

SEMESTER LEARNING PLAN

**MATHEMATICAL MODELS COURSES
(23H01121203)**



TEACHING TEAM

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STUDI PROGRAM OF MATHEMATICS - S1
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
HASANUDDIN UNIVERSITY
MAKASSAR
2025

**STUDY PROGRAM OF MATEMATIKA - S1
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
HASANUDDIN UNIVERSITY**

Vision

The scientific vision is to become a study program with an international reputation in the development of mathematics based on the Indonesian maritime continent by 2030

Vision Strategy

Mission

To fulfill the above vision, the Undergraduate Mathematics Study Program has four missions, namely:

- Organizing innovative and effective mathematics learning to improve the quality and creativity of students in order to compete nationally and internationally.
- Improving a research culture that produces internationally reputable publications.
- Playing an active role in community service activities and collaborating with other academic institutions, government, business, media and society.
- Carry out governance in the Mathematics Study Program that is effective, efficient and transparent based on IT and ISO 9001:2015 standards to achieve the tridharma goals.

Graduate Profiles

Gagal diterjemahkan

PLO charged to courses

CPL-8 (S1) - The students have integrity that highly values the supreme divinity, social responsibility, and professional ethics

CPL-9 (S2) - The students are able to adapt and develop self-abilities, both in mathematics and other relevant areas of science in their professional lives

CPL-5 (KK1) - The students are able to construct mathematical modelling with relatively new ideas and present the results orally and in writing

CPL-6 (KK2) - The students are able to apply the mathematical method for solving a mathematical related-problem with or without the aid of computers and software

CPL-7 (KK3) - The students are able to demonstrate mathematical skills which include interpretation, connecting problems, solving problems, and communicating individually or teamwork

Course Learning Outcomes (CLO)

CPMK-1: Students are able to recognize simple real-world problems (natural phenomena), both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPL8 dan CPL7)

CPMK-2: Students are able to build mathematical models of simple problems in natural phenomena using up to date mathematical tools (CPL9 dan CPL5)

CPMK-3: Students are able to apply appropriate basic mathematical concepts in completing mathematical models, with or without the help of computational tools, interpret solutions, and validate solutions using available data (CPL9 dan CPL6)

