

# **SEMESTER LEARNING PLAN**

**BASIC MATHEMATICS II COURSES  
(23H01110303)**



**TEACHING TEAM**

STUDI PROGRAM OF MATHEMATICS - S1  
FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
HASANUDDIN UNIVERSITY  
MAKASSAR  
2026

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

**Vision**

Visi keilmuan yaitu menjadi Program Studi yang bereputasi internasional dalam pengembangan matematika yang berbasis benua maritim Indonesia pada tahun 2030

**Vision Strategy**

**Mission**

Untuk memenuhi visi tersebut di atas, Program Studi Sarjana Matematika mempunyai empat misi, yaitu:

**Graduate Profiles**

1

**PLO charged to courses**

CPL-1 (P1) - Students are able to demonstrate an advanced understanding of basic pure and simple applied mathematics.

CPL-3 (KU1) - The students are able to analyse a mathematical problem with logic, analytic, and systematic structure

**Course Learning Outcomes (CLO)**

CPMK-1: Students are able to use many variable calculus concepts (functions, limits, derivatives, integrals, matrices and linear equation systems) to solve problems in mathematics, science, and technology (CPL1)

CPMK-2: Students are able to apply functions, derivatives, integrals and matrix operations to solve problems in related fields. (CPL3)

**Sub-CLO**

Sub CPMK-1: Students are able to analyze the domain, range, existence of limits, and continuity of multi-variable functions analytically, numerically, and graphically (CPMK-1)

Sub CPMK-2: Students are able to solve partial derivatives (first/higher order), directed derivatives, and total derivatives by applying the chain rule, compound function derivatives, and related theorems. (CPMK-1)

Sub CPMK-3: Students are able to apply n-order partial derivatives to extreme problems of two variables (with/without constraints), as well as to approximation problems via Taylor series expansion. (CPMK-2)

Sub CPMK-4: Students are able to complete double and triple integrations by changing the integration order and coordinating coordinate transformations. (CPMK-1)

Sub CPMK-5: Students are able to apply double and triple integration in calculating area, volume, average value and moment of inertia. (CPMK-2)

Sub CPMK-6: Students are able to apply methods for solving first-order first-order differential equations based on type and characteristics to obtain accurate solutions. (CPMK-2)

# Learning Analytics

Basic Mathematics II



Students are able to apply methods for solving first-order differential equations based on type and characteristics to obtain accurate solutions. (CPMK-2)



Students are able to apply double and triple integration in calculating area, volume, average value and moment of inertia. (CPMK-2)



Students are able to complete double and triple integrations by changing the integration order and coordinating coordinate transformations. (CPMK-1)



Students are able to apply n-order partial derivatives to extreme problems of two variables (with/without constraints), as well as to approximation problems via Taylor series expansion. (CPMK-2)



Students are able to solve partial derivatives (first/higher order), directed derivatives, and total derivatives by applying the chain rule, compound function derivatives, and related theorems. (CPMK-1)



Students are able to analyze the domain, range, existence of limits, and continuity of multi-variable functions analytically, numerically, and graphically (CPMK-1)

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Have passed the course Basic Mathematics I



