



KEMENTERIAN RISET, TEKNOLOGI, DAN PENDIDIKAN TINGGI
UNIVERSITAS SRIWIJAYA
FAKULTAS TEKNIK-PRODI MAGISTER TEKNIK MESIN
 Jalan Srijaya Negara, Bukit Besar, Palembang 30139
 Telpon (0711)-580272; Faximile (0711) 580272
 E-mail: s2teknikmesin@ft.unsri.ac.id

KODE DOKUMEN
AQA TM-
MTM11/2014

RENCANA PEMBELAJARAN SEMESTER (RPS)

MATA KULIAH (MK)	KODE	BKU	BOBOT (SKS)		SEMESTER	TANGGAL PENYUSUNAN
MATEMATIKA TERAPAN DAN PEMROGRAMAN	TEK 50114	BKU MAGISTER TM		3	1	25 Februari 2019
OTORISASI Gugus Kendali Mutu, Jurusan Teknik Mesin Unsri	PENGEMBANG RPS Prof. Dr. Ir. Kaprawi Sahim, DEA. Prof. Ir. Riman Sipahutar, M.Sc. Ph.D. Dr. Dewi Puspitasari, S.T. M.T. Tidak Ada Dosen Anggota		KOORDINATOR MK Prof. Dr. Ir. Kaprawi Sahim, DEA.		KETUA PRODI Prof. Ir. Riman Sipahutar, M.Sc., Ph.D	
CAPAIAN PEMBELAJARAN (CP)	CAPAIAN PEMBELAJARAN LULUSAN (CPL)-PRODI-PROGRAM LEARNING OUTCOMES					
	Mampu menerapkan pengetahuan matematika, ilmu sains dasar serta dasardasar ilmu teknik, untuk mengidentifikasi, merumuskan, dan menyelesaikan bidang teknik mesin, Mampu merancang, melaksanakan eksperimen, menganalisis serta menafsirkan data yang diperoleh,, Mampu memanfaatkan metode, ketrampilan, dan peralatan teknik modern yang diperlukan untuk pekerjaan teknik,, Mampu berkomunikasi secara efektif, tidak hanya dengan sesama sarjana teknik tetapi juga dengan masyarakat luas, termasuk kemahiran dalam berbahasa asing (diutamakan bahasa Inggris),, Mampu bekerja secara efektif baik secara individual maupun dalam tim multidisiplin atau multi-budaya,, Memahami masalah kontemporer					
	CAPAIAN PEMBELAJARAN MATA KULIAH (CPMK)-COURSES LEARNING OUTCOMES					
	CPMK: PENGETAHUAN KOGNITIF (COGNITIVE KNOWLEDGE): Mahasiswa mam mengingat, memahami, mengaplikasikan, menganalisa, mengevaluasi permasalahan bidang keteknikan menggunakan computer dengan metoda analisa numerik.; PENGETAHUAN PSIKOMOTORIK (PSYCOMOTORIC KNOWLEDGE): - PENGETAHUAN AFEKTIF (AFFECTIVE KNOWLEDGE): - MATRIKS PENGETAHUAN KOGNITIF: PENGETAHUAN FAKTUAL: (Remember (C1), Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5), Created (C6); PENGETAHUAN KONSEPTUAL:(Remember (C1), Understand (C2), Apply (C3), Analyze (C4), Evaluate (C5); PENGETAHUAN PROSEDURAL: (Remember (C1), Understand (C2), Apply (C3), Analyze (C4); PENGETAHUAN META KOGNITIF: (Remember (C1), Understand (C2) KEMAMPUAN SUB-CPMK (LESSON LEARNING OUTCOMES): Mahasiswa mampu memahami aplikasi analisa numerik dalam memecahkan persoalan-persoalan sedernaha dalam bidang ilmu teknik mesin KONTEKS KEMAMPUAN: Memecahkan permasalahan sederhana dalam bidang keteknikan menggunakan analisa numerik sebagai alat bantu					
DESKRIPSI SINGKAT MK	Mahasiswa memahami aplikasi analisa numerik dalam memecahkan persoalan-persoalan sedernaha dalam bidang ilmu teknik mesin					



