



TEACHING-LEARNING CONTRACT
LEARNING PROGRAM OUTLINE
LEARNING UNIT PROGRAM

CALCULUS 2
PAS 202

LPT-PUSITAK-UNSWP

No. Datt: 0083/BA/PMMP/C

Tgl. : 16.6.07

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

TEACHING – LEARNING CONTRACT

Course Title : Calculus II

Code : PAS 202

Credit : 3

Semester : 2

1. Course Advantage

Giving elementary concept and stock to student for application and finish the problem of related to certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral in everyday life and finish the problem of more complex mathematics

2. Course Description

Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.

3. General Instructional Aim

After attend this course, the student are expected to comprehend and also finish the problem of related to certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral, 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. Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.
2. Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

6. Number Of Hours and Division

- 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. Jadwal Perkuliahan

| Week | Material | References |
|------|--|--------------------------------|
| 1 | Introduction Introductio to integral | Mizrahi (1982) Salas (1982) |
| 2 | Certain Integral (Riemann) | Mizrahi (1982) Salas (1982) |
| 3 | <ul style="list-style-type: none"> ▪ Quiz ▪ Integral Technique : Integral as Limit of amount , Fundamental Theorem of integrally | Mizrahi (1982) Salas (1982) |
| 4 | Integral Technique : Theorem Average Value of integrally | Mizrahi (1982) Salas (1982) |
| 5 | Unnatural Integral : unnatural Integral - infinite boundary | Mizrahi (1982) Salas (1982) |
| 6 | <ul style="list-style-type: none"> ▪ Quiz ▪ Unnatural Integral : unnatural Integral - infinite integran | Mizrahi (1982) Salas (1982) |
| 7 | Midterm | |
| 8 | Integral Usage : Wide of flat, length of arc | Mizrahi (1982) Salas (1982) |
| 9 | Integral Usage : Volume of arround object and Wide of rotation | Mizrahi (1982) Salas (1982) |
| 10 | <ul style="list-style-type: none"> ▪ Quiz ▪ Integral Usage : center of mass, inertia mass | Mizrahi (1982) Salas (1982) |

| | | |
|----|--|--------------------------------|
| 11 | Beta and Gamma Function | Mizrahi (1982) Salas (1982) |
| 12 | Fourier Series and integral : periodic Definition Function and geometry series, Fourier series for periodic function with 2π period | Mizrahi (1982) Salas (1982) |
| 13 | <ul style="list-style-type: none"> ▪ Quiz ▪ Fourier Series and integral : Fourier Series for periodic function with $2L$ period ▪ Sine and cosine fourier Series | Mizrahi (1982) Salas (1982) |
| 14 | Final Exam | |

LEARNING PROGRAM OUTLINE

Course Title : Calculus 2

Code : PAS 202

Credit : 3

Semester : 2

Course Description

Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.

General Instructional Aim

After attend this course, the student are expected to comprehend and also finish the problem of related to certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral, 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 of Integral | <ul style="list-style-type: none"> ▪ Introduction ▪ Uncertain integral ▪ Certain Integral | 150 minutes | [1] and [2] |
| 2 | After studying this course, the student are expected to be able to | Certain Integral (Riemann) | <ul style="list-style-type: none"> ▪ Certain Integral and his characteristic ▪ Certain Integral for | 150 minutes | [1] and [2] |

| | | | | | |
|---|---|--------------------|--|-------------|-------------|
| | explaining about uncertain integral of a function, and can determine certain integral value of a function. | | function having the special characteristic | | |
| 3 | After studying this course, the student are expected to be able to using concept of limit to explain integral definition and can differentiate integral problem forms and finishing him by using certain integral technique | Integral technique | <ul style="list-style-type: none"> ▪ Integral as Limit of amount ▪ Fundamental theorem for counting integral ▪ average value theorem for counting integral | 300 minutes | [1] and [2] |
| 4 | After studying this course, the student are expected to be able to explaining unnatural integral forms and can finish problems it related to unnatural integral form. | Unnatural integral | <ul style="list-style-type: none"> ▪ unnatural Integral - infinite boundary ▪ unnatural Integral - infinite integran | 300 minutes | [1] and [2] |
| 5 | After studying this course, the student are expected to be able to using integral for calculate wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass | Integral usage | <ul style="list-style-type: none"> ▪ wide of flat, ▪ length of arc, ▪ rotation object volume ▪ wide of rotation object ▪ center of mass ▪ inertia mass | 450 minutes | [1] and [2] |
| 6 | After studying this course, the student are expected to be able to explaining the definition of Beta and Gamma function, explaining its relation with Gamma | Special Functions | <ul style="list-style-type: none"> ▪ Beta function ▪ Gamma function | 150 minutes | [1] and [2] |

