Akashi College	Year	2023	Course Title	Mathematics Ⅰ A-1

Course Information

Course Code	5105	Course Category	General / Compulsory
Class Format	Lecture	Credits	School Credit: 2
Department	Mechanical Engineering	Student Grade	1st
Term	First Semester	Classes per Week	4
Textbook and/or Teaching Materials	Fundamental Mathematics (Dai Nihon Tosho)		
Instructor	TAKATA Isao		

Course Objectives

1) To understand numbers and equations, and be able to calculate them.
2) To understand Equation and inequality, and be able to solve them.
3) To understand and functions and graphs, and be able to use them.

Rubric

	Ideal Level	Standard Level	Unacceptable Level
1) Numbers and equations	Can understand numbers and equations, and be able to calculate them.	Can understand numbers and equations.	Can not understand numbers and equations.
2) Equation and inequality	Can understand Equation and inequality, and be able to solve them.	Can understand Equation and inequality.	Can not understand Equation and inequality.
3)Functions and graphs	Can understand and functions and graphs, and be able to use them.	Can understand and functions and graphs.	Can nt understand and functions and graphs.

Assigned Department Objectives

Teaching Method

Outline	The objective is to develop basic mathematical formulas and logical thinking skills and acquire the fundamentals of mathematics necessary in college.
Style	Students are asked to prepare for the class with video clips according to the syllabus. Students will be asked to study in groups during class to check their level of understanding. Bilingual classes may be offered.
Notice	Review your work before class. Do not leave anything you do not understand unanswered, but ask questions. Study independently by using problem collections. CBT will be given in one of the weeks. 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
1st Semester	1st Quarter	1st	Numbers and equations	Class Preparation. Also, can calculate addition, subtraction, and multiplication of integer expressions.
		2nd	Numbers and equations	Can use exponential laws and expansion formulas. Also, can perform simple factorizations.
		3rd	Numbers and equations	Can compute divisors of integers. Also, can factor higher order polynomials using the factor theorem.
		4th	Numbers and equations	Can divide fractional expressions. Also, can calculate addition, multiplication, and division of fractional expressions.
		5th	Numbers and equations	Can understand the meaning of real and absolute numbers. Also, can understand the phases of complex numbers and compute their addition, subtraction, multiplication, and division.
		6th	Equations and inequalities	Can understand the correspondence between complex numbers and the complex plane. Also, can solve quadratic equations by using solution formulas.
		7th	Equations and inequalities	The CBT test will be used to check for retention. Also, can understand the relationship between solutions and coefficients and can factor any quadratic equation.
		8th	Equations and inequalities	Can solve linear equations. Also, can solve fractional equations and irrational equations.
	2nd Quarter	9th	Equations and inequalities	Can understand identities and partial fractional decomposition. Also, can prove various equations.
		10th	Equations and inequalities	Can solve first order inequalities. Also, can solve quadratic inequalities.
		11th	Equations and inequalities	Can prove inequalities. Also, can understand sets and compute sets.
		12th	Equations and inequalities	Can determine the number of sets. Also, can determine the truth or falsity of a proposition.

		13th	Functions and graphs	Can state the inverse, reverse, and contrapositive of a proposition. Also, can draw graphs of quadratic functions.
		14th	Functions and graphs	The CBT test will be used to check for retention. Also, can find quadratic functions.
		15th	Functions and graphs	Review of the total. Also, can understand the relationship between quadratic functions and quadratic inequalities.
		16th	Exam	Confirmation of the studies.

Evaluation Method and Weight (%)

	Examination	Comprehension Test	Review Test	Assignments	Attendance points	Total
Subtotal	25	20	25	15	15	100
Basic Proficiency	25	20	25	15	15	100
Specialized Proficiency	0	0	0	0	0	0
Cross Area Proficiency	0	0	0	0	0	0