COURSE CONTRACT

I. COURSE IDENTITY

Study Program	: Computer Science
Course	: Linear Algebra
Code	: KOMS120301
Semester	: III
SKS	: 3 (Theory)
Prerequisite	: Basic Mathematics
Lecturer	: Ni Luh Dewi Sintiari, Ph.D.

II. COURSE DESCRIPTION

Linear Algebra course discusses the basics of Linear Algebra related to Computer Science and can be implemented in the field of Computer Science. The material discussed in this course includes the concepts of matrices and vectors, systems of linear equations, determinants and inverses of square matrices, Euclid's vector space, basis and dimensions of vector spaces, linear transformations, eigenvalues and eigenvectors, inner product space, diagonalization, decomposition. singular values, and the application of linear algebra.

III. LEARNING OUTCOMES

1. Attitude
   - S1. Pious of the God Almighty and able to show a religious attitude.
   - S2. Upholding human values in carrying out duties based on religion, morals, and ethics.
   - S8. Internalize academic values, norms and ethics.
   - S9. Demonstrate an attitude of responsibility for work in their field of expertise independently.
   - S10. Internalize the spirit of independence, struggle, and entrepreneurship.

2. Knowledge
   - P1. Able to understand and master the basic concepts of computer science in general such as mathematics, algorithms, programming, and databases.
   - P2. Able to understand and master the concept of software development, starting from requirements analysis, design, development, and implementation of software.

3. General Skill
   - KU1. Able to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and
   - KU2. Able to demonstrate independent, quality, and measurable performance.

KU3.   Able to study the implications of the development or implementation of science and technology that pays attention to and applies humanities values in accordance with the field of computer science based on scientific principles, procedures and ethics in order to produce solutions, ideas, designs or art criticism.

4. Spesific Skill
    KK1.   Skilled in analyzing requirements, designing, and implementing designs, and testing software.

IV.   LEARNING METHODS

The learning method used is the lecture method, cooperative learning, presentation, and group work.

V.   REFERENCES

1. Elementary Linear Algebra (Applications Version) Ed. 11, Howard Anton & Chris Rorres
2. Slide Kuliah Aljabar Linier, oleh Rinaldi Munir, Institut Teknologi Bandung.
3. Lecture slides Linear Algebra, by Dewi Sintiari

VI.   RULES

ATTENDANCE

1. Attendance rules follow the Undiksha Study Guidelines. In general, each student must attend at least 75% of the total learning meetings held. If the total attendance is less than 75%, then they are not allowed to attend the final exam.
2. Each student is required to attend each course with a maximum arrival time tolerance of 15 minutes from the start of the lecture. If there are students who attend the lecture after 15 minutes late, the student will be given a sanction that has been mutually agreed upon.
3. Students who are unable to attend are required to provide reasons via text message or letter.
4. If the lecturer is late for the lecture, the student must contact the lecturer in question via a polite short message or call directly by the class coordinator or representative. However, if the lecturer in question has been contacted and does not provide an answer, then after 30 minutes (maximum 30 minutes) from the start of the lecture the lecturer is not present, the student can leave the class in an orderly manner.

ASSIGNMENTS/EXAMS

1. Each student must do all assignments properly and according to the provisions.
2. Students are required to be present at the time of the UTS and UAS implementation schedules. Exceptions are given to students who are sick by informing the lecturer before the implementation of the UTS or UAS, and must attach a doctor's certificate.

The student concerned is allowed to do a follow-up UTS or UAS with several other considerations from the lecturer.

3. Students are required to dress neatly and politely in accordance with Undiksha provisions during face-to-face lectures (online and offline).

Other matters follow the rules in the Undiksha Study Guidelines can be found at: (https://cdn.undiksha.ac.id/wp-content/uploads/2017/11/27171529/Pedoman-Studi-2017.pdf)

VII. ASSESSMENT GUIDELINES

1. Assessment of process, which consists of:

    1. Attitude assessment (covering class attendance, attitude during lectures, participation during learning, quizzes, and participation in working on assignments) (weight 20%).
    2. Assessment of tasks according to the criteria of each assignment (weight 40%).

2. Assessment of product, which consists of:

    1. Middle assesment (weight15%)
    2. Final assesment

The final score is calculated based on the average of all assessments. It is possible to get additional assignments with the aim of improving grades during the semester, at the discretion of the lecturer.

The assessment reference uses a scale of 0-4, with details as follows.

Grade range	Grade scale	Grade in letter
>= 85	4,00	A
81 – 84	3,70	A-
77 – 78	3,30	B+
73 – 76	3,00	B
69 – 72	2,70	B-
65 – 68	2,30	C+
61 – 64	2,00	C
40 – 60	1,00	D
0 – 39	0,00	E

VIII. LEARNING MATERIALS AND SCHEDULE

Meeting	Study Materials/Learning Materials
1	Introduction to Linear Algebra
2	Matrices
3	System of Linear Equations
4	Gaussian Elimination dan Gauss-Jordan Elimination

5	Determinants
6	Inverses
7	Vectors
8	MIDTERM EVALUATION
9	Vector Space
10	Basis and Dimension of Vector Space
11	Basis Transformations, Column/Row/Null spaces
12	Linear Transformation
13	Eigenvalues and Eigenvectors
14	Inner Product Spcae
15	Singular Value Decomposition
16	FINAL EVALUATION

Lecturer,   IKI Class Coordinator

Ni Luh Dewi Sintiari, Ph.D.   ---
NIR. 1992050820220102014   NIM. ---

Approved by,
Study Program Coordinator,

A.A. Gede Yudhi Paramartha, S.Kom., M.Kom.
NIP. 198806222015041003