DYNAMICAL OPTIMIZATION PORTFOLIO
MASTER DEGREE PROGRAM

Departement of
Mathematics
Faculty of Science and Data Analytics
Institut Teknologi Sepuluh Nopember

1. DYNAMICAL OPTIMIZATION

NAMA MK	: Optimasi Dinamik
KODE MK	: KM185275
SEMESTER	: 7
NAMA DOSEN / TIM	: Subchan, Ph. D
NAMA KOORDINATOR MK	: Subchan, Ph. D
COURSE	*: Dinamical Optimization*
CODE	*: KM185275*
SEMESTER	*: 7*
LECTURER / TEAM	*: Subchan, Ph. D*
COURSE COORDINATOR	*: Subchan, Ph. D*

I. Halaman Pengesahan / *Endorsement Page*

	EVALUASI KURIKULUM 2018-2023 ***CURRICULUM EVALUATION 2018-2023*** Nama Fakultas: Fakultas Sains dan Analitika Data *Faculty Name: Faculty of Science And Data Analitycs* Nama Prodi: Matematika *Program Name: Mathematics* Nama MK: Optimasi Dinamik *Course: Dinamical Optimization*		**KM184821** Sem: 1
Kode/*Code*: KM185257	**Bobot sks** /*Credits*(T/P): 2	**Rumpun MK**: Matematika terapan *Cluster Course: applied mathematics*	Smt: 1
OTORISASI ***AUTHORIZATION***	**Penyusun** ***Compiler*** **Subchan, Ph. D**	**Koordinator RMK** ***Cluster Coordinator*** **Prof. Dr. Basuki Widodo, M.Sc.**	**Kepala Departemen** ***Head of Department*** **Subchan, S.Si., M.Sc., Ph.D**
	TTD/*SIGN*.	**TTD/*SIGN*.**	**TTD/*SIGN*.**
	Tanggal/*Date*: …..	**Tanggal/*Date*: …..**	**Tanggal/*Date*: …..**

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

	CPL Prodi / *PLO*						
Sub CP *Sub LO*	CPL 1 *PLO 1*	CPL 2 *PLO 2*	CPL 3 *PLO 3*	CPL 4 *PLO 4*	CPL 5 *PLO 5*	CPL 6 *PLO 7*	CPL 7 *PLO 7*
Sub CP MK 1 *Sub CLO 1*				X			
Sub CP MK2 *Sub CLO 2*		X	X				
Sub CP MK3 *Sub CLO 3*		X	X				

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

	Bobot CPL Prodi pada setiap Sub CP MK *Load of PLO Charged to The Course*							Total
Sub CP *Sub LO*	CPL 1 *PLO 1*	CPL 2 *PLO 2*	CPL 3 *PLO 3*	CPL 4 *PLO 4*	CPL 5 *PLO 5*	CPL 6 *PLO 7*	CPL 7 *PLO 7*	
Sub CP MK 1 *Sub CLO 1*				0.1				0.1
Sub CP MK2 *Sub CLO 2*		0.2	0.3					0.5
Sub CP MK3 *Sub CLO 3*		0.2	0.2					0.4
Total		**0.5**	**0.5**	**0.1**				**1**

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

	RENCANA ASSESSMENT & EVALUASI **ASSESSMENT & EVALUATION PLAN** Master Degree Program of Mathematics Department Faculty of Science and Data Analytics **MK : Optimasi Dinamis** **Course : Dinamical Optimization**		**RA&E** Write Doc Code
Kode/*code*: KM185257	**Bobot sks/*credits* (T/P): 2/0**	**Rumpun MK: Matematika terapan** ***Course Cluster: Applied science***	Smt: I
OTORISASI ***AUTHORIZATION***	**Penyusun RA & E** ***Compiler A&EP*** **Subchan, Ph.D**	**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	**[C5,A3][Conceptual knowledge, Analyze]**: Mahasiswa mampu memodelkan mengkategorikan permasalahan optimasi statik dan dinamik. ***[C5,A3][Conceptual knowledge, Analyze]***: *Students are able to model and categorize statistic and dynamic opmization problems.*	Tulisan tentang solusi beberapa permasa-lahan yang diberikan. *Writing about the solution to some of the given problems.*	5
2-3	**[C5,A3][Conceptual knowledge, Analyze]**: Mahasiswa mampu membedakan	Tulisan tentang solusi beberapa permasa-lahan yang diberikan. *Writing about the solution to some of the given problems.*	5

