

**Science 4 Earth Science 2 and Life Science 2**

Basic Course Information			
Course Number	01005022	Subject Category	Compulsory(G)
Class Format	Lecture	Credit Type and Number of Credits	0.25
Department	Mechatronics	Student Category	Year 2
Period of Study	Semester 2	Classes per Week	2
Required Materials	Earth Science and Life Science		
Instructor	Pattawan Poodorah		

**Course Objective**

- To gain basic knowledge of Earth Science and Life science which will be necessary for future engineering activities in an environment-friendly and eco-friendly manner.
- To develop students' human skills, such as thinking, explaining, discussing, and collaborative skills, through individuals and group works that are key competencies for global engineers to create something new.

Evaluation Rubric	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Achievements 1: Earth Science 2 1. Atmosphere and ocean 2. Human activities and preservation of the global environment	Theoretically understand and explain the contents. Ability to correctly explain the contents.	Only understanding of the basic terms and contents.	Lacks the appropriate knowledge and understanding.
Achievements 2: Life Science 2 3. Ecosystem 4. Human activities and preservation of the global environment			

**Relationship with Learning Outcomes**

**G(1) Wide knowledge on Science and Engineering and practical ability to apply them to solve problems in the society.**

**G(4) Creativity to make a new value with fusing the knowledge from various fields.**

**G(5) As an engineer, attitude to act with awareness of social roles and responsibility to make a better society.**

**Teaching Method**

<b>Outline:</b>	Students learn basic concepts and principles of Earth Science and Life Science. The worksheets and workbooks are designed to help the students to develop knowledge, problem solving skills and understanding.
<b>Class Format:</b>	Lecture
<b>Please Note :</b>	All materials will be posted on the Google classroom. The students are requested to keep photo copies or files of all submitted material to ensure further study by themselves.

Course Plan	Semester 2	Contents and Method of Course	Goals	Related MCC
1st week		Introduction of Earth science Atmosphere and Ocean (1)	1. Understand relationship between earth science and human life. 2. Understand the structure and components of atmosphere and ocean atmospheric pressure.	I-E 1 12
2nd week		Atmosphere and Ocean (2)	3. Understand the heat balance of the atmosphere and explain the movement of the atmosphere. 4. Understand the general circulation of the atmosphere and explain meteorological phenomena such as the flow of wind in the atmosphere.	I-E 1 13 I-E 1 14
3rd week		Atmosphere and Ocean (3)	5. Understand the movement of seawater and explain tidal current, tsunamis, etc.	I-E 1 15
4th week		Human activities and preservation of the global environment (2) Wrap-up Quiz	1. Explain the problems, causes and countermeasures of global warming. 2. Conclude all contents. 3. Quiz	I-E 1 24
5th week		Introduction of life science Ecosystem (1)	1. Understand relationship between life science and engineering. 2. Explain the component factors of an ecosystem (producer, consumer, decomposer and abiotic environment) and their relationship.	I-E 1 19
6th week		Ecosystem (2)	3. Explain an ecological pyramid. 4. Explain the carbon cycle and energy flow in the ecosystem.	I-E 1 20 I-E 1 21
7th week		Human activities and preservation of the global environment (1)	1. Explain the diminishing tropical forests and the loss of biodiversity.	I-E 1 22
8th week		Human activities and preservation of the global environment (2) Wrap-up Quiz	2. Explain the biological concentration of toxic substances. 3. Conclude all contents. 4. Evaluation of students' comprehension.	I-E 1 23
9th week		Midterm Exam		
10th week		Return of examination script and reflection		
11-18th week		Chemistry 4		
19th week		Final Examination		
20th week		Return of examination script and reflection		

Do not

	Examination	Quiz	Midst Examinations between students	Report	Portfolio	Other
Basic Ability	60	20	0		20	
Technical Ability	0	0	0			
Interdisciplinary Ability	0	0	0			

Science 1			
Physics 1	Chemistry 1	Life Science 1	Earth Science 1
50%	25%	12.5%	12.5%