Toyama College	Year	2022		Course Title	Seminars in Engineering Ⅱ

Course Information

Course Code	0059		Course Category	Specialized / Elective
Class Format	Seminar		Credits	School Credit: 1
Department	Department of Electronics and Computer Engineering		Student Grade	3rd
Term	First Semester		Classes per Week	2
Textbook and/or Teaching Materials				
Instructor	Ito Nao			

Course Objectives

At the completion of this course, students will be able to:
1) Apply the knowledge of mathematics to physics or electronic circuit.
2) Solve first and second order linear differential equation.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Can apply mathematical knowledge to technical problems properly.	Can apply mathematical knowledge to technical problems.	Cannot apply mathematical knowledge to technical problems.
Evaluation 2	Can understand how to solve linear differential equation properly, and can solve applied problems.	Can understand how to solve linear differential equation, and can solve basic problems.	Cannot understand how to solve linear differential equation, and cannot solve basic problems.

Assigned Department Objectives

ディプロマポリシー 2

Teaching Method

Outline	The goal of this course is that students will be able to: 1) Understand mathematical knowledge and how to apply it to physics, electrical circuit and information technology, and acquire the ability to calculate them. 2) Understand how to solve linear differential equation, and can describe phenomena of physics and electrical circuit by using linear differential equation. One class lesson is divided into lecture part, exercise part and review part. In the lecture part, teacher explain the content and the mathematical and technical knowledge that are treated in the week. In the exercise part, students try to solve the problems related in the lecture part. In the review part, students challenge some problems that they have already learned in this course, and teacher explain how to solve them.
Style	Lectures by teachers alone are conducted.
Notice	The recognition of credit requires 60 points or more rating. A person who has a rating of less than 60 points may be subjected to an approval test by request. As the result of the approval test, the evaluation is made to be 60 points in the person who the mastery of the unit is recognized.

Characteristics of Class / Division in Learning

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

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance, exponetial function	1) Can explain the definition and features of exponetial function. 2) Can solve problems from physics and electric circuit, by using exponetial function.
		2nd	Logarithmic function	1) Can explain the definition and features of logrithmic function. 2) Can solve problems from physics and electric circuit, by using logarithmic function.
		3rd	Trigonometric function I	1) Can explain the bacis feature of trigonometric function and the representation for angular velocity. 2) Can draw an ondogram.
		4th	Trigonometric function II	Can derive various theorems from addition theorem.
		5th	Complex number	1) Can explain the definition and features of complex number. 2) Can calculate an impedance of an electric circuit, by using complex number.
		6th	Differentiation	1) Can solve basic problems reated with differentiation. 2) Can solve physical problems by using differentiation.
		7th	Integration	1) Can solve basic problems reated with integration. 2) Can solve physical problems by using integration.
		8th	Midterm exam	

		9th	1 order linear differential equation I	1) Can explain the definetion of differential equation. 2) Can solve basic problems of 1 order linear differential equation.
		10th	1 order linear differential equation II	1) Can solve 1 order homogeneous linear differential equation. 2) Can solve physical problems by using 1 order homogeneous linear differnntial equation.
	2nd Quarter	11th	1 order linear differential equation III	1) Can solve 1 order inhomogeneous linear differential equation. 2) Can solve physical problems by using 1 order inhomogeneous linear differenntial equation.
		12th	2 order linear differential equation I	Can solve basic problems of 2 order linear differential equation.
		13th	2 order linear differential equation II	Can solve physical problems by using 2 order homogeneous linear differenntial equation.
		14th	Problem exercise	
		15th	Final exam	
		16th	Grading confirmation, question evaluation questionnaire	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	40	40	10	0	10	0	100
Basic Ability	20	20	5	0	5	0	50
Technical Ability	20	20	5	0	5	0	50
Interdisciplinary Ability	0	0	0	0	0	0	0