Mg ke/ *Week* (1)	Sub CP-MK / *Lesson Learning Outcomes (LLO)* (2)	Bentuk Asesmen (Penilaian) *Form of Assessment* (3)	Bobot / *Load* (%) (4)
	permasalahan fungsi dan fungsional sederhana. ***[C5,A3][Conceptual knowledge, Analyze]****: Students are able to distinguish simple functional and functional problems.*		
4	**[C5,P3,A3][Conceptual knowledge, Analyze]:** Mahasiswa mampu menjelaskan konsep fungsi dan fungsional optimal. ***[C5,P3,A3][Conceptual knowledge, Analyze]:*** *Students are able to explain optimal function and functional concepts.*	Tulisan tentang solusi beberapa permasa-lahan yang diberikan. *Writing about the solution to some of the given problems.*	5
5-7	**[C5,P3,A3][Conceptual knowledge, Analyze]:** Mahasiswa mampu menjelaskan dasar-dasar variasional dan mengklasifi-kasikan permasalahan riil ke dalam kasus-kasus Euler-Lagrange. ***[C5,P3,A3][Conceptual knowledge, Analyze]:*** *Students are able to explain variational basics and classify real problems into Euler-Lagrange cases.*	Tulisan tentang solusi beberapa permasa-lahan yang diberikan *Writing about the solution to some of the given problems.*	10
8	**MIDTERM EXAM (25)**		
9-10	**[C6,A3][Conceptual knowledge, Analyze]:** Mahasiswa mampu menjelaskan dan mengevaluasi fungsi	- Source code hasil praktikum - Tulisan tentang solusi beberapa permasalahan yang diberikan - *Source code from practicum results*	10

Mg ke/ *Week* (1)	Sub CP-MK / *Lesson Learning Outcomes (LLO)* (2)	Bentuk Asesmen (Penilaian) *Form of Assessment* (3)	Bobot / *Load* (%) (4)
	dan fungsional optimal dengan kendala. ***[C6,A3][Conceptual knowledge, Analyze]:*** *Students are able to explain and evaluate optimal functions and functions with constraints.*	- *Writing about the solution to some of the given problems.*	
11-12	**[C6,A2][Conceptual knowledge, Analyze]:** Mahasiswa mampu menerapkan pendekatan variational untuk kendali optimal serta mengevaluasinya. ***[C6,A2][Conceptual knowledge, Analyze]:*** *Students are able to apply a variational approach for optimal control and evaluate it.*	- Source code hasil praktikum - Tulisan tentang solusi beberapa permasalahan yang diberikan - *Source code from practicum results* - *Writing about the solution to some of the given problems.*	10
13-15	**[Conceptual and Procedural knowledge, Analyze][C6,A3]:** Mahasiswa mampu menjelaskan, menerapkan kendali optimal dalam permasalahan riil dan mengevaluasi hasilnya. ***[Conceptual and Procedural knowledge, Analyze][C6,A3]:*** *Students are able to explain, apply optimal control in real problems and evaluate the results.*	Presentasi *Presentation*	5

Mg ke/ *Week* (1)	Sub CP-MK / *Lesson Learning Outcomes (LLO)* (2)	Bentuk Asesmen (Penilaian) *Form of Assessment* (3)	Bobot / *Load* (%) (4)
16	**FINAL EXAM (25)**		
		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	6111850010005	RENI SUNDARI	5.93	26.685	26.685	TL	
2	6111850012002	MELKI IMAMASTRI PULING TANG	8.6	38.7	38.7	L	
3	6111850012003	ERNA SETIAWATI	8.6	38.7	38.7	L	

