

**STUDYING CONTRACT
LEARNING UNIT PROGRAM
LEARNING PROGRAM OUTLINE**

CALCULUS II

COURSE CODE: PAM 200

3 SCU

SEMESTER II



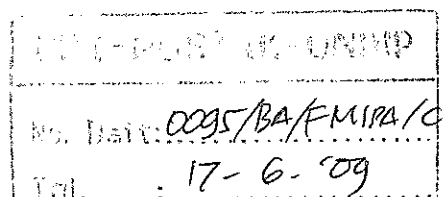
By:

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**STATISTICS STUDY PROGRAM
MATHEMATICS AND NATURAL SCIENCES FACULTY
DIPONEGORO UNIVERSITY
SEMARANG**

LECTURING PROGRAM OUTLINE

Title of Course	: Calculus II
Code of Course	: PAM 200
Lecturer	: Dr. Widowati, M,Si Robertus Heri, S.Si, M.Si Farikhin, S.Si, M.Si Drs. Djuwandi, SU
Semester	: II
Day of Lecturing/ Time	: Tuesday, 12.30-14.10 Thursday, 07.30-09.10
Room of Lecturing	: Room B103, E 101

1. Utility of Course

Calculus is one of fundamental courses which must know by every student of science and technique, so so that student actively can develop; build its own knowledge [pass/through] [is] same [job/activity] in group, discussing, and [is] assisting each other. Besides student expected can improve critical contemplative faculties and become more creative and also become more responsive in using knowledge and its [his/its] in life of reality.

2. Description of Lecturing

This course represent prerequisite for the course of Calculus of Peubah A lot study about unnatural integral [at] pipe till and do not till, line convergent and of series number of real, test convergent of series positive terms, series change and sign of series rank, gamma function, beta function, fourier series, Laplace transformasi along with its its[his]. This course try as possible give theory bases and also [is] which [is] very needed

by eye of kuliah other, which in the form of definition, theorem, and accompanied [by] problem example [of] and solution [is] and also provided with problem practice which vary with high rise difficulty storey;level.

3. Instructional Aim

3.1 General

After studying this course (at the end of 2nd semester), students having understanding the right concepted about principal topics in Calculus II with theorems, properties, and techniques in Calculus II.

3.2 Specific

At the end of lecturing, student expected can:

1. Explaining improper integral with solving examples interconnected with improper integral.
2. Explaining convergency of sequences of number and its theorems.
3. Explaining test of convergency of series with positif terms.
4. Explainin test of convergency of alternating series, and solving examples..
5. Explaining functions able to be written in McClaurin/Taylor series, convergency interval, differentiability and integration power series.
6. Will be able to elaborate a function to fourier series, and determining sum of series that convergen with fourier expantion for a function.
7. Will be able to write definition of beta and gamma function, explaining its relation with definite integral.
8. Will be able to write definition of Laplace Transform , memorize laplace transform's formula for fundamental function and applying to solve examples.
9. Will be able to write and understanding definition of laplace transform inverse and applying to solve examples.
10. Next lecturing is laboratory activity with subject with corespondwith concepts of Calculus II..

4. Strategy of Lecturing

Lecturing method the used is method of cooperative type STAID based on real problem solving. Metode perkuliahan yang digunakan adalah *metode kooperatif tipe STAD berbasis real problem solving*. [At] study of type co-operative of STAID, process study more is emphasizing at [of] activity learn group, where student actively [do/conduct] discussion, cooperate, [is] assisting each other, and all group member have [is] same responsibility and role. While lecturer personate organizer activity of teaching and learning, source of information to student, impeller and giver of opportunity to student to learn, and also penyedia of items. Each;Every group consist of 4-6 student representing high capable student mixture, [is], and lower (pursuant to cumulative achievement index which have been obtained [by] [at] previous semester).