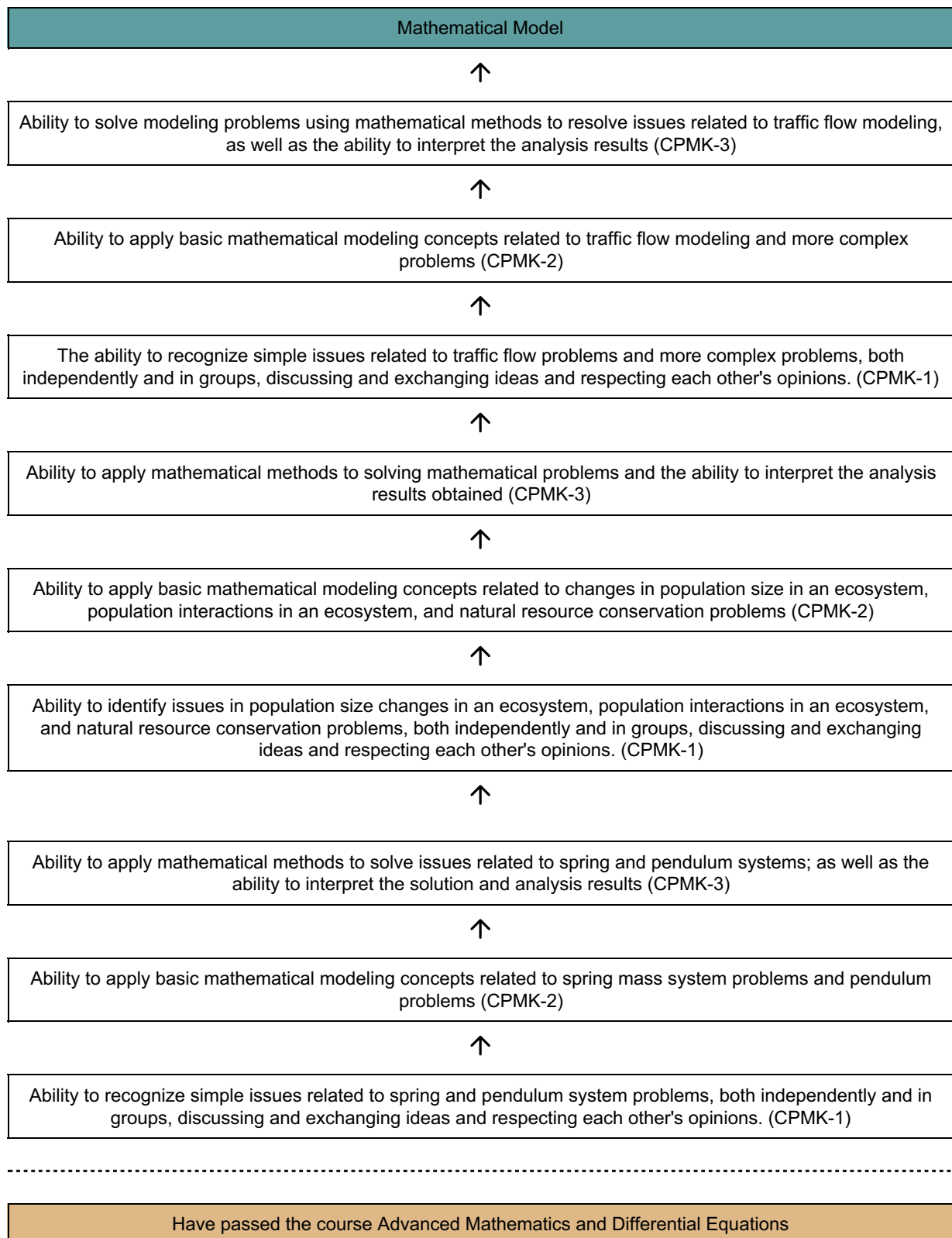
Sub-CLO

Sub CPMK-5: Ability to apply basic mathematical modeling concepts related to changes in population size in an ecosystem, population interactions in an ecosystem, and natural resource conservation problems

(CPMK-2)

- Sub CPMK-4: Ability to identify issues in population size changes in an ecosystem, population interactions in an ecosystem, and natural resource conservation problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPMK-1)
- Sub CPMK-6: Ability to apply mathematical methods to solving mathematical problems and the ability to interpret the analysis results obtained (CPMK-3)
- Sub CPMK-2: Ability to apply basic mathematical modeling concepts related to spring mass system problems and pendulum problems (CPMK-2)
- Sub CPMK-1: Ability to recognize simple issues related to spring and pendulum system problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPMK-1)
- Sub CPMK-3: Ability to apply mathematical methods to solve issues related to spring and pendulum systems; as well as the ability to interpret the solution and analysis results (CPMK-3)
- Sub CPMK-8: Ability to apply basic mathematical modeling concepts related to traffic flow modeling and more complex problems (CPMK-2)
- Sub CPMK-7: The ability to recognize simple issues related to traffic flow problems and more complex problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPMK-1)
- Sub CPMK-9: Ability to solve modeling problems using mathematical methods to resolve issues related to traffic flow modeling, as well as the ability to interpret the analysis results (CPMK-3)