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	6111850010005	RENI SUNDARI						
2	6111850012002	MELKI IMAMASTRI PULING TANG						
3	6111850012003	ERNA SETIAWATI						

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	**[C5,A3][Conceptual knowledge, Analyze]**: Mahasiswa mampu memodelkan mengkategorikan permasalahan optimasi statik dan dinamik. ***[C5,A3][Conceptual knowledge, Analyze]****: Students are able to model and categorize statistic and dynamic opmization problems.*	Tulisan tentang solusi beberapa permasa-lahan yang diberikan. *Writing about the solution to some of the given problems.*	5
2-3	**[C5,A3][Conceptual knowledge, Analyze]**: Mahasiswa mampu membedakan permasalahan fungsi dan fungsional sederhana. ***[C5,A3][Conceptual knowledge, Analyze]****: Students are able to distinguish simple functional and functional problems.*	Tulisan tentang solusi beberapa permasa-lahan yang diberikan. *Writing about the solution to some of the given problems.*	5
4	**[C5,P3,A3][Conceptual knowledge, Analyze]:** Mahasiswa mampu menjelaskan konsep fungsi dan fungsional optimal. ***[C5,P3,A3][Conceptual knowledge, Analyze]:***	Tulisan tentang solusi beberapa permasa-lahan yang diberikan. *Writing about the solution to some of the given problems.*	5

Mg ke/ *Week* (1)	Sub CP-MK / *Lesson Learning Outcomes (LLO)* (2)	Bentuk Asesmen (Penilaian) *Form of Assessment* (3)	Bobot / *Load* (%) (4)
	Students are able to explain optimal function and functional concepts.		
5-7	**[C5,P3,A3][Conceptual knowledge, Analyze]:** Mahasiswa mampu menjelaskan dasar-dasar variasional dan mengklasifi-kasikan permasalahan riil ke dalam kasus-kasus Euler-Lagrange. ***[C5,P3,A3][Conceptual knowledge, Analyze]:*** *Students are able to explain variational basics and classify real problems into Euler-Lagrange cases.*	Tulisan tentang solusi beberapa permasa-lahan yang diberikan *Writing about the solution to some of the given problems.*	10
8	**MIDTERM EXAM (25)**		
9-10	**[C6,A3][Conceptual knowledge, Analyze]:** Mahasiswa mampu menjelaskan dan mengevaluasi fungsi dan fungsional optimal dengan kendala. ***[C6,A3][Conceptual knowledge, Analyze]:*** *Students are able to explain and evaluate optimal functions and functions with constraints.*	- Source code hasil praktikum - Tulisan tentang solusi beberapa permasalahan yang diberikan - *Source code from practicum results* - *Writing about the solution to some of the given problems.*	10
11-12	**[C6,A2][Conceptual knowledge, Analyze]:** Mahasiswa mampu menerapkan pendekatan variational untuk kendali optimal serta mengevaluasinya.	- Source code hasil praktikum - Tulisan tentang solusi beberapa permasalahan yang diberikan - *Source code from practicum results* - *Writing about the solution to some of the given problems.*	10

Mg ke/ *Week* (1)	Sub CP-MK / *Lesson Learning Outcomes (LLO)* (2)	Bentuk Asesmen (Penilaian) *Form of Assessment* (3)	Bobot / *Load* (%) (4)
	[C6,A2][Conceptual knowledge, Analyze]: *Students are able to apply a variational approach for optimal control and evaluate it.*		
13-15	**[Conceptual and Procedural knowledge, Analyze][C6,A3]:** Mahasiswa mampu menjelaskan, menerapkan kendali optimal dalam permasalahan riil dan mengevaluasi hasilnya. ***[Conceptual and Procedural knowledge, Analyze][C6,A3]:*** *Students are able to explain, apply optimal control in real problems and evaluate the results.*	Presentasi *Presentation*	5
16	**FINAL EXAM (25)**		
		Total bobot penilaian ***Total assessment load***	**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