# HASANUDDIN UNIVERSITY

## FAKULTY OF MATHEMATICS AND NATURAL SCIENCES

### STUDY PROGRAM OF MATHEMATICS - S1

## SEMESTER LEARNING PLAN

| Course                   |                                               | Code                                                                                                                                                                                                        | Course Group                      | Credits | SEMESTER                | Compilation Date |
|--------------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------|-------------------------|------------------|
| Basic Mathematics II     |                                               | 23H01110303                                                                                                                                                                                                 | Basic Science                     | 3       | 2                       | 1 Januari 2025   |
| AUTHORITY                |                                               | SLP Developer Lecturer                                                                                                                                                                                      | Coordinator                       |         | Head of Study Program   |                  |
|                          |                                               | Jusmawati Massalesse, S.Si.,M.Si., Edy Saputra Rusdy , S.Si., M.Si.                                                                                                                                         | Jusmawati Massalesse, S.Si.,M.Si. |         | Dr. Firman, S.Si.,M.Si. |                  |
| Learning Outcomes Course | SLOs that are imposed on the course           |                                                                                                                                                                                                             |                                   |         |                         |                  |
|                          | SLO-1:                                        | Mahasiwa memiliki pemahaman yang relatif mendalam dalam matematika murni dan matematika terapan sederhana.                                                                                                  |                                   |         |                         |                  |
|                          | SLO-3:                                        | Mahasiswa mampu menganalisis suatu masalah matematika dengan logika, analitik, dan struktur sistematis                                                                                                      |                                   |         |                         |                  |
|                          | SLO ⇒ Course Learning Outcomes                |                                                                                                                                                                                                             |                                   |         |                         |                  |
|                          | After completing this course, it is expected: |                                                                                                                                                                                                             |                                   |         |                         |                  |
|                          | SLO-1                                         | CLO-1: Students are able to use many variable calculus concepts (functions, limits, derivatives, integrals, matrices and linear equation systems) to solve problems in mathematics, science, and technology |                                   |         |                         |                  |
|                          | SLO-3                                         | CLO-2: Students are able to apply functions, derivatives, integrals and matrix operations to solve problems in related fields.                                                                              |                                   |         |                         |                  |
|                          | CLO ⇒ Sub-CLO                                 |                                                                                                                                                                                                             |                                   |         |                         |                  |
|                          | CLO-1                                         | Sub-CLO-1:Students are able to analyze the domain, range, existence of limits, and continuity of multi-variable functions analytically, numerically, and graphically                                        |                                   |         |                         |                  |
|                          |                                               | Sub-CLO-2:Students are able to solve partial derivatives (first/higher order), directed derivatives, and total derivatives by applying the chain rule, compound function derivatives, and related theorems. |                                   |         |                         |                  |
|                          |                                               | Sub-CLO-4:Students are able to complete double and triple integrations by changing the integration order and coordinating coordinate transformations.                                                       |                                   |         |                         |                  |
|                          | CLO-2                                         | Sub-CLO-3:Students are able to apply n-order partial derivatives to extreme problems of two variables (with/without constraints), as well as to approximation problems via Taylor series expansion.         |                                   |         |                         |                  |
|                          |                                               | Sub-CLO-5:Students are able to apply double and triple integration in calculating area, volume, average value and moment of inertia.                                                                        |                                   |         |                         |                  |
|                          |                                               | Sub-CLO-6:Students are able to apply methods for solving first-order first-order differential equations based on type and characteristics to obtain accurate solutions.                                     |                                   |         |                         |                  |
|                          |                                               |                                                                                                                                                                                                             |                                   |         |                         |                  |

|                                     |       | 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 | Quiz | Mid Test | Final Test |       |        |       |               |
| SLO-1                               | CLO-1 | SUB-CLO-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1. Solve problems related to determining the domain and range of functions of two variables or 2. Prove the existence of limits and continuity of functions of two variables at a point | 5                      | 5    | 6.67     | 0          | 16.67 |        |       |               |
| SLO-1                               | CLO-1 | SUB-CLO-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Solve problems on partial derivatives, directed derivatives, and their interpretation.                                                                                                  | 5                      | 5    | 6.67     | 0          | 16.67 |        |       |               |
| SLO-3                               | CLO-2 | SUB-CLO-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Menyelesaikan masalah ekstrim dua atau tiga peubah, dengan atau tanpa kendala, serta menentukan Deret Taylor fungsi dua peubah.                                                         | 5                      | 5    | 6.67     | 0          | 16.67 |        |       |               |
| SLO-1                               | CLO-1 | SUB-CLO-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Complete multiple integrations, change the integration order, and perform transformations to coordinates.                                                                               | 5                      | 5    | 0        | 6.67       | 16.67 |        |       |               |
| SLO-3                               | CLO-2 | SUB-CLO-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Applying double integrals to determine the integration area, volume and moment of inertia                                                                                               | 5                      | 5    | 0        | 6.67       | 16.67 |        |       |               |
| SLO-3                               | CLO-2 | SUB-CLO-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Determine solutions to differential equations using several methods.                                                                                                                    | 5                      | 5    | 0        | 6.67       | 16.67 |        |       |               |
|                                     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                         | 30                     | 30   | 20       | 20         | 100   |        |       |               |
| Course Description                  |       | In this course, the concepts of multivariable calculus and elementary linear algebra are studied. Students will learn about Function two or more variables, limits and continuity of functions of many variables, partial derivatives and directed derivatives, extreme values of functions of many variables, Double integrals, differential equations, matrix theory, determinants and inverse matrices, systems of linear equations, and differential equations first order. The learning methods used are lectures, discussions and case methods which are expected to achieve achievements Learning this Course |                                                                                                                                                                                         |                        |      |          |            |       |        |       |               |
| Learning Materials/Subjects         |       | 1. Fungsi Dua Peubah atau Lebih                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                         |                        |      |          |            |       |        |       |               |
| Reference                           |       | Main References                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                         |                        |      |          |            |       |        |       |               |
|                                     |       | 1. Dale Varberg, Edwin Purcell, and Steve Rigdon, “Calculus”, ninth edition, Pearson, 2006.<br>2. George B. Thomas, Jr. "Thomas Calculus early transcendentals", twelfth editions.<br>3. James Stewart, “Calculus Early Transcendentals”, sixth edition, Thomson Brooks/Cole, 2008<br>4. Howard Anton, Chris Rorres, “Elementary Linear Algebra, Applications version”, eleventh edition, Wiley, 2013.<br>5. Mathematics Lecturer Team, "Basic Mathematics", 2024                                                                                                                                                    |                                                                                                                                                                                         |                        |      |          |            |       |        |       |               |

