# The Hashemite University
# Faculty of Engineering
# Civil Engineering Program
# Course Syllabus

| | | | |
|---|---|---|---|
| **Course Title:** | Wastewater Treat. Eng. | **Course Number:** | 110401455 |
| **Designation:** | Compulsory | **Prerequisite(s):** | 110401356 |
| **Instructor:** | Neda Halalsheh | **Instructor's e-mail:** | Neda@hu.edu.jo |
| **Office Hours:** | Tuesday 11:30-12:30, Sun &Tuesday 8:30 – 9:20 am. | | |
| **Class schedule**: | Sun, Tues, and Thurs 9:30-10:30, 10:30-11:30 | | |

**Course Description (catalog):** This course covers materials related to water quality parameters, sources of wastewater and flow quantities and quality, sewage collection system design, sewage purification works and disposal, primary treatment, secondary treatment, activated sludge system, and waste stabilization ponds.

**Textbook: McGhee**, T, (1991 or latest). Water Supply and Sewerage. 6th Edition, Mc-Graw-Hill Inc.

**Major Topics Covered:**

| Topic | No. of Weeks | Contact hours* |
|---|---|---|
| Water quality: physical, chemical, and biological parameters. | 1.5 | 7.5 |
| Wastewater flow quantity: population growth, flow variations | 1.5 | 7.5 |
| Wastewater sewer system: analysis and design | 1.5 | 7.5 |
| Wastewater characteristics: solids, BOD, COD | 1.5 | 7.5 |
| Wastewater treatment: primary, secondary, activated sludge, WSP. | 1.5 | 7.5 |
| Exams | 1/2 (1st+2nd+final) | 4 |
| **Total** | **8** | **41.5** |

*Contact hours include lectures and exams.

**Specific Outcomes of Instruction (Course Learning Outcomes):**
After completing the course, the student will be able to:
- Understand and solve civil engineering problems related to wastewater treatment technologies (**Outcome 1**).
- Design of sewer systems and activated sludge plants (**Outcome 2**).

**Student Outcomes (SO) Addressed by the Course:**

| # | Outcome Description | Contribution |
|---|---|---|
| | **General Engineering Student Outcomes** | |
| (1) | an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. | H (70) % |
| (2) | an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. | L (30%) |
| (3) | an ability to communicate effectively with a range of audiences. | |
| (4) | an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. | |
| (5) | an ability to function effectively on a team whose members together provide leadership, create collaborative and inclusive environments, establish goals, plan tasks, and meet objectives. | |
| (6) | An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. | |
| (7) | an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. | |
| | **H**= High, **M**= Medium, **L**= Low | |

| | | | |
|---|---|---|---|
| **Grading Plan:** | First Exam | 30 Points | **Tuesday, 15/11/2022** |
| | Second Exam | 30 Points | **Tuesday, 27/12/2022** |
| | Final Exam | 40 Points | **Will be announced by the registrar** |

**General Notes:** **HU attendance rules will be applied.**