL INFORMATION