|                    |                                                                                                                                                                     | Additional References                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                  |                                                                            |                      |                                |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------|----------------------|--------------------------------|
|                    |                                                                                                                                                                     | www.khanacademy.org                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                  |                                                                            |                      |                                |
| Teaching Team      |                                                                                                                                                                     |                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                  |                                                                            |                      |                                |
| Course requirement |                                                                                                                                                                     | Basic Mathematics I                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                  |                                                                            |                      |                                |
| Week               | Sub CPMK<br>(End-of-stage learning ability)                                                                                                                         | Penilaian (Assesment)                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                             | Learning Forms and Methods<br>[time estimate]                                    |                                                                            | Content              | Weight of<br>Assessment<br>(%) |
|                    |                                                                                                                                                                     | Indicator                                                            | Techniques & Criteria                                                                                                                                                                                                                                                                                                                                                                                                                       | Offline                                                                          | Online                                                                     |                      |                                |
| 1                  | 2                                                                                                                                                                   | 3                                                                    | 4                                                                                                                                                                                                                                                                                                                                                                                                                                           | 5                                                                                | 6                                                                          | 7                    | 8                              |
| 1-3                | Students are able to analyze the domain, range, existence of limits, and continuity of multi-variable functions analytically, numerically, and graphically (CPMK-1) | <b>Formative:</b><br>-<br><br><b>Sumative:</b><br>[if !supportLists] | <b>Formative Criteria:</b><br><br>1. Solve problems related to determining the domain and range of functions of two variables or 2. Prove the existence of limits and continuity of functions of two variables at a point dinilai dengan rubrik 01<br><br><b>Sumative Criteria:</b><br><br>Independent Assignment (5) dinilai dengan rubrik 01<br><br>Quiz (5) dinilai dengan rubrik 01<br><br><b>Assessment Technique:</b><br><br>Non Test | <b>Kuliah:</b><br><br>Cooperative learning (Cooperative learning)<br><br>3x3x50" | <b>Bentuk Lain:</b><br><br>Self-Directed Learning [3x3x60"]<br><br>3x3x60" | Fungsi Peubah Banyak | 10                             |

|     |                                                                                                                                                                                                            |                                                                                  |                                                                                                                                                                                                                                                                                                                                                            |                                                                                           |                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                   |    |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 4-5 | Students are able to solve partial derivatives (first/higher order), directed derivatives, and total derivatives by applying the chain rule, compound function derivatives, and related theorems. (CPMK-1) | <p><b>Formative:</b></p> <p>-</p> <p><b>Sumative:</b><br/>[if !supportLists]</p> | <p><b>Formative Criteria:</b></p> <p>Solve problems on partial derivatives, directed derivatives, and their interpretation. dinilai dengan rubrik 01</p> <p><b>Sumative Criteria:</b></p> <p>Independent Assignment (5) dinilai dengan rubrik 01</p> <p>Quiz (5) dinilai dengan rubrik 01</p> <p><b>Assessment Technique:</b></p> <p>Test and Non-Test</p> | <p><b>Studying:</b></p> <p>Cooperative learning (Cooperative learning)</p> <p>2x3x60"</p> | <p><b>Other Forms:</b></p> <p>Other methods [2x3x60"]</p> <p>2x3x60"</p> | <p><b>Partial Derivatives</b></p> <p>[if !supportLists]- [endif]First order and higher order partial derivatives.</p> <p>[if !supportLists]- [endif]Chain Rule.</p> <p>[if !supportLists]- [endif]Directional Derivative and Total Derivative</p> <p><b>[1] Ch 12.2, 12.4, 12.5; 12.6</b></p> <p><b>[2] Ch 14.3 and 14.5;</b></p> <p><b>[3] Ch 14.3 and 14.6;</b></p> <p><b>[4] Chapter 2</b></p> | 10 |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|