| | | | | | |
|---|--|-------------------------------------|---|-------------|-------------|
| 7 | After studying this course, the student are expected to be able to elaborating a function in fourier series and determine the amount of a series which is convergent by using fourier expanse of certain function. | Fourier series and fourier Integral | <ul style="list-style-type: none"> ▪ Definition of periodic function and geometry series ▪ Fourier series for periodic function with 2π period ▪ Fourier series for periodic function with 2π period ▪ Sine and cosine fourier Series | 300 minutes | [1] and [2] |
|---|--|-------------------------------------|---|-------------|-------------|

References :

1. Mizrahi, A. and Sullivan M., 1982, *Calculus and Analyic Geometry*, Wadsworth.
2. Salas, S.L. and Hille E., 1982, *Calculus One ans Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 1

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
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 I

B. SUBJECT : Course Introduction and Introduction of Integral

C. SUB SUBJECT : Course Introduction, Uncertain Integral, Certain Integral

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 ▪ Explaining about lecturing contract and recollect integral items which have been passed | Observing and taking notes | OHP, transparency White board |

| | | to Calculus I | | |
|--------------|--|--|---|-------------------------------|
| PRESENTATION | | <ul style="list-style-type: none"> ▪ Explaining about uncertain integral and certain 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-2 | Answering to, discussion, taking a notes | White board |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 2

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to explaining about uncertain integral of a function, and can determine certain integral value of a function

B. SUBJECT : Certain integral (Riemann)

C. SUB SUBJECT : Course Certain Integral and his characteristic, Certain Integral for function having the special characteristic

D. TEACHING-LEARNING ACTIVITIES

| STAGE | LECTURER ACTIVITIES | STUDENT ACTIVITIES | LEARNING MEDIA |
|--------------|--|----------------------------|-------------------------------|
| INTRODUCTION | <ul style="list-style-type: none"> ▪ Explaining about matter at the 2nd meeting ▪ Explaining about general and specific objectives competence ▪ Explaining about Certain integral (Riemann) concept | 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 ▪ 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

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 3

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to using concept of limit to explain integral definition and can differentiate integral problem forms and finishing him by using certain integral technique

B. SUBJECT : Integral technique

C. SUB SUBJECT : Integral Integral as Limit of amount, Fundamental theorem for counting integral

D. TEACHING-LEARNING ACTIVITIES

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

| | | | |
|--------------|--|---|-------------------------------|
| | <ul style="list-style-type: none"> ▪ Explaining about integral technique | | |
| PRESENTATION | <ul style="list-style-type: none"> ▪ Explaining about partial integral technique ▪ Explaining about Integral Integral 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

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.
 Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 4

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to using concept of limit to explain integral definition and can differentiate integral problem forms and finishing him by using certain integral technique

B. SUBJECT : Integral technique

C. SUB SUBJECT : Average value theorem for counting integral

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 integral technique | Observing and taking notes | OHP, transparency White board |
| PRESENTATION | <ul style="list-style-type: none"> ▪ Explaining about | Observing, | OHP, transparency |

| | | | |
|---------|---|---|--------------------|
| | <p>average value theorem for counting integral</p> <ul style="list-style-type: none"> ▪ Giving some example ▪ Writing questions requesting personal information | <p>asking, taking notes, doing task</p> | <p>White board</p> |
| CLOSING | <ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-5 | <p>Answering to, discussion, taking a notes</p> | <p>White board</p> |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 5

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to explaining unnatural integral forms and can finish problems it related to unnatural integral form

B. SUBJECT : Unnatural integral

C. SUB SUBJECT : Unnatural Integral - infinite boundary

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 Unnatural integral concept | Observing and taking notes | OHP, transparency White board |
| PRESENTATION | <ul style="list-style-type: none"> ▪ Explaining about | Observing, | OHP, transparency |

| | | | |
|---------|--|---|--------------------|
| | <p>Unnatural Integral - infinite boundary</p> <ul style="list-style-type: none"> ▪ Giving some example ▪ Writing questions requesting personal information | <p>asking, taking notes, doing task</p> | <p>White board</p> |
| CLOSING | <ul style="list-style-type: none"> ▪ Giving comment to work student ▪ Giving task to be done at home ▪ Describing material at week-6 | <p>Answering to, discussion, taking a notes</p> | <p>White board</p> |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 6

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to explaining unnatural integral forms and can finish problems it related to unnatural integral form

