

Course Code	TKIE162202P											
Course Name	Numerical Method Lab Work											
Course Instructors	Adhistya Erna Permanasari											
Course Type	Required											
Course Classification	Basic Science & Math											
Credit / Contact Hour per Week	1 / 50 minutes per Week											
Course Description	Describes the principles of Vectors and Vector Spaces, Vector Differential Calculus, Curve Integral, Surface Integral, Analytic Functions, Elementary Functions, Complex Integral, Complex Series, and Residue Techniques.											
Prerequisites Courses	-											
Covered Student Outcome	Development of Engineering Solution (b) Data and Experiment (d) Modern Tools Utilization (e) Multidisciplinary Teamwork (h)											
Learning Outcome												
		Study Program Student Outcome										
No	Learning Outcome	SO (a) – SO (k)										
1.	Students can understand the basic matrix operations in SciLab software and are able to apply Scilab software to complete calculations related to matrix operations.	Development of Engineering Solution (b)										
2.	Students understand the important functions of SciLab software and apply these functions to solve simple numerical computing problems.	Data and Experiment (d)										
3.	Students understand the use of graphical depiction functions in SciLab and apply these functions to obtain graphical representation of various mathematical functions.	Modern Tools Utilization (e)										
4.	Students understand the regression problems obtained in the course of the Numerical Method by utilizing the SciLab functions to create regression graphs as well as calculate the regression coefficients of the given regression problems.	Development of Engineering Solution (b)										
5.	Students are able to apply Scilab functions and Scipad facilities to create programs / scripts that can be used to solve relatively complex numerical computing problems.	Multidisciplinary Teamwork (h)										
6.	Students are able to understand the programming algorithm, able to apply it in SciLab software, and translating algorithm of certain computing process into program in SciLab.	Multidisciplinary Teamwork (h)										
Topic	1. Introduction to Scilab 2. Introduction to Graphic in Scilab 3. Scilab Programming											
Direct Assessment	<table border="1"> <thead> <tr> <th>Direct Assessment Plan</th> <th>Measured Learning Outcome</th> </tr> </thead> <tbody> <tr> <td>Final Exam</td> <td>LO1, LO2, LO3, LO4</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>		Direct Assessment Plan	Measured Learning Outcome	Final Exam	LO1, LO2, LO3, LO4						
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Indirect Assesment	Questionnaire and direct communication											

References	<p>[1] S. Chapra and R. Canale, 2010, Numerical Methods for Engineers, Mc Graw Hill.</p> <p>[2] A. Gillat and V. Subramaniam, 2014, Numerical Methods for Engineers and Scientist, John Wiley and Sons</p>
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