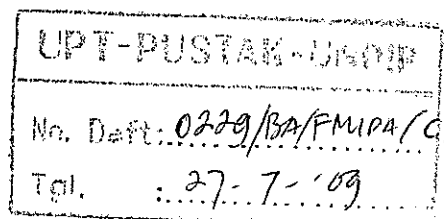




**TEACHING-LEARNING CONTRACT
LEARNING PROGRAM OUTLINE
LEARNING UNIT PROGRAM**

CALCULUS III

PAS 302



**STATISTICS STUDY PROGRAM OF MATHEMATICS DEPARTMENT
MATHEMATICS AND SCIENCE FACULTY
DIPONEGORO UNIVERSITY
SEMARANG
2007**

TEACHING – LEARNING CONTRACT

Course Title : Calculus III

Code : PAS 302

Credit : 3

Semester : III

1. Course Advantage

Giving elementary concept and stock to student for application and finish the problem of related : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals and finish the problem of more complex mathematics

2. Course Description

Calculus III at Statistic given for the student in semester 3 representing continuation of Calculus II and kalkulus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.

3. General Instructional Aim

After attend this course, the student are expected to comprehend and also finish the problem of related to certain : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals and also can applying its.

4. Lecture Strategic

this Lecturing Method use discourse method, question and answer and problem practices. Time estimation 150 minutes, 75 minutes of breakdown, problem example and question and answer, 75 minutes problem practice and do in front of class.

5. References

Reference book which used in this course is:

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

6. Number Of Hours and Division him

- Duty given self-supportingly
- Quiz will be given after two chapter finished
- Midterm and final exam given with closed book system.

7. Scoring Criteria

Criteria of scoring in this course is :

scoring	value
A	4.0
AB	3.5
B	3.0
BC	2.5
C	2.0
CD	1.5
D	1.0
DE	0.5
E	0.0

Determination of scoring criteria is used weighted such as :

No	Component	Percentage
1	Quiz	10
2	Self-done task Praktikum	10
3	Midterm	40
4	Final exam	40

8. Lecture Schedule

Week	Material	References
1	Infinite Series	Trench dan Kolman, (1972) Bradley and smith. (1995)
2	Sequence and their limits.	Trench dan Kolman, (1972) Bradley and smith. (1995)
3	Quiz The Integral Test.	Trench dan Kolman, (1972) Bradley and smith. (1995)
4	Comparasion Tests. The Ratio test.	Trench dan Kolman, (1972) Bradley and smith. (1995)
5	The Root Test. Alternating Series.	Trench dan Kolman, (1972) Bradley and smith. (1995)
6	Absolute and conditional convergence. Power series.	Trench dan Kolman, (1972) Bradley and smith. (1995)
7	Midterm	
8	Introduction Function of several variables.	Trench dan Kolman, (1972) Bradley and smith. (1995)
9	Limits and continuity. Partial derivative.	Trench dan Kolman, (1972) Bradley and smith. (1995)
10	Quiz Extrema of function of two variables	Trench dan Kolman, (1972) Bradley and smith. (1995)
11	Lagrange multipliers.	Trench dan Kolman, (1972) Bradley and smith. (1995)
12	Multiple integral. Double integral	Trench dan Kolman, (1972) Bradley and smith. (1995)
13	Quiz Triple integrals	Trench dan Kolman, (1972) Bradley and smith. (1995)
14	Final Exam	

LEARNING PROGRAM OUTLINE

Course Title : Calculus 3

Code : PAS 302

Credit : 3

Semester : 3

Course Description

Calculus III at Statistic given for the student in semester 3 representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.

General Instructional Aim

After attend this course, the student are expected to comprehend and also finish the problem of related to, Fundamental theorem for Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals. Multiple integral usage : wide of flat, length of arc, rotation object volume, wide of rotat limits and continuity ion object, center of mass and inertia mass, and also can applying its.

