

MODULE HANDBOOK

< Aljabar Linier Elementer >

Elementary Linear Algebra

Nama Mata Kuliah	Aljabar Linier Elementer <i>Elementary Linear Algebra</i>								
Prodi	Sarjana								
Kode Mata Kuliah	SM234203								
Semester	2								
Penanggung Jawab	Muhammad Syifa'ul Mufid, S.Si.,M.Si.,D.Phil.								
Dosen Pengampu	<ul style="list-style-type: none">• Muhammad Syifa'ul Mufid, S.Si.,M.Si.,D.Phil.• Drs. I Gusti Ngurah Rai Usadha, M.Si.• Prof. Dr. Drs. Chairul Imron, MI.Komp.• Drs. Komar Baihaqi, M.Si								
Bahasa	Bahasa Indonesia								
Metode Pembelajaran	Metode SCL								
Beban kerja	1. Tatap Muka: 3 x 50 = 150 menit per minggu 2. Pembelajaran terstruktur : 3 x 60 = 180 menit per minggu 3. Pembelajaran mandiri: 3 x 60 = 180 menit per minggu.								
Bobot SKS	3 sks								
Syarat mengikuti Ujian	Seorang mahasiswa harus menghadiri setidaknya 80% perkuliahan untuk dapat mengikuti ujian.								
Mata Kuliah Prasyarat	Logika								
Capaian Pembelajaran Mata Kuliah (CPMK)	<table border="1"><tr><td>CPMK-1</td><td>Mahasiswa memahami dasar-dasar matriks dan operasinya <i>Students understand the basics of matrices and their operations</i></td></tr><tr><td>CPMK-2</td><td>Mahasiswa mampu menerapkan metode untuk menyelesaikan sistem persamaan linier (SPL) <i>Students are able to apply methods to solve systems of linear equations (SPL)</i></td></tr><tr><td>CPMK-3</td><td>Mahasiswa memahami konsep-konsep di ruang vektor terutama ruang vektor Euclid <i>Students understand concepts in vector spaces, especially Euclidean vector spaces</i></td></tr><tr><td>CPMK-4</td><td>Mahasiswa mampu menentukan nilai eigen dan vektor eigen dari suatu matriks persegi <i>Students are able to determine the eigenvalues and eigenvectors of a square matrix</i></td></tr></table>	CPMK-1	Mahasiswa memahami dasar-dasar matriks dan operasinya <i>Students understand the basics of matrices and their operations</i>	CPMK-2	Mahasiswa mampu menerapkan metode untuk menyelesaikan sistem persamaan linier (SPL) <i>Students are able to apply methods to solve systems of linear equations (SPL)</i>	CPMK-3	Mahasiswa memahami konsep-konsep di ruang vektor terutama ruang vektor Euclid <i>Students understand concepts in vector spaces, especially Euclidean vector spaces</i>	CPMK-4	Mahasiswa mampu menentukan nilai eigen dan vektor eigen dari suatu matriks persegi <i>Students are able to determine the eigenvalues and eigenvectors of a square matrix</i>
CPMK-1	Mahasiswa memahami dasar-dasar matriks dan operasinya <i>Students understand the basics of matrices and their operations</i>								
CPMK-2	Mahasiswa mampu menerapkan metode untuk menyelesaikan sistem persamaan linier (SPL) <i>Students are able to apply methods to solve systems of linear equations (SPL)</i>								
CPMK-3	Mahasiswa memahami konsep-konsep di ruang vektor terutama ruang vektor Euclid <i>Students understand concepts in vector spaces, especially Euclidean vector spaces</i>								
CPMK-4	Mahasiswa mampu menentukan nilai eigen dan vektor eigen dari suatu matriks persegi <i>Students are able to determine the eigenvalues and eigenvectors of a square matrix</i>								

	<p>CPMK-5 Mahasiswa memahami teori hasil kali dalam pada ruang vektor <i>Students understand inner product theory in vector spaces</i></p> <p>CPMK-6 Mahasiswa mampu menerapkan metode diagonalisasi matriks <i>Students are able to apply the matrix diagonalization method</i></p>																												
	<p>Matrik CPL – CPMK</p> <table border="1"> <thead> <tr> <th>CPMK</th> <th>CPL-5</th> <th>CPL-7</th> <th>CPL-9</th> </tr> </thead> <tbody> <tr> <td>CPMK-1</td> <td>✓</td> <td></td> <td>✓</td> </tr> <tr> <td>CPMK-2</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>CPMK-3</td> <td>✓</td> <td></td> <td>✓</td> </tr> <tr> <td>CPMK-4</td> <td>✓</td> <td></td> <td>✓</td> </tr> <tr> <td>CPMK-5</td> <td></td> <td>✓</td> <td>✓</td> </tr> <tr> <td>CPMK-6</td> <td>✓</td> <td>✓</td> <td></td> </tr> </tbody> </table>	CPMK	CPL-5	CPL-7	CPL-9	CPMK-1	✓		✓	CPMK-2		✓	✓	CPMK-3	✓		✓	CPMK-4	✓		✓	CPMK-5		✓	✓	CPMK-6	✓	✓	
CPMK	CPL-5	CPL-7	CPL-9																										
CPMK-1	✓		✓																										
CPMK-2		✓	✓																										
CPMK-3	✓		✓																										
CPMK-4	✓		✓																										
CPMK-5		✓	✓																										
CPMK-6	✓	✓																											
Deskripsi Singkat Mata Kuliah	<p>Topik bahasan mata kuliah Aljabar Linier Elementer meliputi sistem persamaan linear, aljabar matriks, matriks invers, determinan dan ruang vektor real dimensi-n beserta operasinya, basis, ruang baris, ruang kolom, ruang null, rank dan nulitas pada matriks, transformasi matriks, nilai eigen, vektor eigen, hasil kali dalam dan diagonalisasi matriks</p> <p><i>Topics discussed in the Elementary Linear Algebra course include systems of linear equations, matrix algebra, inverse matrices, determinants and n-dimensional real vector spaces and their operations, bases, row spaces, column spaces, null spaces, rank and nullity in matrices, matrix transformations, values eigen, eigenvector, inner product and matrix diagonalization</i></p>																												
Bahan Kajian: Materi Pembelajaran	<ul style="list-style-type: none"> ● Sistem persamaan linear / Systems of linear equations ● Determinan / Determinant ● Ruang vektor Euclid / Euclidean vector space ● Nilai eigen I dan vektor eigen / Eigenvalues I and eigenvectors ● Hasil kali dalam / Inner product ● Diaogonalisasi matriks / Diaogonalization of matrices 																												
Bobot Penilaian	<ul style="list-style-type: none"> ● Assignment (20%) ● Quiz (20%) ● Mid-term Examination (30%) ● Final Examination (30%) 																												
Media Pembelajaran	LCD, whiteboard, websites (myITS Classroom), zoom.																												
Pustaka	<p>Utama :</p> <p>Howard Anton and Chris Rorrers, "Elementary Linear Algebra, Twelfth Edition", Wiley, (2019).</p> <p>Pendukung:</p> <ol style="list-style-type: none"> 1. C.D. Meyer, "Matrix Analysis and Applied Linear Algebra", SIAM, (2000) 																												

	<ol style="list-style-type: none">2. Steven J. Leon, "Linear Algebra with Applications", Seventh Edition, Pearson Prentice Hall, (2006).3. Stephen Andrilli and David Hecker, "Elementary Linear Algebra, Fourth Edition", Elsevier, (2010)4. Subiono., "Ajabar Linier", Jurusan Matematika FMIPA-ITS, 2021
--	---