Learning Analytics





HASANUDDIN UNIVERSITY

FAKULTY OF MATHEMATICS AND NATURAL SCIENCES

STUDY PROGRAM OF MATHEMATICS - S1

SEMESTER LEARNING PLAN

Course		Code	Course Group	Credits	SEMESTER	Compilation Date
Mathematical Model		23H01121203	Applied Mathematics	3	4	6 Februari 2025
AUTHORITY		SLP Developer Lecturer	Coordinator		Head of Study Program	
		Prof. Dr. Syamsuddin Toaha, M.Sc., Prof. Dr. Kasbawati, S.Si., M.Si., Dr. Khaeruddin, M.Sc.	Prof. Dr. Kasbawati, S.Si., M.Si.		Dr. Firman, S.Si.,M.Si.	
Learning Outcomes Course	SLOs that are imposed on the course					
	SLO-8:	Mahasiswa memiliki integritas yang sangat menghargai keilahian tertinggi, tanggung jawab sosial, dan etika profesional				
	SLO-9:	Mahasiswa dapat beradaptasi dan mengembangkan kemampuan diri, baik dalam matematika dan bidang ilmu lain yang relevan dalam kehidupan profesional mereka, dengan budaya belajar sepanjang hayat				
	SLO-5:	Mahasiswa dapat membangun pemodelan matematika dengan ideide yang relatif baru dan mempresentasikan hasil dengan jelas secara lisan dan tertulis				
	SLO-6:	Mahasiswa dapat menerapkan metode matematika untuk memecahkan masalah terkait matematika dengan atau tanpa bantuan komputer dan perangkat lunak				
	SLO-7:	Mahasiswa dapat menunjukkan keterampilan matematika termasuk menghubungkan masalah, menyelesaikan masalah, interpretasi, dan berkomunikasi secara individu atau dengan kerja tim				
	SLO ⇒ Course Learning Outcomes					
	After completing this course, it is expected:					
	SLO-7	CLO-1: Students are able to recognize simple real-world problems (natural phenomena), both independently and in groups, discussing and exchanging ideas and respecting each other's opinions.				
	SLO-8	CLO-1: Students are able to recognize simple real-world problems (natural phenomena), both independently and in groups, discussing and exchanging ideas and respecting each other's opinions.				
	SLO-5	CLO-2: Students are able to build mathematical models of simple problems in natural phenomena using up to date mathematical tools				
	SLO-9	CLO-2: Students are able to build mathematical models of simple problems in natural phenomena using up to date mathematical tools				
		CLO-3: Students are able to apply appropriate basic mathematical concepts in completing mathematical models, with or without the help of computational tools, interpret solutions, and validate solutions using available data				
	SLO-6	CLO-3: Students are able to apply appropriate basic mathematical concepts in completing mathematical models, with or without the help of computational tools, interpret solutions, and validate solutions using available data				

CLO ⇒ Sub-CLO	
CLO-1	Sub-CLO-4: Ability to identify issues in population size changes in an ecosystem, population interactions in an ecosystem, and natural resource conservation problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions.
	Sub-CLO-1: Ability to recognize simple issues related to spring and pendulum system problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions.
	Sub-CLO-7: The ability to recognize simple issues related to traffic flow problems and more complex problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions.
CLO-2	Sub-CLO-5: Ability to apply basic mathematical modeling concepts related to changes in population size in an ecosystem, population interactions in an ecosystem, and natural resource conservation problems
	Sub-CLO-2: Ability to apply basic mathematical modeling concepts related to spring mass system problems and pendulum problems
	Sub-CLO-8: Ability to apply basic mathematical modeling concepts related to traffic flow modeling and more complex problems
CLO-3	Sub-CLO-6: Ability to apply mathematical methods to solving mathematical problems and the ability to interpret the analysis results obtained
	Sub-CLO-3: Ability to apply mathematical methods to solve issues related to spring and pendulum systems; as well as the ability to interpret the solution and analysis results
	Sub-CLO-9: Ability to solve modeling problems using mathematical methods to resolve issues related to traffic flow modeling, as well as the ability to interpret the analysis results
Correlation between SLOs/CLOs to Sub-CLOs	

SLOs that are charged on the Course	CPMK	SUB CPMK	Form of Assessment*				Weight	Value	Student Score
			Formative	Sumative					
				Independent Assignment	Presentation	Project Report			
SLO-7	CLO-1	SUB-CLO-1	Activeness, Discipline, Perseverance	5	0	0	5		
SLO-5	CLO-2	SUB-CLO-2	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-6	CLO-3	SUB-CLO-3	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-7	CLO-1	SUB-CLO-4	Activeness, Discipline, Perseverance	5	0	0	5		
SLO-5	CLO-2	SUB-CLO-5	Activeness, Discipline, Perseverance	0	10	0	10		
SLO-6	CLO-3	SUB-CLO-6	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-7	CLO-1	SUB-CLO-7	Activeness, Discipline, Perseverance	5	0	0	5		
SLO-5	CLO-2	SUB-CLO-8	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-6	CLO-3	SUB-CLO-9	Activeness, Discipline, Perseverance	0	5	10	15		

