



COURSE SYLABUS

Wastewater Treatment Engineering

Credits: 02 (Lectures 02 – Practices 0 – Self-study 06)

Code: MT 03003



EXPECTED LEARNING OUTCOMES

Indicators	Upon the completion of the course, student able to	Expected learning outcomes of program
Knowledge		
CELO1	Analysis of water environment quality criteria to select the control measures (management and treatment) of wastewater treatment systems.	ELO2: Apply the knowledge of natural science, politics, social science and humanities, law, economics, and awareness of contemporary issues in the field of environmental sciences.
CELO2	Applying thinking and professional knowledge to propose and build processes / modules in the wastewater treatment system from given data of a wastewater object.	ELO 4: Develop sustainable solutions for the management and protection of the environment and natural resources based on different perspectives of natural science, social science, and humanities.
CELO3	Calculate/design the modules in the wastewater treatment system based on mechanical, physicochemical and biological processes to meet the requirements of the current regulation	ELO 5: Design waste treatment facilities (solid wastes, wastewater, and air pollutants) according to national and international standards and regulations.
CELO4	Applying knowledge to build solutions / operating processes of a complete wastewater treatment system based on the connection of individual modules to form a complete system to meet the requirements of the system.	ELO 4: Develop sustainable solutions for the management and protection of the environment and natural resources based on different perspectives of natural science, social science, and humanities.
Skills		
CELO5	Applying knowledge to design and present a proposed waste water treatment plant.	ELO 6: Apply systematic, critical, and creative thinking in solving problems in the environmental and related fields ELO 9: Apply appropriate approaches, suitable methods, and techniques to investigate, survey, and study environmental problems.
Attitude		
CELO6	Take the initiative in studying and researching to complete professional knowledge and have creative thinking in technology development research	ELO11: Define a clear career orientation; possess a passion for one's career and a sense of lifelong learning.



Brief descriptions

Introduction. Selection of wastewater treatment methods

Chapter 1. Wastewater treatment by mechanical methods

Chapter 2. Wastewater treatment by chemical methods

Chapter 3. Wastewater treatment by biological methods



Learning methods

- Self-study: reading documents, doing exercises, studying materials.
- Join in the discussion, exchange idea in class
- Group learning: discuss issues related to the wastewater treatment methods
- Field trip: visiting a wastewater treatment plant and making the report
- E - learning: Search and look up documents; group discussion by topic; do homework.



Assessment methods

- Grading scale : 10

Report and exercise (15%)	Field trip report (15%)	Mid-term exam (20%)	Final examination (50%)
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Student tasks

- Attendance: Students must attend at least 75% of the class and participate in class activities.
- Presentation and Discussion: Students must participate in class discussions; work in groups to make presentations; develop thematic essays on demand.
- Self-study: Students should read; synthesizing materials provided by lecturers through E-learning system, conducting group discussions with the instructor's guidance.



Key academic staffs

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