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BAHAN KAJIAN/ MATERI PEMBELAJARAN	1 Mathematical Preliminaries and Error Analysis 1.1 Review of Calculus 1.2 Round-off Errors and Computer Arithmetic 1.3 Algorithms and Convergence 1.4 Numerical Software 2 Solutions of Equations in One Variable 2.1 The Bisection Method 2.2 Fixed-Point Iteration 2.3 Newton's Method and Its Extensions 2.4 Error Analysis for Iterative Methods 2.5 Accelerating Convergence 2.6 Zeros of Polynomials and Müller's Method 2.7 Survey of Methods and Software 3 Interpolation and Polynomial Approximation 3.1 Interpolation and the Lagrange Polynomial 3.2 Data Approximation and Neville's Method 3.3 Divided Differences 3.4 Hermite Interpolation 3.5 Cubic Spline Interpolation 3.6 Parametric Curves 3.7 Survey of Methods and Software 4 Numerical Differentiation and Integration 4.1 Numerical Differentiation 4.2 Richardson's Extrapolation 4.3 Elements of Numerical Integration 4.4 Composite Numerical Integration 4.5 Romberg Integration 4.6 Adaptive Quadrature Methods 4.7 Gaussian Quadrature				



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	4.8 Multiple Integrals 4.9 Improper Integrals 4.10 Survey of Methods and Software 5 Initial-Value Problems for Ordinary Differential Equations 5.1 The Elementary Theory of Initial-Value Problems 5.2 Euler's Method 5.3 Higher-Order Taylor Methods 5.4 Runge-Kutta Methods 282 5.5 Error Control and the Runge-kutta-Fehlberg Method 5.6 Multistep Methods 5.7 Variable Step-Size Multistep Methods 5.8 Extrapolation Methods 5.9 Higher-Order Equations and Systems of Differential Equations 5.10 Stability 5.11 Stiff Differential Equations 5.12 Survey of Methods and Software 6 Direct Methods for Solving Linear Systems 6.1 Linear Systems of Equations 6.2 Pivoting Strategies 6.3 Linear Algebra and Matrix Inversion 6.4 The Determinant of a Matrix 6.5 Matrix Factorization 6.6 Special Types of Matrices 6.7 Survey of Methods and Software 7 Iterative Techniques in Matrix Algebra 7.1 Norms of Vectors and Matrices 7.2 Eigenvalues and Eigenvectors 7.3 The Jacobi and Gauss-Siedel Iterative Techniques					



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	7.4 Relaxation Techniques for Solving Linear Systems 7.5 Error Bounds and Iterative Refinement 7.6 The Conjugate Gradient Method 7.7 Survey of Methods and Software 8 Approximation Theory 8.1 Discrete Least Squares Approximation 8.2 Orthogonal Polynomials and Least Squares Approximation 8.3 Chebyshev Polynomials and Economization of Power Series 8.4 Rational Function Approximation 8.5 Trigonometric Polynomial Approximation 8.6 Fast Fourier Transforms 8.7 Survey of Methods and Software 9 Approximating Eigenvalues 9.1 Linear Algebra and Eigenvalues 9.2 Orthogonal Matrices and Similarity Transformations 9.3 The Power Method 9.4 Householder's Method 9.5 The QR Algorithm 9.6 Singular Value Decomposition 9.7 Survey of Methods and Software 10 Numerical Solutions of Nonlinear Systems of Equations 10.1 Fixed Points for Functions of Several Variables 10.2 Newton's Method 10.3 Quasi-Newton Methods 10.4 Steepest Descent Techniques 10.5 Homotopy and Continuation Methods 10.6 Survey of Methods and Software 11 Boundary-Value Problems for Ordinary Differential					