SLOs that are charged on the Course		CPMK	SUB CPMK	Form of Assessment*			Weight	Value	Student Score	
				Formative	Sumative					
					Independent Assignment	Presentation				Project Report
				15	35	50	100			
Course Description		Gagal diterjemahkan								
Learning Materials/Subjects		This course will discuss three main study materials in mathematical modeling, namely spring and pendulum mass systems, population dynamics, and modeling traffic flow problems. The study material is described in detail in several learning materials which will be presented at each meeting week. The learning material for this course includes modeling of spring and pendulum mass systems, analysis of the dynamic behavior of spring and pendulum mass systems, and applications of spring and pendulum mass systems in various fields. Modeling population dynamics and its applications in various fields as well as modeling traffic flow problems, model linearization, traffic density, uniform and non-uniform traffic. In each study material, students will be given a project in the form of a simple modeling of real problems that exist in everyday life.								
Reference		Main References								
		1. Haberman, R. 1998. Mathematical Models: Mechanical Vibrations, Population Dynamics, and Traffic Flow. SIAM. Philadelphia 2. Edward, B. 1987. Mathematics for Dynamic Modeling. Academic Press, Inc. San Diego, California. 3. Toaha, S. 2013. Mathematical Modeling in Population Dynamics. Dua Satu Press, Makassar.								
		Additional References								
		The latest journals in the field mathematical modeling (up to date journals)								
Teaching Team		Prof. Dr. Syamsuddin Toaha, M.Sc., Prof. Dr. Kasbawati, S.Si., M.Si., Dr. Khaeruddin, M.Sc.								
Course requirement		Advanced Mathematics, Differential Equations								
Week	Sub CPMK (End-of-stage learning ability)		Penilaian (Assesment)		Learning Forms and Methods [time estimate]		Content	Weight of Assessment (%)		
			Indicator	Techniques & Criteria	Offline	Online				
1	2		3	4	5	6	7	8		

1-2	Ability to recognize simple issues related to spring and pendulum system problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPMK-1)	Formative: Gagal diterjemahkan Sumative: Gagal diterjemahkan	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Independent Assignment (5) dinilai dengan rubrik 01 Assessment Technique: Non Test	Studying: Problem-Based Learning (Problem-based Learning) TM: 2x3x50 minutes Other Forms: Group discussion (Small Group Discussion) PT: 2x3x60	Other Forms: Self-Directed Learning (Reading material at SIKOLA) BM: 2x3x60	Learning contracts; Introduction to dimensional analysis; Introduction to mathematical modeling concepts; Law Newton, Gravity, Oscillation of spring systems and pendulum systems, system dynamics spring and pendulum systems, mass-spring systems and pendulum systems with friction, damped system, underdamped and overdamped system	5
3-4	Ability to apply basic mathematical modeling concepts related to spring mass system problems and pendulum problems (CPMK-2)	Formative: Gagal diterjemahkan Sumative: Gagal diterjemahkan	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Presentation (5) dinilai dengan rubrik 02 Project Report (10) dinilai dengan rubrik 03 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) TM: 2x3x50 minutes; Other Forms: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) PT and BM: 2x3x120		Modeling some real problems related to spring and mass systems pendulum (Wrecking Ball Crane, motorbike suspension system, cradle swing, baby swing)	15