|     |                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                          |                                                                                                     |                         |    |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------|----|
| 6-7 | Students are able to apply n-order partial derivatives to extreme problems of two variables (with/without constraints), as well as to approximation problems via Taylor series expansion. (CPMK-2) | <p><b>Formative:</b></p> <p>-</p> <p><b>Sumative:</b></p> <p>[if !supportLists]-<br/>[endif]Precision in determining the type of extreme, both relative extreme and extreme global.</p> <p>[if !supportLists]-<br/>[endif]Accuracy in using the Lagrange method to determine the extreme values of functions with constraints or no constraints.</p> <p>- Clarity of steps in finding Taylor polynomials a function of two variables.</p> | <p><b>Formative Criteria:</b></p> <p>Solve extreme problems of two or three variables, with or without constraints, and determine the Taylor Series of functions of two variables. dinilai dengan rubrik 01</p> <p><b>Sumative Criteria:</b></p> <p>Independent Assignment (5) dinilai dengan rubrik 01</p> <p>Quiz (5) dinilai dengan rubrik 01</p> <p><b>Assessment Technique:</b></p> <p>Test and Non-Test</p> | <p><b>Studying:</b></p> <p>Cooperative learning (Cooperative learning)</p> <p>2x3x50</p> | <p><b>Other Forms:</b></p> <p>Self-Directed Learning</p> <p>Doing Assignments III</p> <p>2x3x60</p> | Rumus Taylor dua peubah | 10 |
| 8   | MIDTERM EXAM                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                          |                                                                                                     |                         | 20 |

|       |                                                                                                                                                      |                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                               |                                                                                          |                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                     |    |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 9-10  | Students are able to complete double and triple integrations by changing the integration order and coordinating coordinate transformations. (CPMK-1) | <p><b>Formative:</b></p> <p>-</p> <p><b>Sumative:</b></p> <p>-</p>                                                                                                                         | <p><b>Formative Criteria:</b></p> <p>Complete multiple integrations, change the integration order, and perform transformations to coordinates. dinilai dengan rubrik 01</p> <p><b>Sumative Criteria:</b></p> <p>Quiz (5) dinilai dengan rubrik 01</p> <p>Independent Assignment (5) dinilai dengan rubrik 01</p> <p><b>Assessment Technique:</b></p> <p>Test and Non-Test</p> | <p><b>Studying:</b></p> <p>Cooperative learning (Cooperative learning)</p> <p>3x2x50</p> | <p><b>Other Forms:</b></p> <p>Self-Directed Learning</p> <p><b>PT:</b></p> <p>Work on Assignment IV and submit it to SIKOLA</p> <p><b>[2x3x60"]</b></p> <p>2x3x60</p> | <p>Double Integral</p> <p>Double Integrals, changing the order of integrals, transformation of Cartesian coordinates to polar coordinates. Triple Integrals, transformation of Cartesian coordinates to cylindrical coordinates and spherical coordinates Double integral application</p> <p>[Book 2, Ch 13; Book 4, Chapter 4]</p> | 10 |
| 11-12 | Students are able to apply double and triple integration in calculating area, volume, average value and moment of inertia. (CPMK-2)                  | <p><b>Formative:</b></p> <p>-</p> <p><b>Sumative:</b></p> <p>Accuracy of use inner double integral area area calculation integration, average value, volume, moment and center of mass</p> | <p><b>Formative Criteria:</b></p> <p>Applying double integrals to determine the integration area, volume and moment of inertia dinilai dengan rubrik 01</p> <p><b>Sumative Criteria:</b></p> <p>Quiz (5)</p> <p>Independent Assignment (5) dinilai dengan rubrik 01</p> <p><b>Assessment Technique:</b></p> <p>Non Test</p>                                                   | <p><b>Studying:</b></p> <p>Cooperative learning (Cooperative learning)</p> <p>2x3x50</p> | <p><b>Other Forms:</b></p> <p>Self-Directed Learning</p> <p><b>PT:</b></p> <p>Work on Assignment VI and submit it to SIKOLA</p> <p>1x3x60</p>                         | [endif]                                                                                                                                                                                                                                                                                                                             | 10 |

