



NUMERICAL COMPUTING PORTFOLIO MASTER DEGREE PROGRAM



Departement of
Mathematics

Faculty of Science and Data Analytics
Institut Teknologi Sepuluh Nopember

1. NUMERICAL COMPUTING

NAMA MK	: Komputasi numerik
KODE MK	: KM185104
SEMESTER	: 7
NAMA DOSEN / TIM	: Prof. Dr. Chairul Imron, MI.Komp Dr. Dwi Ratna Sulistyaningrum, S.Si., M.T.
NAMA KOORDINATOR MK	: Prof. Dr. Chairul Imron, MI.Komp
<i>COURSE</i>	: <i>Numerical computation</i>
<i>CODE</i>	: <i>KM185104</i>
<i>SEMESTER</i>	: <i>7</i>
<i>LECTURER / TEAM</i>	: <i>Prof. Dr. Chairul Imron, MI.Komp</i> <i>Dr. Dwi Ratna Sulistyaningrum, S.Si., M.T.</i>
<i>COURSE COORDINATOR</i>	: <i>Prof. Dr. Chairul Imron, MI.Komp</i>

I. Halaman Pengesahan / Endorsement Page

	EVALUASI KURIKULUM 2018-2023 CURRICULUM EVALUATION 2018-2023 Nama Fakultas: Fakultas Sains dan Analitika Data <i>Faculty Name: Faculty of Science And Data Analytcs</i> Nama Prodi: Matematika <i>Program Name: Mathematics</i> Nama MK: Komputasi numerik <i>Course: Numerical computing</i>		KM184821
			Sem: 1
Kode/Code: KM185104	Bobot sks /Credits(T/P): 2	Rumpun MK: ilmu komputer <i>Cluster Course: computer science</i>	Smt: 1
OTORISASI AUTHORIZATION	Penyusun Compiler Prof. Dr. Chairul Imron, MI.Komp	Koordinator RMK Cluster Coordinator Prof. Dr. Basuki Widodo, M.Sc.	Kepala Departemen Head of Department Subchan, S.Si., M.Sc., Ph.D
	TTD/ <i>SIGN.</i>	TTD/ <i>SIGN.</i>	TTD/ <i>SIGN.</i>
	Tanggal/ <i>Date:</i>	Tanggal/ <i>Date:</i>	Tanggal/ <i>Date:</i>

II. CPL yang dibebankan pada MK / *PLO Charged to The Course*

	CPL Prodi / <i>PLO</i>						
Sub CP <i>Sub LO</i>	CPL 1 <i>PLO 1</i>	CPL 2 <i>PLO 2</i>	CPL 3 <i>PLO 3</i>	CPL 4 <i>PLO 4</i>	CPL 5 <i>PLO 5</i>	CPL 6 <i>PLO 7</i>	CPL 7 <i>PLO 7</i>
Sub CP MK 1 <i>Sub CLO 1</i>	X						
Sub CP MK2 <i>Sub CLO 2</i>	X						
Sub CP MK3 <i>Sub CLO 3</i>	X						
Sub CP MK4 <i>Sub CLO 4</i>		X					

III. Bobot CPL yang dibebankan pada MK / *Load of PLO Charged to The Course*

	Bobot CPL Prodi pada setiap Sub CP MK <i>Load of PLO Charged to The Course</i>							Total
Sub CP <i>Sub LO</i>	CPL 1 <i>PLO 1</i>	CPL 2 <i>PLO 2</i>	CPL 3 <i>PLO 3</i>	CPL 4 <i>PLO 4</i>	CPL 5 <i>PLO 5</i>	CPL 6 <i>PLO 7</i>	CPL 7 <i>PLO 7</i>	
Sub CP MK 1 <i>Sub CLO 1</i>	0.2							0.2
Sub CP MK2 <i>Sub CLO 2</i>	0.3							0.3
Sub CP MK3 <i>Sub CLO 3</i>	0.2							0.2
Sub CP MK4 <i>Sub CLO 4</i>		0.3						0.3
Total		1						1

IV. Rencana Penilaian / Asesmen & Evaluasi RAE), dan Rencana Tugas /
Assessment & Evaluation Plan (A&EP) and Assignment Plan

	RENCANA ASSESSMENT & EVALUASI ASSESSMENT & EVALUATION PLAN		RA&E
	Master Degree Program of Mathematics Department Faculty of Science and Data Analytics MK : Komputasi Numerik Course : Numerical Computing		Write Doc Code
Kode/code: KM185104	Bobot sks/credits (T/P): 2/0	Rumpun MK: Ilmu Komputer <i>Course Cluster: Computer Science</i>	Smt: I
OTORISASI AUTHORIZATION	Penyusun RA & E Compiler A&EP Prof. Dr. Chairul Imron, MI.Komp	Koordinator RMK Course Cluster Coordinator Prof. Dr. Basuki Widodo, M. Sc	Ka DEP Head of DEP Dr. Dieky Adzkiya, S.Si., M.Si.