No	Specific Instructional Aim	Subject	Sub Subject	duration	References
1	After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus I	<ul style="list-style-type: none"> ▪ Course Introduction ▪ Introduction function of several variables 	<ul style="list-style-type: none"> ▪ Introduction ▪ limits and con partial derivative tinity 	150 minutes	[1] and [2]
2	After studying this	extrema of	▪ extrema of	150	[1] and [2]

	course, the student are expected to be able to explaining extrema of function of two variables.	function of two variables	function of two variables ▪ lagrange multipliers	minutes	
3	After studying this course, the student are expected to be able to using concept infinite Series	infinite Series	▪ introduction infinite Series ▪ sequence and their limits, ▪ The Integral Test	150 minutes	[1] and [2]
4	After studying this course, the student are expected to be able to using concept infinite Series	infinite Series	▪ The Integral Test ▪ Comparasion Tests ▪ The Ratio test and the Root Test	150 minutes	[1] and [2]
5	After studying this course, the student are expected to be able to using concept infinite Series	infinite Series	▪ Alternating Series ▪ absolute and conditional convergence ▪ power series	150 minutes	[1] and [2]
6	After studying this course, the student are expected to be able to explaining the definition of certain multiple integral	multiple integral	▪ double integral ▪ surface area	150 minutes	[1] and [2]
7	After studying this course, the student are expected to be able to explaining the definition of certain multiple integral.	multiple integral	▪ triple integrals ▪ Mass, Moments, Pdf Function ▪ Acobians:change of variables.	150 minutes	[1] and [2]

References :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 1

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Course Introduction and Introduction of infinite Series

C. SUB SUBJECT : Introduction finfinite Series and sequences.

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Expalining about matter at the 1st meeting ▪ Expalining about general and specific objectives competence ▪ Expalining about infinite Series and sequence which have been passed 	Observing and taking notes	OHP, transparancy White board

	to Calculus II and calculus I.		
PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about uncertain infinite Series and Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparency White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-2 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 2

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Infinite Series

C. SUB SUBJECT : Sequence and their limits

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Expalining about matter at the 2nd meeting ▪ Expalining about general and specific objectives competence ▪ Expalining about Certain integral (Riemann) conce sequence and their limits 	Observing and taking notes	OHP, transparancy White board

PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining certain integral elementary concepts and congeniality and geometric interpretation of him ▪ Explaining the characteristic of certain integral sequence and their limits ▪ Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparency White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-3 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 3

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Infinite Series

C. SUB SUBJECT : The Integral Test

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none">▪ Expalining about matter at the 3rd meeting▪ Expalining about general and specific objectives competence▪ Quiz▪ Expalining about	Observing and taking notes	OHP, transparancy White board

PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about The Integral Test partial integral technique ▪ Explaining about The Integral Test as Limit of amount ▪ Explaining about Fundamental theorem for counting integral ▪ Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparency White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-4 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 4

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about :Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Infinite Series

C. SUB SUBJECT : Comparasion Tests, The Ratio test

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Explaining about matter at the 4th meeting ▪ Explaining about general and specific objectives competence ▪ Explaining Explaining about Comparasion Tests, The Ratio test 	Observing and taking notes	OHP, transparancy White board

PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about average value theorem Comparasion Tests, The Ratio test and Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparancy White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-5 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 5

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Infinite Series

C. SUB SUBJECT : The Root Test, Alternating Series

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Explaining about matter at the 5th meeting ▪ Explaining about general and specific objectives competence ▪ Explaining about The Root Test, Alternating Series 	Observing and taking notes	OHP, transparancy White board

PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about The Root Test, Alternating Series ▪ Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparency White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-6 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 6

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Infinite Series

C. SUB SUBJECT : Absolute and conditional convergence, power series

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none">▪ Explaining about matter at the 1st meeting▪ Explaining about general and specific objectives competence▪ Quiz	Observing and taking notes	OHP, transparency White board
PRESENTATION	<ul style="list-style-type: none">▪ Explaining about absolute and conditional convergence, power	Observing, asking, taking notes, doing	OHP, transparency White board

	series. <ul style="list-style-type: none"> ▪ Giving some example ▪ Writing questions requesting personal information 	task	
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at midterm 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 8

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Function of several variables

C. SUB SUBJECT : Introduction and definition function of several variables

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Expalining about matter at the 8th meeting ▪ Expalining about general and specific objectives competence ▪ Reminding again uncertain Introduction and definition function of several variables 	Observing and taking notes	OHP, transparancy White board

PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about concept and congeniality of wide of a curve ▪ Explaining about length of arc concepts and congeniality ▪ Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparency White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-9 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3

Code : PAS 302

Credit : 3

Duration : 150 minutes

Week : 9

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Function of several variables

