אורט בראודה
המכללה האקדמית להנדסה
ORT Braude College

Water, wastewater and waste- Resources vs. Needs- 11416

This course aims to take students on a journey to explore the exciting triangle of environment, water and energy, in our emerging world. This course combines a classroom experience with field visits to explore advanced and emerging topics in environment, water and energy. The course will address water management in Israel, water resources, desalination, wastewater treatment and reuse and bio-energy production from waste. The field trips include the National Water Treatment System "Eshkol Site", "Karmiel" wastewater treatment site, and Hadera desalination site.

Weekly hours: 2 lecture;
Academic credits: 2
Instructor: Prof. Isam Sabbah, Office- D-225, isabbah@braude.ac.il

Office hours: Sunday- 14:30-15:30
Tuesday- 11:30-12:30

Course Grades
The grades for the course will be determined as follows:

70% Final Project
30% Home works

Attendance of 80% of the course is mandatory – this includes weeks 1 and 2.

Schedule

Week (day)	Subject	
1	Water resources and management in Israel	
2	Water resources and management in the Middle East	
3	Water treatment technologies Membrane desalination processes	
4	The RO system's equipment; RO system design considerations	
5	**Field trip 1- Desalination plant**	Optional?
6	Water treatment - physicochemical processes	
7	Water treatment - physicochemical processes	.
8	**Field trip 2- Water treatment plant**	

9	. Wastewater treatment and reuse	
10	Wastewater treatment and reuse	
11	Wastewater treatment and reuse	
12	**Field trip 3- Wastewater treatment plant**	
13	Energy potential and production from waste	

- **Text Books**:
    1. James Montgomery, Water treatment principles and design, John Wiley and Sons, 2005
    2. Becker Nir, Water Policy in Israel Context, Issues and Options, Springer, 2013
    3. Shuval Hillel and Dweik Hassan, Water Resources in the Middle East Israel-Palestinian Water Issues — From Conflict to Cooperation, EBOOK-SPRINGER, 2007
    4. Wang, Lawrence, Membrane and Desalination Technologies, Springer, 2013
    5. Metcalf and Eddy, Wastewater Engineering: Treatment and reuse 4th ed. McGraw-Hill, 2004

אישור ראש המחלקה להוראה ולימודים כלליים