5-6	Ability to apply mathematical methods to solve issues related to spring and pendulum systems; as well as the ability to interpret the solution and analysis results (CPMK-3)	Formative: Precision in answering and responding to questions in class according to summative indicators which will be assessed Sumative: Gagal diterjemahkan	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Presentation (5) dinilai dengan rubrik 02 Project Report (10) dinilai dengan rubrik 03 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) TM: 2x3x50 minutes; Other Forms: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) PT and BM: 2x3x120		Analysis and Interpretation of modeling results of several related real problems with a spring mass system and a pendulum system (Wrecking Ball Crane, system motorbike suspension, cradle swing, baby swing)	15
7-8	Ability to identify issues in population size changes in an ecosystem, population interactions in an ecosystem, and natural resource conservation problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPMK-1)	Formative: Gagal diterjemahkan Sumative: Gagal diterjemahkan	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Independent Assignment (5) dinilai dengan rubrik 01 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Problem-Based Learning (Problem-based Learning) TM: 2x3x50 minutes; Other Forms: Self-Directed Learning PT: 2x3x60;	Other Forms: Self-Directed Learning BM: 2x3x60;	The process of birth and death within population; environmental influence on growth; Changes in two populations interact in the form of prey, predator and in the form of competition	5

9	Ability to apply basic mathematical modeling concepts related to changes in population size in an ecosystem, population interactions in an ecosystem, and natural resource conservation problems (CPMK-2)	Formative: Precision in answering and responding to questions in class according to summative indicators which will be assessed Sumative: Accuracy of application of basic mathematical modeling concepts; Accuracy identifying problem variables and parameters; Accuracy of analyzing dimensions model; Accuracy of analyzing the relationship between variables and parameters; The accuracy of the mathematical model built	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Presentation (10) dinilai dengan rubrik 02 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) TM: 1x3x50 minutes; Other Forms: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) PT and BM: 1x3x120 Studying: Cooperative learning (Cooperative learning) [Material presented by: Najhah Aris. SH. MH, practitioner from the Ministry of Environment of South Sulawesi Province. [1x3x60]		Overview forestry in Indonesia (conservation forests, protected forests, production forests) which will focus on several cases/problems of natural resource conservation	10
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10-11	Ability to apply mathematical methods to solving mathematical problems and the ability to interpret the analysis results obtained (CPMK-3)	Formative: Precision in answering and responding to questions in class according to summative indicators which will be assessed Sumative: Selection accuracy mathematical methods in solving mathematical models; Accuracy of application mathematical methods in finding solutions to mathematical models; Correctness of the solution acquired mathematics; The accuracy of the interpretation of the analysis results obtained	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Project Report (10) dinilai dengan rubrik 03 Presentation (5) dinilai dengan rubrik 02 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) TM: 2x3x50 minutes; Other Forms: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) PT and BM: 2x3x120 Studying: Cooperative learning (Cooperative learning) [Material presented by: Najhah Aris. SH. MH., practitioner from the Ministry of Environment of South Sulawesi Province] [2x3x60]		Evaluation towards the progress of modeling natural resource conservation problems for some the case (issue) being modeled	15
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12	The ability to recognize simple issues related to traffic flow problems and more complex problems, both independently and in groups, discussing and exchanging ideas and respecting each other's opinions. (CPMK-1)	Formative: Precision in answering and responding to questions in class according to summative indicators which will be assessed Sumative: Accuracy of identifying modeling problems; Accuracy identify issues found; Accuracy in explaining basic concepts mathematical modeling; Accuracy of identifying problem variables and parameters; Accuracy of analyzing model dimensions; Accuracy of analyzing interconnections variables and parameters	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Independent Assignment (5) dinilai dengan rubrik 01 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Problem-Based Learning (Problem-based Learning) TM: 2x3x50 minutes; Other Forms: Self-Directed Learning PT: 2x3x60;	Other Forms: Self-Directed Learning BM: 2x3x60;	1. Basic modeling with STELLA Modeler 2. Modeling popular models with STELLA	5
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13-14	Ability to apply basic mathematical modeling concepts related to traffic flow modeling and more complex problems (CPMK-2)	Formative: Precision in answering and responding to questions in class according to summative indicators which will be assessed Sumative: Gagal diterjemahkan	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Presentation (5) dinilai dengan rubrik 02 Project Report (10) dinilai dengan rubrik 03 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) TM: 2x3x50 minutes; Other Forms: Group discussion (Small Group Discussion), Self-Directed Learning, Project-Based Learning (Project-based Learning) PT and BM: 2x3x120	1. Causal Loop Diagram (CLD) 2. Stock Flow Diagram (SFD) 3. Convert CLD to SFD	15
15-16	Ability to solve modeling problems using mathematical methods to resolve issues related to traffic flow modeling, as well as the ability to interpret the analysis results (CPMK-3)	Formative: Gagal diterjemahkan Sumative: Selection accuracy mathematical methods in solving mathematical models; Accuracy of application mathematical methods in finding solutions to mathematical models; Correctness of the solution acquired mathematics; The accuracy of the interpretation of the analysis results obtained	Formative Criteria: Activeness, Discipline, Perseverance dinilai dengan rubrik 04 Sumative Criteria: Project Report (10) dinilai dengan rubrik 03 Presentation (5) dinilai dengan rubrik 02 Assessment Technique: Non Test	Studying: Group discussion (Small Group Discussion), Project-Based Learning (Project-based Learning) TM: 1x3x50 minutes; Other Forms: Group discussion (Small Group Discussion), Self-Directed Learning, Project-Based Learning (Project-based Learning) PT and BM: 1x3x120	Preparation of projects related to current social and community problems become a conversation and report the results	15