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	Equations 11.1 The Linear Shooting Method 11.2 The Shooting Method for Nonlinear Problems 11.3 Finite-Difference Methods for Linear Problems 11.4 Finite-Difference Methods for Nonlinear Problems 11.5 The Rayleigh-Ritz Method 11.6 Survey of Methods and Software 12 Numerical Solutions to Partial Differential Equations 12.1 Elliptic Partial Differential Equations 12.2 Parabolic Partial Differential Equations 12.3 Hyperbolic Partial Differential Equations 12.4 An Introduction to the Finite-Element Method 12.5 Survey of Methods and Software					
DAFTAR PUSTAKA	1. Richard L. Burden and J. Douglas Faires, Numerical Analysis, Ninth Edition, Brooks/Cole, Cengage Learning, 2011 2. Applied numerical methods with MATLAB for engineers and scientists / Steven C. Chapra. 3rd ed. McGraw-Hill 2012 3. Singiresu S. Rao, Applied Numerical Methods for Engineers and Scientists Pearson, 2002					
DOSEN PENGAMPU	Prof. Dr. Ir. Kaprawi Sahim, DEA., Prof. Ir. Riman Sipahutar, M.Sc. Ph.D., Dr. Dewi Puspitasari, S.T. M.T., Tidak Ada Dosen Anggota					
MATAKULIAH PRA-SYARAT	Tidak Ada					

SATUAN ACARA PERKULIAHAN (SAP)						
No.	Sub-CPMK (Kemampuan akhir tiap tahapan belajar)	Kemampuan akhir tiap pertemuan (Indikator Penilaian)	Bahan Kajian/ Materi Pembelajaran	Bentuk, Metode Pembelajaran & Penugasan + Waktu (min)	Kriteria dan Bentuk Penilaian	Bobot Penilaian (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	Mahasiswa memahami Mathematical Preliminaries and Error Analysis dan Solutions of Equations in One Variable	Mahasiswa mampu memahami Mathematical Preliminaries and Error Analysis dan Solutions of Equations in One Variable	1 Mathematical Preliminaries and Error Analysis 1.1 Review of Calculus 1.2 Round-off Errors and Computer Arithmetic 1.3 Algorithms and Convergence 1.4 Numerical Software 2 Solutions of Equations in One Variable 2.1 The Bisection Method 2.2 Fixed-Point Iteration 2.3 Newton's Method and Its Extensions 2.4 Error Analysis for Iterative Methods 2.5 Accelerating Convergence 2.6 Zeros of Polynomials and Müller's Method 2.7 Survey of Methods and Software	Presentasi dan Diskusi 1. Mathematical Preliminaries and Error Analysis 1.1 Review of Calculus 0:15:00 1.2 Round-off Errors and Computer Arithmetic 1.3 Algorithms and Convergence 1.4 Numerical Software 2 Solutions of Equations in One Variable 2.1 The Bisection Method 2.2 Fixed-Point Iteration 2.3 Newton's Method and Its Extensions 2.4 Error Analysis 2:15:00 Diskusi dan Tanya Jawab 0:15:00 1.Laptop 2.LCD-projector 3.Wi-fi internet connection 4.white Board	-	
2.	Mahasiswa memahami Interpolasi dan Pendekatan Polynomial	Mahasiswa mampu memahami Interpolasi dan Pendekatan Polynomial	3. Interpolation and Polynomial Approximation 3.1 Interpolation and the Lagrange Polynomial 3.2 Data Approximation and Neville's Method 3.3 Divided Differences 3.4 Hermite Interpolation 3.5 Cubic Spline Interpolation 3.6 Parametric Curves 3.7 Survey of Methods and Software	Presentasi dan Diskusi 3. Interpolation and Polynomial Approximation 3.1 Interpolation and the Lagrange Polynomial 0:15:00 3.2 Data Approximation and Neville's Method 3.3 Divided Differences 3.4 Hermite Interpolation 3.5 Cubic Spline Interpolation 3.6 Parametric Curves 3.7 Survey of Methods and Software 2:15:00 Diskusi dan Tanya jawab 0:15:00 1. Laptop 2. Wi-fi internet connection 3. LCD-Projector	-	