C. SUB SUBJECT : Limits and continuity

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Explaining about matter at the 9th meeting ▪ Explaining about general and specific objectives competence ▪ Reminding again limits and continuity 	Observing and taking notes	OHP, transparency White board
PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about concepts and 	Observing, asking, taking	OHP, transparency White board

	congeniality of rotation object volume <ul style="list-style-type: none"> ▪ Explaining about concepts and congeniality of wide of rotation object ▪ Giving some example ▪ Writing questions requesting personal information 	notes, doing task	
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-10 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3

Code : PAS 302

Credit : 3

Duration : 150 minutes

Week : 10

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Function of several variables

C. SUB SUBJECT : Extrema of function of two variables

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Explaining about matter at the 10th meeting ▪ Explaining about general and specific objectives competence ▪ Quiz 	Observing and taking notes	OHP, transparancy White board
PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about Extrema of function of two variables Explaining 	Observing, asking, taking notes, doing	OHP, transparancy White board

	about Extrema of function of two variables Giving some example <ul style="list-style-type: none"> ▪ Writing questions requesting personal information 	task	
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-11 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3

Code : PAS 302

Credit : 3

Duration : 150 minutes

Week : 11

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparasion Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Function of several variables

C. SUB SUBJECT : Lagrange multipliers

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none">▪ Explaining about matter at the 11th meeting▪ Explaining about general and specific objectives competence▪ Explaining special functions of integral form	Observing and taking notes	OHP, transparancy White board

PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about Lagrange multipliers . ▪ Giving some example ▪ Writing questions requesting personal information 	Observing, asking, taking notes, doing task	OHP, transparency White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-12 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 3
Code : PAS 302
Credit : 3
Duration : 150 minutes
Week : 12

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, Lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparison Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing content and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Multiple integral

C. SUB SUBJECT : Definition of Multiple integral, double integral. Surface Area

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none"> ▪ Explaining about matter at the 12th meeting ▪ Explaining about general and specific objectives competence ▪ and integral 	Observing and taking notes	OHP, transparency White board
PRESENTATION	<ul style="list-style-type: none"> ▪ Explaining about 	Observing,	OHP, transparency

	definition Multiple integral, double integral. Surface Area and Giving some example <ul style="list-style-type: none"> ▪ Writing questions requesting personal information 	asking, taking notes, doing task	White board
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-13 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.

LEARNING UNIT PROGRAM

Course Title : Calculus 2

Code : PAS

Credit : 3

Duration : 150 minutes

Week : 13

A. INSTRUCTIONAL AIM

1. General : Calculus III at Statistic given for the student in semester III representing continuation of Calculus II and Calculus I. As for Calculus III study about : Function of several variables, limits and continuity, partial derivative, extrema of function of two variables, lagrange multipliers, infinite Series, sequence and their limits, The Integral Test, Comparison Tests, The Ratio test and the Root Test, Alternating Series, absolute and conditional convergence, power series, the certain multiple integral, double integral and triple integrals.
2. Specific : After studying this course, the student are expected to be able to knowing lecturing contract and recollect integral items which have been passed to Calculus II and Calculus I

B. SUBJECT : Multiple integral

C. SUB SUBJECT : Definition of triple integral, jacobians, change of variables.

D. TEACHING-LEARNING ACTIVITIES

STAGE	LECTURER ACTIVITIES	STUDENT ACTIVITIES	LEARNING MEDIA
INTRODUCTION	<ul style="list-style-type: none">▪ Explaining about matter at the 12th meeting▪ Explaining about general and specific objectives competence▪ Quiz	Observing and taking notes	OHP, transparency White board
PRESENTATION	<ul style="list-style-type: none">▪ Explaining about definition of triple	Observing, asking, taking	OHP, transparency White board

	integral, jacobians, change of variables. <ul style="list-style-type: none"> ▪ Giving some example ▪ Writing questions requesting personal information 	notes, doing task	
CLOSING	<ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at final exam 	Answering to, discussion, taking a notes	White board

E. ASSESSMENT : Giving problem to the students..

F. REFERENCES :

1. Trench dan Kolman, 1972, *Multivariable Calculus with Linear Algebra and Series*, Academic Press
2. Bradley and smith., 1995, *Calculus*, Prentice –Hall, Inc.