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Matrix of SLO, CLO, and Assessment Method

SLO / CLO	CLO-1	CLO-2	CLO-3
CPL-5 (KK1)		Presentation (Weight 10%) Presentation (Weight 5%) Project Report (Weight 10%) Presentation (Weight 5%) Project Report (Weight 10%)	
CPL-6 (KK2)			Project Report (Weight 10%) Presentation (Weight 5%) Presentation (Weight 5%) Project Report (Weight 10%) Project Report (Weight 10%) Presentation (Weight 5%)
CPL-7 (KK3)	Independent Assignment (Weight 5%) Independent Assignment (Weight 5%) Independent Assignment (Weight 5%)		
CPL-8 (S1)	Independent Assignment (Weight 5%) Independent Assignment (Weight 5%) Independent Assignment (Weight 5%)		

SLO / CLO	CLO-1	CLO-2	CLO-3
CPL-9 (S2)		Presentation (Weight 10%) Presentation (Weight 5%) Project Report (Weight 10%) Presentation (Weight 5%) Project Report (Weight 10%)	Project Report (Weight 10%) Presentation (Weight 5%) Presentation (Weight 5%) Project Report (Weight 10%) Project Report (Weight 10%) Presentation (Weight 5%)

Evaluation Type and Assessment Weight

Type	Assessment Weight
Independent Assignment	15
Presentation	35
Project Report	50
Total	100

Assessment and Evaluation of Student Achievement of CLOs

SLOs that are charged on the Course	CLO	SUB CLO	Form of Assessment*				Weight	Value	Student Score
			Formative	Sumative					
				Independent Assignment	Presentation	Project Report			
SLO-7	CLO-1	SUB-CLO-1	Activeness, Discipline, Perseverance	5	0	0	5		
SLO-5	CLO-2	SUB-CLO-2	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-6	CLO-3	SUB-CLO-3	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-7	CLO-1	SUB-CLO-4	Activeness, Discipline, Perseverance	5	0	0	5		
SLO-5	CLO-2	SUB-CLO-5	Activeness, Discipline, Perseverance	0	10	0	10		
SLO-6	CLO-3	SUB-CLO-6	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-7	CLO-1	SUB-CLO-7	Activeness, Discipline, Perseverance	5	0	0	5		
SLO-5	CLO-2	SUB-CLO-8	Activeness, Discipline, Perseverance	0	5	10	15		
SLO-6	CLO-3	SUB-CLO-9	Activeness, Discipline, Perseverance	0	5	10	15		
				15	35	50	100		