Time of lecturing is 1x100 minute, each allocation 40 minute to study fundamental theory [of] discussion, 30 next minute [of] group diskusi, and 30 the rest minute to give opportunity to student to do problem practice and/or presentation. Besides, student [is] also given [by] duty which [is] presented in portofolio and result [is] presented. This Portfolio represent activity corps / done [by] duty [is] student in context learn [at] problem of reality. [At] lecturing of Calculus of II this also work [is] equal to other insitusi which have past master to lecture knowledge about application of Calculus concepts of II [at] problems of reality. Hereinafter, used last four meeting for the activity of praktikum. Student following lecturing counted 55 student.

5. References

1. James Stewart, *Calculus*, Fourth Edition, Brooks/Cole Publishing Company, 1999.
2. Koko Martono, *Kalkulus*, Erlangga, 1999.
3. Murray Spiegell (alih bahasa Pantur Silaban, Ph.D), *Advanced Calculus*, PT Gelora Aksara Pratama, 1990.
4. Thomas, B.G. dan Finney, R.L, *Calculus with Analitic Geometry 8th*, Addison-Wisley Publishing Company, Inc., 1994.
5. Edwin J Purcell, Dale Varberg, *Calculus with Analytic Geometry*, Prentice-Hall. Inc., New York, 1987.
6. Frank Ayres, *Calculus*, Mac. Graw Hills, 1964.

7. Louis Leithold, Calculus with Analytic Geometry, harper and Row Publisher, New York.
8. Stroud, K.A., Engeneering Mathematics, MacMillan Press, 1987.

6. Assignment/Portfolio/Presentation

Individual assignment, group, and portfolio passed to student after finishing to study each;every discussion fundamental. Result of group duty to investigate the problem of related to life of reality presented and expostulated [by] between group. This matter represent one of [the] assessment component.

7. Assessment Criterion.

Assessment criterion the used is :

1. Score A : 91-100
2. Score AB : 81-90
3. Score B : 71-80
4. Score BC : 61-70
5. Score C : 51-60
6. Score CD : 41-50
7. Score D : 31-40
8. Score E : <30

In determining final score will use the following assessment

1. Assignment/Portfolio/Quis : 20 %
2. Presentation/Laboratory activity : 20 %
3. Mid exam : 30%
4. Final exam : 30 %

If after accumulation, total third the score component still less, liveliness score when student go forward to finish given problem, can be enhanced, so that opportunity a student get score less earn minimalize.

8. Schedule of Lecturing

WEEK	SUBJECT OF LECTURING	LECTURER
I	Introduction, Backgroun, Scope, Competence of Calculus II.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si

II	Improper integral in finite and infinite interval.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
III	Congruence sequence of real number, monotonic sequence, bounded sequence, convergent sequence.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
IV	Convergent series, geometric series, infinite series.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
V	Test to know convergence of series.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
VI	Alternating series	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
VII	Power series, properties, differentiation and integration of power series.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
VII	Taylor, Maclaurin, Binomial Series.	Dr. Widowati, M.Si Farikhin, S.Si, M.Si
IX	Mid Exam	Panitia Ujian.
X	Definition of periodic function, trigonometric series, Fourier series	Drs. Djuwandie, SU Robertus Heri, S.Si., M.Si
XI	Beta and Gamma function	Drs. Djuwandie, SU Robertus Heri, S.Si., M.Si
XII-XIII	Laplace Transformation	Drs. Djuwandie, SU Robertus Heri, S.Si., M.Si
XIV-XV	Invers of Laplace Transformation	Drs. Djuwandie, SU Robertus Heri, S.Si., M.Si
XVI	Laboratory activity	Dr. Widowati, M.Si Farikhin, S.Si, M.Si Robertus Heri, S.Si., M.Si
XVII	Lecturing of knowledge.	Drs. Widodo, DEA
XVII	Laboratory activity	Farikhin, S.Si, M.Si Robertus Heri, S.Si., M.Si
XVIIi	Final exam	Comitee of exam

LEARNING PROGRAM OUTLINE

Title of Course : Calculus II
 Code of Number/Credit : MAT / 4 SKS
 Short Description : This Course studying about sequence and series, specific functions, Laplace transformation, inverse of Laplace transformation

