

Course Code	TKIE161101
Course Name	Engineering Mathematics (Course + Tutorial)
Course Instructors	Indah Soesanti; Eny Sukani Rahayu; Agus Bejo; Adha Imam Cahyadi; Noor Akhmad Setiawan; Harry Prabowo
Course Type	Required
Course Classification	Basic Science & Math
Credit / Contact Hour per Week	3 / 150 minutes per Week
Course Description	Capability of understanding and applying fundamentals of mathematics, such as Function, Limit, Derivative, Integral, Sequence and Series, and Complex Number, also modeling and mathematical analysis for real problems.
Prerequisites Courses	-
Covered Student Outcome	Fundamental Engineering Knowledge (a)

Learning Mapping		
Code	Learning Outcome	Student Outcome (SO a - SO k)
LO1	Students are able to do function operation in real number and complex number system.	Fundamental and Engineering Knowledge (a)
LO2	Students are able to do differential operations for equation with one or some independent variables.	Fundamental and Engineering Knowledge (a)
LO3	Able to do Indefinite Integral, Partial Integral, Definite Integral, and Multiple Integral.	Fundamental and Engineering Knowledge (a)
LO4	Able to formulate mathematics equations for simple real problems.	Fundamental and Engineering Knowledge (a)

Topic	<ol style="list-style-type: none"> 1. Function and Real Number System 2. Limit and Continuity 3. Derivative and Derivative Applications 4. Integral and Integral Applications 5. Substitution Integral Methods 6. Definite Integral and Multiple Integral 7. Sequences and Series 8. Ordinary Differential Equation with Constant Coefficient 9. Complex Number System 											
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Mid Exam</td> <td>LO1, LO2</td> </tr> <tr> <td>Final Exam</td> <td>LO3, LO4</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Mid Exam	LO1, LO2	Final Exam	LO3, LO4				
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	Mid Exam	LO1, LO2										
	Final Exam	LO3, LO4										
Indirect Assesment	Questionnaire and direct communication											
References	<p>[1] Thomas, G. B., 2001, Thomas' Calculus, Addison Wesley Publishing Company, New York.</p> <p>[2] Erwin Kreizig, Advanced Engineering Mathematics 9th edition, Willey 2006</p> <p>[3] Frank Ayres, JR., 1996, Calculus [Schaum's Outline series], 2ed., Erlangga, Jakarta</p> <p>[4] Purcell, E. J. dan Varberg, D. 1987. Kalkulus dan Geometri Analitis. Jilid I. 5 ed., Prentice Hall, Inc. Alih Bahasa: Drs. I Nyoman Susila, dkk. Penerbit Erlangga, Jakarta</p>											