Lampiran Rubrik 01 | ASSESMENT TERTULIS

Kriteria Penilaian	Bobot/Skor Penilaian				
	5	4	3	2	1/0
Konsep/ metode yang digunakan	Penjelasan konsep /metode (*) sangat lengkap dan akurat	Penjelasan konsep/metode (*) cukup jelas tetapi beberapa informasi tidak dituliskan secara lengkap.	Penjelasan konsep/metode (*) kurang jelas dan banyak informasi yang tidak dituliskan	Penjelasan yang dituliskan hampir tidak berkaitan dengan konsep/ metode (*)	Tidak memberikan konsep yang dibutuhkan
Sistematika penulisan/ pembuktian	Sistematika penulisan/ pembuktian sangat jelas dan terstruktur	Sistematika penulisan/ pembuktian cukup jelas namun ada langkah yang hilang	Sistematika penulisan/ pembuktian kurang jelas	Sistematika penulisan/ pembuktian tidak jelas	Jawaban tidak benar/ tidak ada
Interpretasi geometri/ kualitatif/ kuantitatif.	Interpretasi geometri/ kualitatif/ kuantitatif (*) tepat dan lengkap	Interpretasi geometri/ kualitatif/ kuantitatif (*) cukup lengkap/ tepat	Interpretasi geometri/ kualitatif/ kuantitatif (*) kurang lengkap/ tepat	Interpretasi geometri/ kualitatif/ kuantitatif (*) tidak lengkap/ tepat	Interpretasi geometri/ kualitatif/kuantitatif(*) tidak benar
Perhitungan/kesimpulan	Perhitungan/ kesimpulan sangat akurat/tepat dan disertai alasan yang mendasarinya	Perhitungan/ kesimpulan cukup akurat/tepat dan disertai alasan yang mendasarinya	Kesimpulan cukup tepat, namun tidak disertai alasan yang jelas	Perhitungan/ kesimpulan kurang akurat/tepat dan tidak disertai alasan yang mendasarinya	Perhitungan/kesimpulan salah

Lampiran Rubrik 02 | ASSESMENT PRESENTASI

Kriteria Penilaian	Bobot/Skor Penilaian				
	5	4	3	2	1
Penguasaan Materi	Mahasiswa sangat menguasai materi	Mahasiswa menguasai materi	Mahasiswa cukup menguasai materi	Mahasiswa kurang menguasai materi	Mahasiswa tidak menguasai materi
Sistematika Penyajian	Mahasiswa menyajikan materi presentasi dengan sangat sistematis	Mahasiswa menyajikan materi presentasi dengan sistematis	Mahasiswa menyajikan materi presentasi dengan cukup sistematis	Mahasiswa menyajikan materi presentasi dengan kurang sistematis	Mahasiswa menyajikan materi presentasi dengan tidak sistematis
Suara dan Ekspresi	Mahasiswa menjelaskan dengan suara yang sangat jelas, volume yang sangat sesuai, pengucapan istilah sangat tepat	Mahasiswa menjelaskan dengan suara yang jelas, volume yang sesuai, pengucapan istilah tepat	Mahasiswa menjelaskan dengan suara yang cukup jelas, volume yang cukup sesuai, pengucapan istilah cukup tepat	Mahasiswa menjelaskan dengan suara yang kurang jelas, volume yang kurang sesuai, pengucapan istilah kurang tepat	Mahasiswa menjelaskan dengan suara yang tidak jelas, volume yang tidak sesuai, pengucapan istilah tidak tepat
Kepercayaan Diri	Mahasiswa berbicara dengan sangat semangat, menularkan semangat dan antusiasme pada pendengar, eye contact ke semua peserta (audience)	Mahasiswa berbicara dengan semangat, menularkan semangat dan antusiasme pada pendengar, eye contact ke semua peserta (audience)	Mahasiswa berbicara dengan cukup semangat, cukup menularkan semangat dan antusiasme pada pendengar, eye contact ke semua peserta (audience)	Mahasiswa berbicara dengan kurang semangat, kurang menularkan semangat dan antusiasme pada pendengar, eye contact yang kurang ke semua peserta (audience)	Mahasiswa berbicara dengan tidak semangat, tidak dapat menularkan semangat dan antusiasme pada pendengar, tidak ada eye contact ke semua peserta (audience)
Kemampuan menjawab pertanyaan	Mahasiswa mampu menjawab semua pertanyaan dengan sangat mendalam (lebih dari yang dibutuhkan), dan sangat tajam	Mahasiswa mampu menjawab semua pertanyaan dengan tepat, mendalam (lebih dari yang dibutuhkan), dan tajam	Mahasiswa mampu menjawab semua pertanyaan dengan cukup tepat, cukup mendalam, dan cukup tajam	Mahasiswa mampu menjawab semua pertanyaan dengan kurang tepat, kurang mendalam, dan kurang tajam	Mahasiswa mampu menjawab semua pertanyaan dengan tidak tepat, tidak mendalam, dan tidak tajam
Kepemimpinan presentasi kelompok)	Mahasiswa sangat mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa cukup mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa kurang mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi	Mahasiswa tidak mampu menginisiasi, menggerakkan, mengarahkan, mengorganisir jalannya presentasi

