| Akashi College | Year | 2024 | Course Title | Environmental Science |
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## Course Information

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| Course Code | 6026 | Course Category | General / Elective |
| Class Format | Lecture | Credits | Academic Credit: 2 |
| Department | Mechanical and Electronic System Engineering | Student Grade | Adv. 2nd |
| Term | First Semester | Classes per Week | 2 |
| Textbook and/or Teaching Materials | | | |
| Instructor | WATANABE Moriyoshi,HIRAISHI Toshihiro | | |

## Course Objectives

(1) Understand the formation of the global environment and the basic knowledge of the natural ecosystem, and acquire the ability to examine and explain the relationships between life, the natural environment, and environmental issues from a multifaceted perspective.
(2) Examine the relationship between the environment and people, think about problems with environmental issues, and acquire the ability to identify what actions are needed as engineers and members of the general public.

## Rubric

| | Ideal Level | Standard Level | Unacceptable Level |
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| Achievement 1 | Understand the formation of the global environment and the basic knowledge of the natural ecosystem, and can examine and explain the relationships between life, the natural environment, and environmental issues from a multifaceted perspective. | Understand the formation of the global environment and the basic knowledge of the natural ecosystem, and can explain the relationships between life, the natural environment, and environmental issues. | Do not understand the formation of the global environment and the basic knowledge of the natural ecosystem, and cannot explain the relationships between life, the natural environment, and environmental issues. |

## Assigned Department Objectives

## Teaching Method

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| Outline | (1) Lectures on biological and global environments, and an outline of ecosystems, and methods for preserving them. (8 weeks taught by Watanabe)<br>(2) Lectures on environmental issues from history, material cycles, and regional disparities. (7 weeks taught by Hiraishi) |
| Style | Lectures will be held using slides and videos and with materials distributed as appropriate.<br>The course is open to students from any department. Classes will be taught as simply as possible. Before taking the course, students should carefully read through the materials distributed in advance to fully understand the content, and summarize the main points and questions. |
| Notice | This course's content will amount to 90 hours of study in total. These hours include the learning time guaranteed in classes and the standard self-study time required for pre-study / review, and completing assignment reports.<br>The levels of achievement will be evaluated by faculty members in the following methods. The minimum score for a pass will be 60% in total. The weight for each faculty member's evaluation will be "1" for Hiraishi and "1" for Watabe. |

## Characteristics of Class / Division in Learning

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| ☐ Active Learning | ☑ Aided by ICT | ☑ Applicable to Remote Class | ☐ Instructor Professionally Experienced |

## Course Plan

| | | | Theme | Goals |
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| 1st Semester | 1st Quarter | 1st | The formation of the global environment and the history of pollution (Watanabe) | Can explain the process in which the current global environment was formed, and the relationship between pollution and health that has occurred in the past. |
| | | 2nd | Development and Environmental impacts(Watanabe) | Can explain the impact of development acitivities on the natural enviromnemt. |
| | | 3rd | Global environmental issues (Watanabe) | Can explain the current state of environmental issues and the measures to be taken on a global scale. |
| | | 4th | The basics of environmental ecology (Watanabe) | Can explain the concepts, types and distributions, and individual organism and population, and the growth of population ecology. |
| | | 5th | Biodiversity and its crisis(Watanabe) | Can explain the current state of biodiversity and the crisis it is facing. Can calculate diversity index of species. |
| | | 6th | Ecosystem conservation techniques (Watanabe) | Can explain technical classification (conservation, restoration, and creation) to protect the environment including ecosystems using concrete examples. |
| | | 7th | The functions and role of forest ecosystems(Watanabe) | Can explain the current state of forest , agricultural, urban and auqtic ecosystems and urban ecosystems. |
| | | 8th | Ecosystem assessment(Watanabe) | Can perform ecosystem asses s ment using some methods. |
| | 2nd Quarter | 9th | Report assignment briefing<br>Environmental issues and history | Set up and implement solutions to environmental issues in one's life.<br>Learn about the causes and history of modern environmental issues. |

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| | | 10th | Life and society in the Edo period | Learn about life and society before today's environmental issues arose. |
| | | 11th | Watch the "An Inconvenient Truth" and think about it. | Learn about climate change issues. |
| | | 12th | Watch the "An Inconvenient Truth" and think about it. | Learn about climate change issues and recognize the challenges. |
| | | 13th | "Ancient Futures: Learning from Ladakh" | Think about the time gap in the problems due to geographic inequalities. |
| | | 14th | "Ancient Futures: Learning from Ladakh" | Think about the time gap in the problems due to geographic inequalities. |
| | | 15th | Return and amend report assignments | Add opinions to the faculty's comments sent via Teams about the assignment in week 9. |
| | | 16th | About SDGs | Understand SDGs. |

Evaluation Method and Weight (%)

| | exercises(Watanabe) | | Report(Hiraishi) | Behavior | Portfolio | Other | Total |
|---|---|---|---|---|---|---|---|
| Subtotal | 50 | 0 | 50 | 0 | 0 | 0 | 100 |
| Basic Proficiency | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Specialized Proficiency | 50 | 0 | 50 | 0 | 0 | 0 | 100 |
| Cross Area Proficiency | 0 | 0 | 0 | 0 | 0 | 0 | 0 |