The Islamic University of Gaza
Faculty of Engineering
Civil Engineering Department
Infrastructure Msc.

Special Topics in Water and Environment - ENGC 6383

Instructors: Dr. Yunes Mogheir, Dr. Ahmed Abu-Foul

Course Objective:
This course is designed to present:

- The principles underlying the groundwater hydrology which consists of groundwater flow, pumping tests, groundwater exploration, well design and, hydrology of coastal aquifers. In addition to a very brief groundwater modeling which includes the flow and the transport modeling.
- Aspects of solid waste collection, recycling, reuse and disposal.

Course Content:

PART 1: Groundwater Hydrology (7 weeks)

1. Occurrence of groundwater
2. Zones of groundwater
3. Movement of groundwater and its velocity
4. Measurement of yield of groundwater (Aquifers)
5. Well design
6. Hydrology of Coastal Aquifer and Problems of Sea Water Intrusion
7. Groundwater Modeling

Midterm Exam

PART 2: Solid Waste Management (6 weeks)

1. Integrated solid waste management
2. Source Reduction
3. Medical waste management
4. Incineration
5. Composting
6. Reuse and recycling
7. Landfill design (site selection, leachate and gas generation, waste characterization, containment landfill, bioreactor landfill, liner materials, design of landfill elements, landfill construction, landfill remediation, performance monitoring and landfill operation.)

Course text:

Recommended Reading:
Exams and Grading Policy:
Exercise, homework and class participation .............................................. 10%
Groundwater Project ............................................................... 10 %
Solid Waste Project .......................................................... 10 %
Mid-term Exam ................................................................. 20 %
Final Exam ................................................................. 50%
Total ................................................................. 100%

Instructions:
• Attendance Policy: Attendance is important. Students with absence that exceeds 25% will not be permitted to take the final exam.
• Exam Policy: Exams are closed book.