GENERAL INSTRUCTIONAL AIM

No	Specific Instructional Aim	Subject	Sub Subject	Time Estimation	References
1	2	3	4	5	6
1	After studying this subject (at the end of 2 th lecturing), student will be able to explain understanding of improper integral on finite and infinite integral, and solving exercises.	Improper Integral	1. Improper Integral on infinite interval. 2. Improper Integral on finite interval	2 times lecturing (2 x 100 minutes)	[1]-[4]
2	After studying this subject (at the end of 4 th lecturing), student will be able to explain understanding of real number sequence, monoton & bounded sequence, convergen, and can investigate monoton and series convergen.	Convergency of sequence	1. Understanding of real number series. 2. Monoton sequence.. 3. Bounded sequence. 4. Convergen sequence.	2 times lecturing (2 x 100 minutes)	[1]-[4]
3	After studying this subject (at the end of 6 th lecturing), student will be able to explain difference convergen and divergen series, congeniality and properties of geometric series and infinite series, also solving examples interconnected.	Convergency of real number series.	1. Convergen Series 2. Geometric series 3. Properties of geometric series. 4. Properties infinite series.	2 times lecturing (2 x 100 minutes)	[1]-[4]
4	After studying this subject (at the end of 8 th lecturing), student will be able to explain test of comparison with other series, test of limit with other series, also applying to solve examples.	Uji kekonvergenan deret suku-suku positif	1. Test of comparison with other series. 2. Test of limit comparison with other series. 3. Test with others series 4. Test of Integral with improper integral	2 times lecturing (2 x 100 minutes)	[1]-[4]

5	After studying this subject (at the end of 17 th lecturing), student will be able to elaborate a function into fourier series , determining sum of convergent series with fourier expansion from a function.	Fourier Series	5. Definition of periodic function and geometric series. 6. Fourier series for periodic function with period 2π 7. Foutier series for periodic function with period $2L$. 8. Sinus and Cosinus series 9. Parseval Identity	4 times lecturing (4 x 100 minutes)	[1]-[5]
6	After studying this subject (at the end of 19 th lecturing), student will be able to write definition of gamma and beta function, and explaining its relation with definite integral and solving exercises.	Specific Functions	1. Gamma and Beta function	3 times lecturing (3 x 100 minutes)	[1]-[5]
7	After studying this subject (at the end of 24 th lecturing), student will be able to write definition of Laplace transform, memorize laplace transform's formula, memorize laplace transform's fundamental formula, fundamental properties of laplace transform, and solving one of indefinite integral with laplace transform.	Laplace Transformation	1. Definition and existence of Laplace Transformation. 2. Determining result of laplace transform for fundamental functon. 3. Properties of Laplace Transformation.	3 times lecturing (3 x 100 minutes)	[1]-[5]
8	After studying this subject (at the end of 27 th lecturing), student will be able to write definition of laplace transform inverse, and solving invers laplace transform's exercises..	Invers Transformasi Laplace	5. Definition of Laplace transform inverse. 6. Properties of Sifat-sifat Laplace transform inverse	3 times lecturing (3 x 100 minutes)	[1]-[5]

References:

1. Edwin J Purcell, Dale Varberg, Calculus With Analitic Geometry, Prentice-Hall. Inc, New York, 1987
2. Frank Ayres, Calculus, Mac. Graw Hills, 1964
3. Louis Leithold, Calculus With Analytic Geometri, Harper and Row Publisher, New York
4. K.A. Stroud, Engeenering Mathematics, MacMillan Press Ltd, 1987.
5. James Stewart, Calculus, Fourth Edition, Brooks/Cole Publishing Company, 1999

LEARNING UNIT PROGRAM

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 1
 Time of Lecturing : 100 minutes

A. Instructional Aim

1. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
2. Specific : After studying this course, student will be able to explain improper integral and solving examples of improper integral.