Lampiran Rubrik 03 | ASSESMENT MAKALAH

Kriteria Penilaian	Bobot/Skor Penilaian				
	5	4	3	2	1
Sistematika dan kelengkapan penulisan	Mahasiswa menyusun laporan dengan sistematika yang sangat sesuai dengan format yang diberikan dan sangat lengkap	Mahasiswa menyusun laporan dengan sistematika yang sesuai dengan format yang diberikan dan lengkap	Mahasiswa menyusun laporan dengan sistematika yang cukup sesuai dengan format yang diberikan dan cukup lengkap	Mahasiswa menyusun laporan dengan sistematika yang kurang sesuai dengan format yang diberikan dan kurang lengkap	Mahasiswa menyusun laporan dengan sistematika yang tidak sesuai dengan format yang diberikan dan tidak lengkap
Kebenaran konsep ide yang dipaparkan	Mahasiswa menyusun makalah dengan konsep/ide yang dipaparkan dengan sangat tepat (sesuai dengan teori)	Mahasiswa menyusun makalah dengan konsep/ide yang dipaparkan dengan tepat	Mahasiswa menyusun makalah dengan konsep/ide yang dipaparkan dengan cukup tepat	Mahasiswa menyusun makalah dengan konsep/ide yang dipaparkan dengan kurang tepat	Mahasiswa menyusun makalah dengan konsep/ide yang dipaparkan dengan tidak tepat
Interpretasi metode dengan permasalahan yang dikaji	Mahasiswa sangat mampu mengidentifikasi relevansi metode dengan permasalahan yang dikaji	Mahasiswa mampu mengidentifikasi relevansi metode dengan permasalahan yang dikaji	Mahasiswa cukup mampu mengidentifikasi relevansi metode dengan permasalahan yang dikaji	Mahasiswa kurang mampu mengidentifikasi relevansi metode dengan permasalahan yang dikaji	Mahasiswa tidak mampu mengidentifikasi relevansi metode dengan permasalahan yang dikaji
Validitas Referensi – VR	Mahasiswa menggunakan referensi yang sangat up to date dan sangat relevan	Mahasiswa menggunakan referensi yang up to date dan relevan	Mahasiswa menggunakan referensi yang cukup up to date dan cukup relevan	Mahasiswa menggunakan referensi yang kurang up to date dan kurang relevan	Mahasiswa menggunakan referensi yang tidak up to date dan tidak relevan
Ketepatan waktu	Mahasiswa mengumpulkan makalah tepat waktu atau sebelum batas waktu yang ditentukan.	Mahasiswa mengumpulkan makalah lewat 1 hari dari batas waktu yang ditentukan.	Mahasiswa mengumpulkan makalah lewat 2 hari dari batas waktu yang ditentukan.	Mahasiswa mengumpulkan makalah lewat 3 hari dari batas waktu yang ditentukan.	Mahasiswa mengumpulkan makalah lewat 4 hari atau lebih dari batas waktu yang ditentukan.