SATUAN ACARA PERKULIAHAN (SAP)						
No.	Sub-CPMK (Kemampuan akhir tiap tahapan belajar)	Kemampuan akhir tiap pertemuan (Indikator Penilaian)	Bahan Kajian/ Materi Pembelajaran	Bentuk, Metode Pembelajaran & Penugasan + Waktu (min)	Kriteria dan Bentuk Penilaian	Bobot Penilaian (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
3.	Mahasiswa memahami Diferensiasi Numerik dan Integrasi	Mahasiswa mampu memahami Diferensiasi Numerik dan Integrasi	4. Numerical Differentiation and Integration 4.1 Numerical Differentiation 4.2 Richardson's Extrapolation 4.3 Elements of Numerical Integration 4.4 Composite Numerical Integration 4.5 Romberg Integration	4. White Board Presentasi dan Diskusi 4. Numerical Differentiation and Integration 4.1 Numerical Differentiation 0:15:00 4.2 Richardson's Extrapolation 4.3 Elements of Numerical Integration 4.4 Composite Numerical Integration 4.5 Romberg Integration 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi Internet connection 3.LCD-projector 4.White Board	-	
4.	Mahasiswa memahami Quadrature Methods, Gaussian Quadrature, Multiple Integrals dan Improper Integrals	Mahasiswa mampu memahami Quadrature Methods, Gaussian Quadrature, Multiple Integrals dan Improper Integrals	4.6 Adaptive Quadrature Methods 4.7 Gaussian Quadrature 4.8 Multiple Integrals 4.9 Improper Integrals 4.10 Survey of Methods and Software	Presentasi dan Diskusi 4.6 Adaptive Quadrature Methods 0:15:00 4.7 Gaussian Quadrature 4.8 Multiple Integrals 4.9 Improper Integrals 4.10 Survey of Methods and Software 2:15:11 Diskusi dan Tanya jawab 0:15:00 1.Laptop 2.Wi-fi Internet Connection 3.LCD-Projector 4.White Board	-	
5.	Mahasiswa memahami masalah nilai awal untuk Persamaan Diferensial, Metode Euler's ,Metode Higher-Order Taylo, Metode Runge-Kutta dan Kontrol Kesalahan dan Metode Runge-kutta-Fehlberg	Mahasiswa mampu memahami masalah nilai awal untuk Persamaan Diferensial, Metode Euler's ,Metode Higher-Order Taylo, Metode Runge-Kutta dan Kontrol Kesalahan dan Metode Runge-kutta-Fehlberg	5. Initial-Value Problems for Ordinary Differential Equations 5.1 The Elementary Theory of Initial-Value Problems 5.2 Euler's Method 5.3 Higher-Order Taylor Methods 5.4 Runge-Kutta Methods 5.5 Error Control and the Runge-kutta-Fehlberg Method	Presentasi Dan Diskusi 5. Initial-Value Problems for Ordinary Differential Equations 0:15:00 5.1 The Elementary Theory of Initial-Value Problems 5.2 Euler's Method 5.3 Higher-Order Taylor Methods 5.4 Runge-Kutta Methods 5.5 Error Control and the Runge-kutta-Fehlberg Method	-	

SATUAN ACARA PERKULIAHAN (SAP)						
No.	Sub-CPMK (Kemampuan akhir tiap tahapan belajar)	Kemampuan akhir tiap pertemuan (Indikator Penilaian)	Bahan Kajian/ Materi Pembelajaran	Bentuk, Metode Pembelajaran & Penugasan + Waktu (min)	Kriteria dan Bentuk Penilaian	Bobot Penilaian (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
				2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board		
6.	Mahasiswa memahami metode multistep, metode variable step-size multistep, metode extrapolation dan persamaan defresial kaku	Mahasiswa mampu memahami metode multistep, metode variable step-size multistep, metode extrapolation dan persamaan defresial kaku	5.6 Multistep Methods 5.7 Variable Step-Size Multistep Methods 5.8 Extrapolation Methods 5.9 Higher-Order Equations and Systems of Differential Equations 5.10 Stability 5.11 Stiff Differential Equations 5.12 Survey of Methods and Software	Presentasi dan Diskusi 5.6 Multistep Methods 0:15:00 5.7 Variable Step-Size Multistep Methods 5.8 Extrapolation Methods 5.9 Higher-Order Equations and Systems of Differential Equations 5.10 Stability 5.11 Stiff Differential Equations 5.12 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board	-	
7.	Mahasiswa memahami metode langsung untuk memecakan sistem linear	Mahasiswa mampu memahami metode langsung untuk memecakan sistem linear	6. Direct Methods for Solving Linear Systems 6.1 Linear Systems of Equations 6.2 Pivoting Strategies 6.3 Linear Algebra and Matrix Inversion 6.4 The Determinant of a Matrix 6.5 Matrix Factorization 6.6 Special Types of Matrices 6.7 Survey of Methods and Software	Presentasi dan diskusi 6. Direct Methods for Solving Linear Systems 0:15:00 6.1 Linear Systems of Equations 6.2 Pivoting Strategies 6.3 Linear Algebra and Matrix Inversion 6.4 The Determinant of a Matrix 6.5 Matrix Factorization 6.6 Special Types of Matrices 6.7 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection	-	

