INSTITUT TEKNOLOGI SEPULUH NOPEMBER
FACULTY OF SCIENCE AND DATA ANALYTICS
DEPARTMENT OF STATISTICS
STATISTICS UNDERGRADUATE PROGRAM

Course	Course Name	:	**Calculus II**
	Course Code	:	SM234201
	Credit	:	3 SKS
	Semester	:	II

COURSE DESCRIPTION

This course provides the basic concepts of mathematical thinking (existence completion, logic flow/completion procedures) on deep students solve real problems and can solve problems engineering, modeling and others in related engineering integrated application. as well as the ability to follow courses advanced level that requires basic concepts of mathematics and the analysis. Lecture material includes: The concept of integration techniques, certain Integral Concepts, improper integrals and their applications, polar coordinates and parametric equations along with its application for calculating the area of the plane and the length of the arc, Sequences and infinite series, power series, Taylor series and Mac Laurin series.

PROGRAM LEARNING OUTCOME

PLO-1 Students are able to identify and explain foundations of mathematics that include pure, applied, and the basic of computing

PLO-2 Students are able to solve simple and practical problems by applying basic mathematical statements, methods and computations

COURSE LEARNING OUTCOME

CLO.1 Students are able to apply basic mathematical concepts related to transcendent functions.

CLO.2 Students are able to apply integration techniques.

CLO.3 Students are able to apply matrix concepts to solve a linear equation system and determine the eigen value .

CLO.4 Students are able to apply integration techniques well in the forms of cartesian coordinate functions, polar coordinate, and parametric equations.

MAIN SUBJECT

1. Trancendents functions, differential and integral.
2. Integration technique and improper integral.
3. Applicating certain integral to a plane area, the volume of area revolution, arc length and the area of a surface of revolution., centroids and application of Guldin's theorem.
4. Polar coordinate system and parametric equation, the polar coordinate's graph, and its application.
5. Convergence of sequences and infinite series, sums of infinite series, Taylor and Maclaurin

series.
PREREQUISITE
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REFERENCES
1. Tim Dosen Departemen Matematika ITS, Buku Ajar Matematika 2 , Edisi ke-2 (Revisi 2022) Departemen Matematika ITS, 2022 2. Anton, H. dkk, Calculus, 10-th edition, John Wiley & Sons, New York, 2012 3. Kreyzig, E, Advanced Engineering Mathematics, 10-th edition, John Wiley & Sons, Singapore, 2011 4. Purcell, J, E, Rigdon, S., E., Calculus, 9-th edition, Prentice-Hall, New Jersey, 2006 5. James Stewart , Calculus, ed.7, Brooks/cole-Cengage Learning, Canada,2012