B. Subject : Improper integral.
 C. Sub Subject

1. Improper integral on finite interval.
2. Improper integral on infinite interval.

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	<ol style="list-style-type: none"> 1. Explaining subject will discuss in first and second lecturing. 2. Giving explaining about utility of this subject to discuss next lecturing. 	Paying Attention Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing
Presentation	<ol style="list-style-type: none"> 1. Reviewing concept of definite integral. 2. Explaining definition of improper integral on finite interval, and giving illustration and examples. 3. Explaining definition of improper integral on infinite interval, and giving illustration and examples. 4. Giving examples convergen and divergeni 	Reviewing and Paying Attention Paying Attention Reply the questions , Doing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing

	mpproper integral	Exercises, and Discussing		
Closing	<ol style="list-style-type: none"> 1. Giving opportunity for student to ask 2. Giving general description for next lecturing. 	<ol style="list-style-type: none"> Asking Paying Attention 	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing

E. Evaluation : Giving individual assignment for student as homework

- F. References
1. James Stewart, *Calculus*, Fourth Edition, Brooks/Cole Publishing Company, 1999.
 2. Koko Martono, *Calculus*, Erlangga, 1999.
 3. Murray Spiegell (alih bahasa Pantur Silaban, Ph.D), *Advanced Calculus*, PT Gelora Aksara Pratama, 1990.
 4. Thomas, B.G. and Finney, R.L, *Calculus with Analitic Geometry 8th*, Addison-Wisley Publishing Company, Inc., 1994.

LEARNING UNIT PROGRAM (SAP)

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 2 and 3
 Time of Lecturing : 100 minutes

A. Instructional Aim

1. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
2. Specific : After studying this course, student will be able to explain convergency of real number sequence and its theorems.

B. Subject : Convergency of real number sequence

- C. Sub Subject
1. Congeniality of real number sequence.
 2. Monoton Sequence.
 3. Limited sequence.
 4. Convergen of sequence.

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	3. Discuss assignment 1 th nad 2 th	Paying Attention and	OHP, Transparant, Blackboard	Lecturing

Presentation	<ul style="list-style-type: none"> 4. Reviewing about function that domain is real number. 5. Explaining presentating a sequqnce. 6. Explaining monoton sequence 7. Explaining limited sequence 8. Explaining convergen sequence. 	Reviewing Paying Attention Paying Attention Paying Attention Doing exercises and discussing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Closing	<ul style="list-style-type: none"> 9. Giving opportunity for student to ask 10. Giving general description for next lecturing. 	Asking Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing

E. Evaluation : Giving group assignment for student

F. References

1. James Stewart, *Calculus*, Fourth Edition, Brooks/Cole Publishing Company, 1999.
2. Koko Martono, *Calculus*, Erlangga, 1999.
3. Murray Spiegell (alih bahasa Pantur Silaban, Ph.D), *Advanced Calculus*, PT Gelora Aksara Pratama, 1990.
4. Thomas, B.G. and Finney, R.L, *Calculus with Analitic Geometry 8th*, Addison-Wisley Publishing Company, Inc., 1994.

LEARNING UNIT PROGRAM

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 4 and 5
 Time of Lecturing : 2 x 100 minutes

A. Instructional Aim

2. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
3. Specific : After studying this course, student will be able to explain convergency of real number, and interconnected properties and theorems.

B. Subject : Convergency of real number series.

- C. Sub Subject
1. Konvergen series.
 2. Geometric series
 3. Properties of geometric series..
 4. Properties of infinite series.

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	1. Discussing assignment 4 th	Discussing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Discussing kelompok
Presentation	2. Explaining understanding of divergen and convergen sequences. 3. Explaining understanding and general form of geometric series. 4. Explaining properties of geometric series. Explaining properties of infinite series.	Paying Attention and doing exercises Paying Attention Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing, Discussing, and kerja kelompok
Closing	1. Giving opportunity for student to ask 2. Giving general description for next lecturing.	Asking	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing

E. Evaluation

: Giving Quis for student at 5th week and group assignment to study problems of reality (problem real) related to items which have been studied by the end of. 5th Week .

F. References

1. James Stewart, *Calculus*, Fourth Edition, Brooks/Cole Publishing Company, 1999.
2. Koko Martono, *Calculus*, Erlangga, 1999.
3. Murray Spiegell (alih bahasa Pantur Silaban, Ph.D), *Advanced Calculus*, PT Gelora Aksara Pratama, 1990.
4. Thomas, B.G. and Finney, R.L, *Calculus with Analitic Geometry* 8th, Addison-Wisley Publishing Company, Inc., 1994.