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
				3.LCD-projector 4.White Board		
8.	Mahasiswa memahami teknik iteratif dalam aljabar matrik	Mahasiswa mampu memahami teknik iteratif dalam aljabar matrik	7. Iterative Techniques in Matrix Algebra 7.1 Norms of Vectors and Matrices 7.2 Eigenvalues and Eigenvectors 7.3 The Jacobi and Gauss-Siedel Iterative Techniques	Presentasi dan diskusi 7. Iterative Techniques in Matrix Algebra 0:15:00 7.1 Norms of Vectors and Matrices 7.2 Eigenvalues and Eigenvectors 7.3 The Jacobi and Gauss-Siedel Iterative Techniques 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board	-	
9.	Mahasiswa memahami teknik relaksasi untuk memecakan persamaan linear dan metode gradien konjugasi	Mahasiswa mampu memahami teknik relaksasi untuk memecakan persamaan linear dan metode gradien konjugasi	7.4 Relaxation Techniques for Solving Linear Systems 7.5 Error Bounds and Iterative Refinement 7.6 The Conjugate Gradient Method 7.7 Survey of Methods and Software	Presentasi dan diskusi 7.4 Relaxation Techniques for Solving Linear Systems 0:15:00 7.5 Error Bounds and Iterative Refinement 7.6 The Conjugate Gradient Method 7.7 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board	-	
10.	Mahasiswa memahami teori aproksimasi,pendekatan kuadrat terpisa, polinomial orthogonal, polinomial chebyshev dan polinomial trigonometrik	Mahasiswa mampu memahami teori aproksimasi,pendekatan kuadrat terpisa, polinomial orthogonal, polinomial chebyshev dan polinomial trigonometrik	8. Approximation Theory 8.1 Discrete Least Squares Approximation 8.2 Orthogonal Polynomials and Least Squares Approximation 8.3 Chebyshev Polynomials and Economization of Power Series 8.4 Rational Function Approximation 8.5 Trigonometric Polynomial	Presentasi dan diskusi 8. Approximation Theory 0:15:00 8.1 Discrete Least Squares Approximation 8.2 Orthogonal Polynomials and Least Squares Approximation 8.3 Chebyshev Polynomials and Economization of Power Series 8.4 Rational Function Approximation	-	

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(1)	(2)	(3)	(4)	(5)	(6)	(7)
			Approximation 8.6 Fast Fourier Transforms 8.7 Survey of Methods and Software	8.5 Trigonometric Polynomial Approximation 8.6 Fast Fourier Transforms 8.7 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board		
11.	Mahasiswa memahami approximating eigenvalues, aljabar linear dan eigenvalues, orthogonal matrices and similarity transformations, metode kekuatan, metode householder's, algoritma QR dan dekomposisi nilai singular	Mahasiswa mampu memahami approximating eigenvalues, aljabar linear dan eigenvalues, orthogonal matrices and similarity transformations, metode kekuatan, metode householder's, algoritma QR dan dekomposisi nilai singular	9. Approximating Eigenvalues 9.1 Linear Algebra and Eigenvalues 9.2 Orthogonal Matrices and Similarity Transformations 9.3 The Power Method 9.4 Householder's Method 9.5 The QR Algorithm 9.6 Singular Value Decomposition 9.7 Survey of Methods and Software	Presentasi dan diskusi 9. Approximating Eigenvalues 0:15:00 9.1 Linear Algebra and Eigenvalues 9.2 Orthogonal Matrices and Similarity Transformations 9.3 The Power Method 9.4 Householder's Method 9.5 The QR Algorithm 9.6 Singular Value Decomposition 9.7 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board	-	
12.	Mahasiswa memahami solusi numerik sistem non linear dari persamaan, metode newton's, metode quasi-newton's, teknik steepest descent dan metode homotopy lanjut	Mahasiswa mampu memahami solusi numerik sistem non linear dari persamaan, metode newton's, metode quasi-newton's, teknik steepest descent dan metode homotopy lanjut	10. Numerical Solutions of Nonlinear Systems of Equations 10.1 Fixed Points for Functions of Several Variables 10.2 Newton's Method 10.3 Quasi-Newton Methods 10.4 Steepest Descent Techniques 10.5 Homotopy and Continuation Methods 10.6 Survey of Methods and Software	Presentasi dan diskusi 10. Numerical Solutions of Nonlinear Systems of Equations 0:15:00 10.1 Fixed Points for Functions of Several Variables 10.2 Newton's Method 10.3 Quasi-Newton Methods 10.4 Steepest Descent Techniques 10.5 Homotopy and Continuation Methods 10.6 Survey of Methods and Software 2:15:00	-	

