**Code:** ENVE 324  
**Course:** Unit Operations for Water and Wastewater Treatment

**Mandatory:** X  
**Elective:**  
**Specialization:**  

**Semester:** F X  
**Teaching Units:** 4  
**ECTS:** 5

**Teaching Hours per week:**  
T 2  
E 1  
L 4/2

**Instructors:** E. Diamadopoulos

**Textbooks (Eudoxus):** Metcalf & Eddy, Μηχανική υγρών αποβλήτων, Τόμοι Α και Β, 1\(^{η}\) Εκδοση Α. ΤΖΙΟΛΑ & ΥΙΟΙ Ο.Ε., 2006

**Other recommended books:**

**Notes:**

**Labs:**  
| # of lab exercises: | 2 | Individual Reports | X | Team Reports |

| Lab final written exam |  | % of Final Lab Grade |

**Final Grade:**

| Final Exam | 70 % |
| Project | 20 % |
| Labs | 10 % |
| Other ( ) | % |

**Course Syllabus:**

1. Basic principles in water and wastewater treatment
2. Flow equalization
3. Screening
4. Sedimentation  
   - Discrete solids sedimentation – Grid chamber design  
   - Flocculants settling – Primary sedimentation tank design  
   - Zone settling– Secondary sedimentation tank design
5. Floatation
6. Deep-bed filtration
7. Surface filtration in  
   - Filter-press – Belt Filter-press  
   - Vacuum filters
8. Membrane separation (Reverse Osmosis, Ultrafiltration)