

Environmental Engineering

Syllabus Number

1C302

Special Subjects

Elective 2 credit

MORI, Kazutoshi

1. Course Description

Outline;

Understanding the environment surrounding human beings is deepened by study of the history of environmental problems, nature of the Earth, air pollution and acid rain, water pollution and pollutants, global warming, chemical materials related to the environment, resources (energy, water, and food) related to the environment and environmental management. Secondly, students will announce their opinions through presentations for their own subjects, listen opinions and comments of others and discuss the subject with all. Their abilities of presentation and discussion should improve by these attempts. Also, another purpose of this course is to learn countermeasures for local and global environmental problems. Students perform a group work and the class will open in the outdoor when the weather is fine. Students will acquire the knowledge, skill and behavior for DP1 to DP6. Each lectures have been designed flexible, based on the Covid-19 pandemic situation.

2. Course Objectives

Objectives;

The local and global environments are vital to the survival of human beings. The efforts to control the Global Warming and to preserve the human living environment have been carried out in all research fields in the world in this 21st century of "Century of Environment".

The objectives of this course are to motivate the mind to think about local and global environment by studying about the environment in general, and to acquire the knowledge for addressing various environmental technologies by learning in detail about countermeasure for global warming and about the relationship between environment and energy.

Furthermore, the abilities for talking and listening are nurtured in presentations, discussions and group work.

3. Grading Policy

Your final grade will be calculated according to the following process : Evaluation of Presentation & Discussion, Report (30%) and The Term-end examination(70%). And students are required to attend classes over 2/3 of total classes in this course, in order to take part in the term-end examination.

4. Textbook and Reference

Textbook

Katsuzo Yamaguchi et al 『Science of Environment, the third edition, Our Earth and The Earth in the Future 』 Baifukan Publishing Co.,Ltd.

Reference

PEL(Professional Engineer Library) 『Environmental Engineering』 Jikkyo Publishing Co. Ltd.

『Annual Report on the Environment in Japan in 2019』 Ministry of the Environment

5. Requirements(Assignments)

Not only to improve understanding and proposal potential, but also communication and presentation skills will be acquired through this lecture.

The Exchange report of reflection is carried out in every class in this course, in order to communicate with teacher. Please make an effort to submit the report in each classes.

This course will be taught in Japanese.

6. Note

7. Schedule

- [1] Introduction of the Proceeding of the Lectures and History of Environmental Issues.
- [2] Nature of the Earth
- [3] Air Pollution and Acid Rain (Group Work)
- [4] Water Pollution and Contaminants (Group Work)
- [5] Global Warming of the Earth (Group Work)
- [6] Countermeasure for Global Warming of the Earth (Group Work)
- [7] Chemical Substances and Environment (Group Work)
- [8] Presentation and Discussion ①
- [9] Resource Issues[Resources of Hard & Soft and States of Fossil Fuel and Nuclear Fuel](Group Work)
- [10] Resources and Environment[Hydro-power & Biomass & Geothermal Energy](Group Work)
- [11] Resources and Environment[Solar & Wind Energy](Group Work)
- [12] Resources and Environment[Effective Use of Energy and Water & Foodstuff](Group Work)
- [13] Presentation and Discussion ②
- [14] Urban Environment and Environmental Management (Group Work)
- [15] Review, Reflection and Term-end Examination