

Course Code	TKU125	
Course Name	Probability and Statistics	
Course Instructors	Sunu Wibirama, Hanung Adi Nugroho, Sri Suning Kusumawardani, Dyonisius Dony Ariananda, Adhistya Erna Permanasari, I Wayan Mustika,	
Course Type	Required	
Course Classification	Basic Science & Math	
Credit / Contact Hour per Week	3 / 150 minutes per Week	
Course Description	In this course, the students study about the theoretical concept and simple applications related to probability theory, data analysis, and statistics.	
Prerequisites Courses	-	
<b>Covered Student Outcome</b>	<b>Fundamental Engineering Knowledge (a)</b> <b>Development of Engineering Solution (b)</b> <b>Data and Experiment (d)</b>	
<b>Learning Outcome</b>		
		Study Program Student Outcome
No	Learning Outcome	(SO a - SO k)
1.	Students can explain probability theory including conditional probability theory and solve basic problems in probability science using the theory of opportunity.	Fundamental Engineering Knowledge (a)
2.	Students can understand the concept of both discrete and continuous random variable, understand and calculate probability distribution, probability density function, mathematical expectation and variance of a random variable.	Fundamental Engineering Knowledge (a)
3.	Students recognize and understand the various distribution of random discrete and continuous variables that appear in the real world, apply the distributions, and use the tables of each existing distribution.	Fundamental Engineering Knowledge (a)
4.	Students understand the concept of estimation theory and apply the theory of estimation.	Development of Engineering Solution (b)
5.	Students can perform hypothesis testing of a sample and provide a conclusion of the hypothesis test that has been done	Data and Experiment (d)
6.	Students can understand and apply the concept of regression and interpolation.	Development of Engineering Solution (b)
Topic	<ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Presentation of Data</li> <li>3. Data Characteristics</li> <li>4. Theory / Concept of Opportunity</li> <li>5. Random Variables</li> <li>6. Opportunity Distribution</li> <li>7. Mathematical Expectations (Expected Value)</li> <li>8. Kinds of Discrete Opportunity Distribution</li> <li>9. Distribution of Continuous Opportunities</li> <li>10. Basic Sampling Distribution</li> <li>11. Theory of Estimation</li> </ol>	

	12. Hypothesis Testing 13. ANOVA (Analysis of Variance)												
<b>Direct Assessment</b>	<table border="1"> <thead> <tr> <th><b>Direct Assessment Plan</b></th> <th><b>Measured Learning Outcome</b></th> </tr> </thead> <tbody> <tr> <td>Mid Exam</td> <td>LO1 LO2 LO3</td> </tr> <tr> <td>Final Exam</td> <td>LO4 LO5 LO6</td> </tr> <tr> <td>Homework</td> <td>LO1 LO2 LO3 LO4 LO5 LO6</td> </tr> <tr> <td>Quiz</td> <td>LO1 LO2 LO3 LO4 LO5 LO6</td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	<b>Direct Assessment Plan</b>	<b>Measured Learning Outcome</b>	Mid Exam	LO1 LO2 LO3	Final Exam	LO4 LO5 LO6	Homework	LO1 LO2 LO3 LO4 LO5 LO6	Quiz	LO1 LO2 LO3 LO4 LO5 LO6		
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<b>Indirect Assessment</b>	Questionnaire and direct communication												
<b>References</b>	<p>[1] Walpole, Myers, Myers &amp; Ye, 2012, <i>Probability and Statistics For Engineers and Scientists</i>, Prentice Hall, Upper Saddle River</p> <p>[2] Yates &amp; Goodman, 2005, <i>Probability and Stochastic Process</i>, John Wiley and Sons, Hoboken, New Jersey</p>												