|       |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                     |                                                                                           |                                                                                                                                                                      |   |     |
|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|
| 13-15 | Students are able to apply methods for solving first-order differential equations based on type and characteristics to obtain accurate solutions. (CPMK-2) | <p><b>Formative:</b></p> <p>-</p> <p><b>Sumative:</b></p> <p>[if !supportLists]-<br/>[endif]Precision identify differential equations based on order, degree, type.</p> <p>- Accuracy of steps in using the method variables can be separated, PD is homogeneous, PD is exact and non-exact, PD is linear and Bernoulli.</p> | <p><b>Formative Criteria:</b></p> <p>Menentukan solusi persamaan diferensial dengan beberapa metode. dinilai dengan rubrik 01</p> <p><b>Sumative Criteria:</b></p> <p>Independent Assignment (5) dinilai dengan rubrik 01</p> <p>Quiz (5) dinilai dengan rubrik 01</p> <p><b>Assessment Technique:</b></p> <p>Test and Non-Test</p> | <p><b>Studying:</b></p> <p>Cooperative learning (Cooperative learning)</p> <p>3x3x50"</p> | <p><b>Other Forms:</b></p> <p>Self-Directed Learning</p> <p><b>PT:</b></p> <p>Do Assignment V and submit it to SIKOLA</p> <p><b>[2x3x60"]</b></p> <p>BM: 3x3x60"</p> | - | 10  |
| 16    | FINAL EXAMS                                                                                                                                                |                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                     |                                                                                           |                                                                                                                                                                      |   | 20  |
|       |                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                     |                                                                                           |                                                                                                                                                                      |   | 100 |

**Matrix of SLO, CLO, and Assessment Method**

| SLO / CLO   | CLO-1 | CLO-2 |
|-------------|-------|-------|
| CPL-1 (P1)  |       |       |
| CPL-3 (KU1) |       |       |

### Evaluation Type and Assessment Weight

| Type                   | Assessment Weight |
|------------------------|-------------------|
| Independent Assignment | 30                |
| Quiz                   | 30                |
| Mid Test               | 20                |
| Final Test             | 20                |
| 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 | Quiz | Mid Test | Final Test |        |       |               |
| SLO-1                               | CLO-1 | SUB-CLO-1 | 1. Solve problems related to determining the domain and range of functions of two variables or 2. Prove the existence of limits and continuity of functions of two variables at a point | 5                      | 5    | 6.67     | 0          | 16.67  |       |               |
| SLO-1                               | CLO-1 | SUB-CLO-2 | Menyelesaikan soal turunan parsial, turunan berarah, dan interpretasinya.                                                                                                               | 5                      | 5    | 6.67     | 0          | 16.67  |       |               |
| SLO-3                               | CLO-2 | SUB-CLO-3 | Solve extreme problems of two or three variables, with or without constraints, and determine the Taylor Series of functions of two variables.                                           | 5                      | 5    | 6.67     | 0          | 16.67  |       |               |
| SLO-1                               | CLO-1 | SUB-CLO-4 | Complete multiple integrations, change the integration order, and perform transformations to coordinates.                                                                               | 5                      | 5    | 0        | 6.67       | 16.67  |       |               |
| SLO-3                               | CLO-2 | SUB-CLO-5 | Applying double integrals to determine the integration area, volume and moment of inertia                                                                                               | 5                      | 5    | 0        | 6.67       | 16.67  |       |               |
| SLO-3                               | CLO-2 | SUB-CLO-6 | Determine solutions to differential equations using several methods.                                                                                                                    | 5                      | 5    | 0        | 6.67       | 16.67  |       |               |
|                                     |       |           |                                                                                                                                                                                         | 30                     | 30   | 20       | 20         | 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                                 |