LEARNING UNIT PROGRAM

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 6, 7 and 8
 Time of Lecturing : 3 x 100 minutes

A. Instructional Aim

7. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
8. Specific : After studying this course, student will be able to explain test of convergency of series with positive terms and its theorms.

- B. Subject : Test of convergency of sequences with positive terms
- C. Sub Subject
1. Test of comparison with other series.
 2. Test of comparison of limit with other series.
 3. Test of Integral.
 4. Test of convergency with terms of series.

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	1. Discussing quis to be performed at the end of 5 th lecturing.	Membahas	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Discussing
Presentation	2. Explaining procedure of convergency test of a series and then discussing kinds of test for convergency.	Paying Attention Doing and Discussing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Closing	1. Giving opportunity for student to ask 2. Giving general description for next lecturing.	Asking Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing

E. Evaluation : Student present result of group assignment

F. References

1. James Stewart, *Calculus*, Fourth Edition, Brooks/Cole Publishing Company, 1999.

2. Koko Martono, *Calculus*, Erlangga, 1999.
3. Murray Spiegell (alih bahasa Pantur Silaban, Ph.D), *Advanced Calculus*, PT Gelora Aksara Pratama, 1990.
4. Thomas, B.G. and Finney, R.L, *Calculus with Analitic Geometry 8th*, Addison-Wisley Publishing Company, Inc., 1994.

LEARNING UNIT PROGRAM

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 15, 16, 17, 18
 Time of Lecturing : 4 X 100 minutes

A. Instructional Aim

3. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
4. Specific : After studying this course, student will be able to elaborate a function in fourier series, and determining sum of convergen series with using forier expansion from a function.

B. Subject : Fourier Series

- C. Sub Subject
5. Definition of periodic function
 6. Fourier series for periodic function with period 2π
 7. Fourier series for periodic function with period $2L$
 8. Sine and Cosine fourier series.
 9. ParsevaIdentity

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	3. Reviewing definition of periodic function..	Paying Attention and Reviewing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing
Presentation	1. Explaining trigonometric series and its relation with periodic function riode 2π 2. .Explaining definition fourier series can be obtained from trigonometric series. 3. Giving examples function which periodic with period $2L$, where L is constan. 4. Reviewing even and odd function 5. Writing general form for odd and even	Paying Attention and doing Paying Attention Paying Attention Paying Attention and doing Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing

	fourier series. 6. Writing general form for parseval identity.	Paying Attention and doing		
Closing	1. Giving opportunity for student to ask 2. Giving general description for next lecturing.	Asking Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing

E. Evaluation : Giving assignment for student as homework

F. References

5. Edwin J Purcell, Dale Varberg, Calculus With Analitic Geometry, Prentice-Hall. Inc, New York, 1987
6. Frank Ayres, Calculus, Mac. Graw Hills, 1964
7. Louis Leithold, Calculus With Analytic Geometri, Harper and Row Publisher, New York
8. K.A. Stroud, Engeenering PAM 200hePAM 200ics, MacMillan Press Ltd, 1987.
9. James Stewart, Calculus, Fourth Edition, Brooks/Cole Publishing Company, 1999

LEARNING UNIT PROGRAM

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 19, 20, 21.
 Time of Lecturing : 3 x 100 minutes

A. Instructional Aim

3. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
4. Specific : After studying this course, student will be able to writing definition of beta and gamma function, explaining its relation with definite integral and giving examples.