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
1	Mahasiswa mampu menganalisis error dan konvergensinya dari permasalahan numerik <i>Students are able to analyze error and its convergence from numerical problems</i>	- Tugas - Diskusi - Praktikum <i>Exercises</i> <i>Discussion</i> <i>Practice</i>	5
2- 3	Mahasiswa mampu menjelaskan, membuat algoritma dan mengimplementasikan tentang interpolasi numerik	- Tugas - Diskusi - Praktikum <i>Exercises</i> <i>Discussion</i> <i>Practice</i>	5

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
	<i>Students are able to explain, create algorithms, and implement about numerical interpolation</i>		
4 -5	Mahasiswa mampu menjelaskan, membuat algoritma dan mengimplementasikan diferensiasi numerik <i>Students are able to explain, create algorithms, and implement numerical differentiation</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
6 - 7	Mahasiswa mampu menjelaskan, membuat algoritma dan mengimplementasikan integrasi numerik <i>Students are able to explain, create algorithms, and implement numerical integration</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
8	Evaluasi Tengah Semester Mid Exam		30
9	Mahasiswa mampu memahami dan menganalisa dasar-dasar teori masalah nilai awal <i>Students are able to understand and anylize the theoretical basics of the initial value problems</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
10 - 13	Mahasiswa mampu membuat algoritma dan mengimplementasikan	• Tugas • Diskusi • Praktikum	5

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
	beberapa metode penyelesaian masalah nilai awal <i>Students are able to create algorithms and implement some initial value problems solving methods</i>	• Exercises • Discussion • Practice	
14	Mahasiswa mampu membuat algoritma dan mengimplementasikan beberapa metode penyelesaian PD orde tinggi <i>Students are able to create algorithm and implement some high-order differential equation solving problems</i>	• Tugas • Diskusi • Praktikum • Exercises • Discussion • Practice	5
15	Mahasiswa mampu membuat algoritma dan mengimplementasikan metode penyelesaian Permasalahan Nilai Batas <i>Students are able to create algorithms and implement Boundary Value Problems solving methods</i>	• Tugas • Diskusi • Praktikum • Exercises • Discussion • Practice	5
16	Evaluasi Akhir Final Exam		30
Total bobot penilaian Total assessment load			100

V. Penilaian Sub CP MK / CLO Assessment

No	NRP Mahasiswa	Nama Mahasiswa	Nilai Sub CP MK 1	Nilai Sub CP MK 2	Nilai Sub CP MK 3	Keterangan (lulus / Tidak Lulus)	Action Plan
1	6111950010001	RIDHO SHOLEHURROHMAN	5.93	26.685	26.685	TL	
2	6111950010002	ZICKY LUKMAN	8.6	38.7	38.7	L	
3	6111950010003	ZULFA QURROTUL AINI	8.6	38.7	38.7	L	
4	6111950010004	MOCHAMMAD REZA HABIBI	8.51	38.295	38.295	L	
5	6111950010005	NURDIA DWI CAHYANI	8.39	37.755	37.755	L	
6	6111950010006	DIAN MAULIDIYA SARI	8.51	38.295	38.295	L	
7	6111950010007	AMELIA MARGARETHA SANTOSO					
8	6111950010008	GITHA ANDANI SUHARNINGTYAS					
9	6111950010009	SIE EVAN SETIAWAN					
10	6111950010010	PUTRI BALQIS AL KUBRO					
11	6111950010011	AYU HERAWATI					
12	6111950015001	MUALIFATUL MUNAWAROH					

VI. Penilaian CPL yang dibebankan pada MK berdasarkan pada nilai Sub CP MK / PLO assessment charged to the course based on CLO assessment

