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| 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 | | Electrical and Computer 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 | | | | | | | |
| <input checked="" type="checkbox"/> Active Learning | | <input checked="" type="checkbox"/> Aided by ICT | | <input checked="" type="checkbox"/> Applicable to Remote Class | | <input type="checkbox"/> Instructor Professionally Experienced | |
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| 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. | | |

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| | | 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 |