



COURSE SYLLABUS

CLEANER PRODUCTION

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

Code: MT 02002



EXPECTED LEARNING OUTCOMES

Abbreviation	Course expected learning outcomes after completion of this course, students can	Expected learning outcomes of the program
Knowledge		
CELO1	Present basic concepts of cleaner production	ELO2: Analyzing environmental quality includes the design and implementation of environmental experiments, as well as data collection and interpretation.
CELO2	Analyze technical solutions to achieve cleaner production	ELO3: Assess the impact of resource use and emissions on environmental quality.
CELO3	Implement the CP assessment process	ELO4: Building sustainable solutions for the management and protection of the environment and resources based on different perspectives of science, humanities and society.
CELO4	CP implementation in some industrial areas	ELO 5: Designing waste treatment facilities (solid, liquid and gas) according to national and international standards and regulations.
Skills		
CELO5	Material balance calculation, cost estimation of waste sources are carried out, feasibility analysis of cleaner production options	ELO 6: Applying systematic thinking, critical thinking and creative thinking in solving environmental industry issues and related fields.
CELO6	Independent working skills, teamwork	ELO7: Work in group and Lead the multi-functional team.
CELO7	Discussion and report writing skills	ELO 10: Using modern technology, equipment and techniques in natural resources and environment management and protection activities.
Attitudes		
CELO8	Enthusiastic, proactive, creative in learning	ELO11: Clear future orientation, career passion and a sense of lifelong learning.

COURSE CONTENTS

Chapter 1: Basic concept of Cleaner production

Chapter 2: Cleaner production assessment process

Chapter 3: Cleaner production in some industrial areas

RESPONSIBILITY OF STUDENTS

Attendance: All students attending this module must attend at least 75% of class time and 100% of class discussions.

- Preparing for the lecture: All students attending this module must read the chapters of the next session.

- Presentation and Discussion: All students attending this module must take part in the thematic essay and on-demand group discussion.

- Self-study: Students should actively read and synthesize materials instructed by lecturers

LEARNING METHODS

- Students participate in lectures and group discussions
- Students read the materials themselves, synthesize information related to the subject and group discussions
- E-learning: self-research, exchange electronic documents

EVALUATION AND GRADING

- Grading scale: 10

Participation
(10%)

Group report and
presentation
(30%)

Final test
(60%)

LECTURERS

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