No	NRP Mahasiswa	Nama Mahasiswa	Nilai CPL 2	Nilai CPL 3	Nilai CPL 4	Nilai CPL 5	Keterangan (lulus / Tidak Lulus)	Action Plan
1	6111950010001	RIDHO SHOLEHURROHMAN						
2	6111950010002	ZICKY LUKMAN						
3	6111950010003	ZULFA QURROTUL AINI						
4	6111950010004	MOCHAMMAD REZA HABIBI						
5	6111950010005	NURDIA DWI CAHYANI						

6	6111950010006	DIAN MAULIDIYA SARI						
7	6111950010007	AMELIA MARGARETHA SANTOSO						
8	6111950010008	GITHA ANDANI SUHARNINGTYAS						
9	6111950010009	SIE EVAN SETIAWAN						
10	6111950010010	PUTRI BALQIS AL KUBRO						
11	6111950010011	AYU HERAWATI						
12	6111950015001	MUALIFATUL MUNAWAROH						

VII. Tindakan hasil Evaluasi untuk Perbaikan / *Action plan evaluation for improvement*

Tuliskan tindakan yang akan dilakukan baik oleh Dosen – maupun usulan ke Prodi untuk Perbaikan – terkait dengan evaluasi ketercapaian CPL

Unsur yang di evaluasi	
CPL	Prodi
CP MK	Dosen
Sub CP MK	Dosen
Model Pembelajaran	Prodi + Dosen
Bentuk asesmen	Prodi + Dosen

Lampiran

A. Rencana Tugas & Rubrik Penilaian / Assignment plan and assessment rubric

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
1	Mahasiswa mampu menganalisis error dan konvergensinya dari permasalahan numerik <i>Students are able to analyze error and its convergence from numerical problems</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
2- 3	Mahasiswa mampu menjelaskan, membuat algoritma dan mengimplementasikan tentang interpolasi numerik <i>Students are able to explain, create algorithms, and implement about numerical interpolation</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
4 -5	Mahasiswa mampu menjelaskan, membuat algoritma dan mengimplementasikan diferensiasi numerik <i>Students are able to explain, create algorithms, and implement numerical differentiation</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
6 - 7	Mahasiswa mampu menjelaskan, membuat algoritma	• Tugas • Diskusi • Praktikum	5

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
	dan mengimplementasikan integrasi numerik <i>Students are able to explain, create algorithms, and implement numerical integration</i>	• Exercises • Discussion • Practice	
8	Evaluasi Tengah Semester <i>Mid Exam</i>		30
9	Mahasiswa mampu memahami dan menganalisa dasar-dasar teori masalah nilai awal <i>Students are able to understand and analyze the theoretical basics of the initial value problems</i>	• Tugas • Diskusi • Praktikum • Exercises • Discussion • Practice	5
10 - 13	Mahasiswa mampu membuat algoritma dan mengimplementasikan beberapa metode penyelesaian masalah nilai awal <i>Students are able to create algorithms and implement some initial value problems solving methods</i>	• Tugas • Diskusi • Praktikum • Exercises • Discussion • Practice	5
14	Mahasiswa mampu membuat algoritma dan mengimplementasikan beberapa metode penyelesaian PD orde tinggi <i>Students are able to create algorithm and implement some high-</i>	• Tugas • Diskusi • Praktikum • Exercises • Discussion • Practice	5

Mg ke/ Week (1)	Sub CP-MK / Lesson Learning Outcomes (LLO) (2)	Bentuk Asesmen (Penilaian) Form of Assessment (3)	Bobot / Load (%) (4)
	<i>order differential equation solving problems</i>		
15	Mahasiswa mampu membuat algoritma dan mengimplementasikan metode penyelesaian Permasalahan Nilai Batas <i>Students are able to create algorithms and implement Boundary Value Problems solving methods</i>	• Tugas • Diskusi • Praktikum • <i>Exercises</i> • <i>Discussion</i> • <i>Practice</i>	5
16	Evaluasi Akhir <i>Final Exam</i>		30
Total bobot penilaian <i>Total assessment load</i>			100

B. Rubrik Atau Marking Scheme Assessment / Rubric or marking Marking Scheme Assessment

C. Bukti – soal (Asesmen dan Tugas) / Evidence of assignment and assessment

1. Mid Semester Evaluation

2. Final Semester Evaluation

D. Bukti jawaban soal dan Hasil Tugas / Evidence of solution and assignment result

1. Mid Semester Evaluation

2. Final Semester Evaluation