Course Information-Linear Algebra

- Subject Outline
- Test Information

summary

The first part of this course is divided into three parts. The first part explains the basic concepts of simultaneous linear equations and matrices, and the second part deals with algebraic structures called vector spaces and linear transformations.Part 3 describes some of the tools of linear algebra that are used in many fields.
Linear algebra gives us the logic to organize our knowledge.But this logical thinking ability should not be simply memorized, but gained during training to understand step by step.This course aims to develop the ability to explore and apply the basic concepts of linear algebra along with the development of such logical thinking skills.

Medium name

- Multimedia lesson

Service schedule

- Additional updates every Monday during the semester.

lecture content

- Multimedia lesson

Count	Lecture Topic	The details	Textbook Pages	Professor in charge
1	Linear system of equations	1.1 Linear System Equation 1.2 Elimination Method 1.3 Application of System Equation	3-17	Son Jin-gon

Count	Lecture Topic	The details	Textbook Pages	Professor in charge
2	Matrix and Gaussian Elimination	2.1 Matrices and Linear Systems Equation 2.2 Basic Row Operations 2.3 Gaussian Elimination 2.4 Gaussian-Jordan Elimination	19-40	Son Jin-gon
3	Matrix operation	3.1 Basic Concepts 3.2 Sum of Matrices 3.3 Scalar Multiplication of Matrices 3.4 Product of Matrix 3.5 Transpose of Matrix	43-71	Son Jin-gon
4	Inverse	4.1 Regular and Inverse Matrices 4.2 How to Find Inverse Matrices 4.3 Linear and Equations	73-100	Son Jin-gon
5	Determinant	5.1 Determinants 5.2 Properties of Determinants 5.3 Matrix Operations and Determinants	103-130	Son Jin-gon
6	Cramer Formula and Inverse Matrix	6.1 Cramer Formula 6.2 Determinants and Inverses 6.3 Complexity Analysis	133-149	Son Jin-gon
7	Plane vector and space vector	7.1 Planar vectors 7.2 R^3 space vector 7.3 R^nspatial vector 7.4 Inner product of a vector 7.5 Cross product of a vector	153-192	Son Jin-gon
8	Vector space	8.1 Vector and Vector Space 8.2 Subspace	195-215	Son Jin-gon
9	Basis and Dimension	9.1 First Coupling 9.2 First Independence of Vectors 9.3 Basis and Dimension of Vector Space	217-240	Son Jin-gon

Count	Lecture Topic	The details	Textbook Pages	Professor in charge
10	Linear transformation	10.1 Linear transformation 10.2 Fundamental properties of linear transformation 10.3 Phase and nucleus	243-270	Son Jin-gon
11	Linear transformation and matrix	11.1 Coordinate System 11.2 Matrix Representation of Linear Transformations	273-291	Son Jin-gon
12	Eigenvalues and Eigenvectors	12.1 Eigenvalues and Eigenvectors 12.2 Characteristic Equations	295-311	Son Jin-gon
13	Diagonalization of Matrix	13.1 Diagonalization possibility of matrix 13.2 Diagonalization of matrix 13.3 Application: Fibonacci Sequence	313-331	Son Jin-gon
14	Orthogonal Vector	14.1 Internal Space and Orthogonal Vectors 14.2 Orthogonal Matrices 14.3 Orthogonal Transformations	335-356	Son Jin-gon
15	Orthogonalization Process and Least Squares Method	15.1 Orthogonal Basis 15.2 Gram-Schmidt process 15.3 Orthogonal Vectors 15.4 Least Squares Method	361-386	Son Jin-gon

- Attendance class

division	Lecture Topic	The details	Textbook Pages	Lecture
1	Matrix and Gaussian Elimination	-Matrix and linear system of equations-basic row operation-Gaussian elimination-Gaussian-Jordan elimination	Chapter 2	lecture
2	Matrix operation	-Basic concepts-sum, scalar times, product-transpose of matrix	Chapter 3	lecture

division	Lecture Topic	The details	Textbook Pages	Lecture
3	Inverse	-Regular matrix-How to find inverse matrix-Linear system and inverse matrix	Chapter 4	lecture
4	Determinant	-Definition of determinants-Properties of determinants-Matrix operations and determinants	Chapter 5	lecture
5	Vector space	-Properties of space vectors (Theorem 7.1, 7.2, 7.3)-Vector space-Subspace	Chapter 7, Chapter 8	lecture
6	review	-Use this session for the part of lecture that needs additional lecture from lecture 1 to 5		lecture

Evaluation method and question range

Evaluation Type	Assessment Methods	Scope of question	Remarks
Attendance class	Short answer	to be announced	

Note: The above information is subject to change, so please refer to the academic bulletin.

references

- No content

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