B. Subject : Specific function

C. Sub Subject 3. Beta and Gamma function

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	1. Giving opportunity to student if there are any question in last lecturing	Paying Attention and Asking	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Presentation	2. Writing general form of gamma and beta 3. Wriing other form of beta and gamma function. a. Giving examples and then exercises beta and gamma function.	Paying Attention Paying Attention Paying Attention and doing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Closing	1. Giving opportunity for student to ask 2. Giving general description for next lecturing.	Asking Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing

E. Evaluation : Giving assignment for student as homework

F. References

5. Edwin J Purcell, Dale Varberg, Calculus With Analitic Geometry, Prentice-Hall. Inc, New York, 1987
6. Frank Ayres, Calculus, Mac. Graw Hills, 1964
7. Louis Leithold, Calculus With Analytic Geometri, Harper and Row Publisher, New York
8. K.A. Stroud, Engeenering PAM 200hePAM 200ics, MacMillan Press Ltd, 1987.
9. James Stewart, Calculus, Fourth Edition, Brooks/Cole Publishing Company, 1999

LEARNING UNIT PROGRAM

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 22, 23, 24.
 Time of Lecturing : 3 x 100 minutes

A. Instructional Aim

4. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.
5. Specific : After studying this course, student will be able to writing definition and fundamental formulas of Laplace TransforPAM 200ion.

- B. Subject : Laplace TransforPAM 200ion
 C. Sub Subject
5. Definition and existence of Laplace TransforPAM 200ion
 6. Determining result of Laplace TransforPAM 200ion for fundamental function.
 7. Properties of Laplace TransforPAM 200ion

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	1. Giving opportunity to student if there are any question in last lecturing	Paying Attention and Asking	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Presentation	1. Explaining definition and existence of Laplace transforPAM 200ion. 2. Explaining and determining lplace transform of fundamental functions. 3. Explaining properties of Laplace transform and giving examples	Paying Attention Paying Attention and doing Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Closing	1. Giving opportunity for student to ask 2. Giving general description for next lecturing.	Asking Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing

E. Evaluation

: Giving assignment for student as homework

F. References

5. Edwin J Purcell, Dale Varberg, Calculus With Analitic Geometry, Prentice-Hall. Inc, New York, 1987
6. Frank Ayres, Calculus, Mac. Graw Hills, 1964
7. Louis Leithold, Calculus With Analytic Geometri, Harper and Row Publisher, New York
8. K.A. Stroud, Engeneering PAM 200hePAM 200ics, MacMillan Press Ltd, 1987.
9. James Stewart, Calculus, Fourth Edition, Brooks/Cole Publishing Company, 1999

LEARNING UNIT PROGRAM (SAP)

Course : Calculus II
 Code of Course : PAM 200
 Credit : 4 SKS
 Week : 25, 26, 27
 Time of Lecturing : 3 x 100 minutes

A. Instructional Aim

9. General : After studying this course, students will have real correct conceptual about principal topics in Calculus II with the theorems and properties in Calculus II.

10. Specific : After studying this course, student will be able to writing definition of invers lapalce transform, and solving exercises interconnected with invers lapalce transform.

B. Subject : Invers of Laplace Transformastion

C. Sub Subject
 5. Definition of Invers of Laplace Transformastion
 6. Properties of Invers of Laplace Transformastion

D. Lecturing Activity

STEP	LECTURER ACTIVITY	STUDENT ACTIVITY	MEDIA/EQUIPMENT	METHOD
Introduction	1. Giving opportunity to student if there are any question in last lecturing	Paying Attention and Asking	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Presentation	1. Explaining definition of invers of laplace transforPAM 200ion 2. Explaining inverse laplace tensform of fundamental formulas 3. Explaining properties of invers laplace transform and giving examples.	Paying Attention Paying Attention and doing Paying Attention and doing	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and Discussing
Closing	1. Giving opportunity for student to ask 2. Giving general description for next lecturing.	Asking Paying Attention	OHP, Transparant, Blackboard chalk, chalk, whiteboard and spidol	Lecturing and

E. Evaluation

: Giving assignment for student as homework

F. References

5. Edwin J Purcell, Dale Varberg, Calculus With Analitic Geometry, Prentice-Hall. Inc, New York, 1987
6. Frank Ayres, Calculus, Mac. Graw Hills, 1964
7. Louis Leithold, Calculus With Analytic Geometri, Harper and Row Publisher, New York
8. K.A. Stroud, Engeenering PAM 200hePAM 200ics, MacMillan Press Ltd, 1987.
9. James Stewart, Calculus, Fourth Edition, Brooks/Cole Publishing Company, 1999