Akashi College	Year	2024	Course Title	Applied Mathematics B

Course Information

Course Code	6417	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	School Credit: 2
Department	Architecture	Student Grade	4th
Term	Second Semester	Classes per Week	4
Textbook and/or Teaching Materials			
Instructor			

Course Objectives

1. Can make a deductive inference based on basic matters, including reading and writing logical sentences containing mathematical formulas.
2. Can perform basic calculations in vector calculus and their elementary applications.
3. Can perform basic calculations in complex analysis and their elementary applications.

Rubric

	Ideal Level	Standard Level	Unacceptable Level
Achievement 1	Can accurately make a deductive inference based on basic matters.	Can make a deductive inference based on basic matters.	Cannot make a deductive inference based on basic matters.
Achievement 2	Can fully perform basic calculations in vector calculus and their elementary applications.	Can perform basic calculations in vector calculus and their elementary applications.	Cannot perform basic calculations in vector calculus and their elementary applications.
Achievement 3	Can fully perform basic calculations in complex analysis and their elementary applications.	Can perform basic calculations in complex analysis and their elementary applications.	Cannot perform basic calculations in complex analysis and their elementary applications.

Assigned Department Objectives

Teaching Method

Outline	In this course, we will learn the basics of vector calculus and complex analysis based on the calculus and linear algebra learned so far.
Style	Classes will be taught in a lecture style, and there will also be practice and quizzes.
Notice	Instead of memorizing theorems and formulas individually, carefully follow the development of discussions and the proof of theorems given in each lecture, so that you can understand it yourself. In problem exercises, do not try to remember the steps to solve a problem, but rather try to solve it yourself based on basic knowledge and ideas including definitions. To do it, if necessary, review the content learned during the previous years. The schedule of the midterm exam may be changed. Students who miss 1/3 or more of classes will not be eligible for evaluation.

Characteristics of Class / Division in Learning

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

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Review and supplementary lesson on vector calculations	Can handle the basic matters of vector calculations that's necessary for future learning.
		2nd	Curves	Can handle curves using parameters.
		3rd	Curves	Can handle curves using the arc length parameter.
		4th	Line integrals	Can calculate and discuss based on the basic matters of line integrals.
		5th	Gradient	Can calculate and discuss based on the basic matters of the gradient vector.
		6th	Surfaces	Can handle surfaces using parameters.
		7th	Green's theorem	Can perform calculations and discussions related to Green's theorem.
		8th	Summary Midterm exam	
	4th Quarter	9th	Review and supplementary lesson on complex numbers	Can handle the basic matters of complex numbers that's necessary for future learning.
		10th	Complex function and its differentiation	Can calculate and discuss based on the basic matters of holomorphic function.
		11th	Elementary functions	Can handle elementary functions.
		12th	Complex integrals	Can calculate and discuss based on the basic matters of complex integrals.
		13th	Cauchy's integral theorem and Cauchy's integral formulas	Can perform calculations and discussions related to Cauchy's integral theorem and Cauchy's integral formulas.
		14th	Power series expansion	Can perform calculations and discussions related to power series expansion.
		15th	Residue theorem	Can perform calculations and discussions related to residue theorem.

		16th	Final exam	

Evaluation Method and Weight (%)

	Examinations	Practice / Quizzes	Attendance / Behavior	Total
Subtotal	40	30	30	100
Basic Proficiency	40	30	30	100
Specialized Proficiency	0	0	0	0
Cross Area Proficiency	0	0	0	0