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				Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board		
13.	Mahasiswa memahami nilai batas persamaan diferensial biasa, metode shooting linear, metode shooting non linear dan metode finite-difference	Mahasiswa mampu memahami nilai batas persamaan diferensial biasa, metode shooting linear, metode shooting non linear dan metode finite-difference	11. Boundary-Value Problems for Ordinary Differential Equations 11.1 The Linear Shooting Method 11.2 The Shooting Method for Nonlinear Problems 11.3 Finite-Difference Methods for Linear Problems	Presentasi dan diskusi 11. Boundary-Value Problems for Ordinary Differential Equations 0:15:00 11.1 The Linear Shooting Method 11.2 The Shooting Method for Nonlinear Problems 11.3 Finite-Difference Methods for Linear Problems 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board	-	
14.	Mahasiswa memahami metode finite-difference masala non linear dan metode reyleigh-ritz	Mahasiswa mampu memahami metode finite-difference masala non linear dan metode reyleigh-ritz	11.4 Finite-Difference Methods for Nonlinear Problems 11.5 The Rayleigh-Ritz Method 11.6 Survey of Methods and Software	Presentasi dan diskusi 11.4 Finite-Difference Methods for Nonlinear Problems 0:15:00 11.4 Finite-Difference Methods for Nonlinear Problems 11.5 The Rayleigh-Ritz Method 11.6 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board	-	
15.	Mahasiswa memahami solusi numerik untuk persamaan diferensial parsial, persamaan diferensial elliptic, persamaan diferensial parabolik, persamaan diferensial hiperbolik dan	Mahasiswa mampu memahami solusi numerik untuk persamaan diferensial parsial, persamaan diferensial elliptic, persamaan diferensial parabolik, persamaan diferensial hiperbolik dan metode the finite-element	12. Numerical Solutions to Partial Differential Equations 12.1 Elliptic Partial Differential Equations 12.2 Parabolic Partial Differential	Presentasi dan diskusi 12. Numerical Solutions to Partial Differential Equations 0:15:00 12.1 Elliptic Partial Differential	-	

SATUAN ACARA PERKULIAHAN (SAP)						
No.	Sub-CPMK (Kemampuan akhir tiap tahapan belajar)	Kemampuan akhir tiap pertemuan (Indikator Penilaian)	Bahan Kajian/ Materi Pembelajaran	Bentuk, Metode Pembelajaran & Penugasan + Waktu (min)	Kriteria dan Bentuk Penilaian	Bobot Penilaian (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
	metode the finite-element		Equations 12.3 Hyperbolic Partial Differential Equations 12.4 An Introduction to the Finite-Element Method 12.5 Survey of Methods and Software	Equations 12.2 Parabolic Partial Differential Equations 12.3 Hyperbolic Partial Differential Equations 12.4 An Introduction to the Finite-Element Method 12.5 Survey of Methods and Software 2:15:00 Diskusi dan tanya jawab 0:15:00 1.Laptop 2.Wi-fi internet connection 3.LCD-projector 4.White Board		
16.	-	-	UAS	- Pembagian soal 0:05:00 Ujian Akhir Semester 2:15:00 Pengumpulan Lembar Jawaban 0:10:00 Lembar Soal dan Lembar Jawaban	UAS 45 %	

Mengetahui,
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