B. SUBJECT : Unnatural Integral

C. SUB SUBJECT : Unnatural Integral - infinite integran

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 Unnatural Integral - infinite integran | Observing, asking, taking notes, doing | OHP, transparency White board |

| | | | |
|---------|--|--|-------------|
| | <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

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.
 Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 8

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to using integral for calculate wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass

B. SUBJECT : Integral usage

C. SUB SUBJECT : Wide of flat, length of arc

D. TEACHING-LEARNING ACTIVITIES

| STAGE | LECTURER ACTIVITIES | STUDENT ACTIVITIES | LEARNING MEDIA |
|--------------|---|----------------------------|----------------------------------|
| INTRODUCTION | <ul style="list-style-type: none"> ▪ Explaining about matter at the 8th meeting ▪ Explaining about general and specific objectives competence ▪ Reminding again uncertain integral formulas a function | Observing and taking notes | OHP, transparency 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

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 9

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to using integral for calculate wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass

B. SUBJECT : Integral usage

C. SUB SUBJECT : rotation object volume, wide of rotation object

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 uncertain integral formulas a function | Observing and taking notes | OHP, transparency White board |

| | | | |
|--------------|---|---|----------------------------------|
| PRESENTATION | <ul style="list-style-type: none"> ▪ Explaining about concepts and congeniality of rotation object volume ▪ Explaining about concepts and congeniality of wide of rotation object ▪ 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-10 | Answering to, discussion, taking a notes | White board |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.
 Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 10

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to using integral for calculate wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass

B. SUBJECT : Integral Usage

C. SUB SUBJECT : Center of mass and inertia mass

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, transparency White board |
| PRESENTATION | <ul style="list-style-type: none"> ▪ Explaining about concepts and | Observing, asking, taking | OHP, transparency White board |

| | | | | |
|---------|--|--|--|-------------|
| | | <p>congeniality of Center of mass</p> <ul style="list-style-type: none"> ▪ Explaining about concepts and congeniality of inertia mass ▪ 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-11 | Answering to, discussion, taking a notes | White board |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 11

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to explaining the definition of Beta and Gamma function, explaining its relation with Gamma.

B. SUBJECT : special functions

C. SUB SUBJECT : Beta and Gamma function

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, transparency White board |
| PRESENTATION | <ul style="list-style-type: none"> ▪ Explaining about | Observing, | OHP, transparency |

| | | | | |
|---------|--|--|--|-------------|
| | | concepts and congeniality of Beta function ▪ Explaining about concepts and congeniality of Gamma function ▪ Giving some example ▪ Writing questions requesting personal information | asking, taking notes, doing task | White board |
| CLOSING | | ▪ 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

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 12

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to elaborating a function in fourier series and determine the amount of a series which is convergent by using fourier expanse of certain function.

B. SUBJECT : Fourier series and integral

C. SUB SUBJECT : Definition of periodic function and geometry series, Fourier series for periodic function with 2π period

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 ▪ Explaining about | Observing and taking notes | OHP, transparency White board |

| | | | | |
|--------------|--|--|---|----------------------------------|
| | | concepts Fourier series and integral | | |
| PRESENTATION | | <ul style="list-style-type: none"> ▪ Explaining about definition of periodic function and geometry series, fourier series for periodic function with 2π period ▪ 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-13 | Answering to, discussion, taking a notes | White board |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.

Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York.

LEARNING UNIT PROGRAM

Course Title : Calculus 2
Code : PAS 202
Credit : 3
Duration : 150 minutes
Week : 13

A. INSTRUCTIONAL AIM

1. General : Calculus II at Statistic given for the student in semester II representing continuation of Calculus I. As for Calculus II study about : certain integral (Riemann), integral as limit of amount, nature of certain integral, Fundamental theorem for counting integral, average value theorem for counting integral, unnatural integral, integral usage : wide of flat, length of arc, rotation object volume, wide of rotation object, center of mass and inertia mass, Beta and Gamma Function, Fourier series and integral.
2. Specific : After studying this course, the student are expected to be able to elaborating a function in fourier series and determine the amount of a series which is convergent by using fourier expanse of certain function.

B. SUBJECT : Fourier series and integral

C. SUB SUBJECT : Definition of periodic function and geometry series, Fourier series for periodic function with $2L$ period

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 periodic function and geometry series, fourier series for periodic function with 2L period ▪ 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 final exam | Answering to, discussion, taking a notes | White board |

E. ASSESSMENT

: Giving problem to the students..

F. REFERENCES

: Mizrahi, A. and Sullivan M., 1982, *Calculus and Analytic Geometry*, Wadsworth.
 Salas, S.L. and Hille E., 1982, *Calculus One and Several Variables*, John Wiley and Sons, New York..