

Akashi College		Year	2023		Course Title	Mathematics Ⅲ B-1	
Course Information							
Course Code		5306		Course Category		General / Compulsory	
Class Format		Lecture		Credits		School Credit: 1	
Department		Mechanical Engineering		Student Grade		3rd	
Term		First Semester		Classes per Week		2	
Textbook and/or Teaching Materials		新線形代数Ⅰ 高遠節夫ほか5名共著（大日本図書）					
Instructor		NAGAO Hidehito					
Course Objectives							
(1) Understand the definition and basic properties of linear transformation by matrix and learn its computational techniques. (2) Understand the definition of matrix eigenvalues and eigenvectors, and learn computational techniques for diagonal matrices.							
Rubric							
		Ideal Level		Standard Level		Unacceptable Level	
Achievement 1		Learn and can use basic computing techniques for matrices.		Understand the basic computing techniques for matrices.		Do not understand the basic computing techniques for matrices.	
Achievement 2		Learn and can use some advanced computational techniques for matrices and vectors.		Understand some advanced computational techniques for matrices and vectors.		Do not understand the more advanced computing techniques for column vectors.	
Assigned Department Objectives							
Teaching Method							
Outline		Students will learn the application of matrices as the basis of linear algebra.					
Style		Classes will be conducted through lectures and exercises, scheduled assignments and quizzes, etc.					
Notice		The following items are essential for taking this course. New Linear Algebra I (textbook above) Ch. 2: Matrices, Ch. 3: Matrices Students who miss 1/3 or more of classes will not be eligible for a passing grade.					
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	
Course Plan							
			Theme		Goals		
1st Semester	1st Quarter	1st	Linear transformation		Understand the definition of a linear transformation.		
		2nd	Linear transformation		Understand and can apply the nature of linear transformations.		
		3rd	Linear transformation		Understand and can calculate synthesis transformations.		
		4th	Linear transformation		Understand and can calculate reverse conversion.		
		5th	Linear transformation		Understand and can calculate the linear transformation representing the rotation.		
		6th	Linear transformation		Understand and can calculate the nature of orthogonal transformations.		
		7th	Summary		Review / development		
		8th	Exercise		Exercise		
	2nd Quarter	9th	Eigenvalues and their applications		Understand the definitions of eigenvalues and eigenvectors.		
		10th	Eigenvalues and their applications		Can calculate eigenvalues and eigenvectors.		
		11th	Eigenvalues and their applications		Understand diagonal matrices.		
		12th	Eigenvalues and their applications		Can calculate for diagonal matrices.		
		13th	Eigenvalues and their applications		Understand and can calculate the probability of diagonals.		
		14th	Eigenvalues and their applications		Understand and can calculate the diagonals of a symmetric matrix by an orthogonal matrix.		
		15th	Exercise		Exercise		
		16th	Exam				
Evaluation Method and Weight (%)							
		Exam		Task・Attitude・Presentation・Attendance etc		Total	
Subtotal		30		70		100	
Basic Proficiency		30		70		100	
Specialized Proficiency		0		0		0	
Cross Area Proficiency		0		0		0	