Course Code	TKU125
Course Name	Probability and Statistics
Course Instructors	Sunu Wibirama, Hanung Adi Nugroho, Sri Suning Kusumawardani, Dyonisius Dony Arianananda, 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	-
Covered Student Outcome	**Fundamental and Engineering Knowledge (a)** **Development of Engineering Solution (b)** **Data and Experiment (d)**

Learning Outcome	1. Students are able to explain probability theory including conditional probability theory and solve basic problems in probability science using the theory of opportunity. 2. Students are able to 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. 3. Students are able to 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. 4. Students are able to understand the concept of statistic descriptive, estimation theory and describe characteristic of data 5. Students are able to perform hypothesis testing of a sample and provide a conclusion of the hypothesis test that has been done 6. Students are able to understand and apply the concept of regression and interpolation.
Topic	1. Introduction 2. Presentation of Data 3. Data Characteristics 4. Theory / Concept of Opportunity 5. Random Variables 6. Opportunity Distribution 7. Mathematical Expectations (Expected Value) 8. Kinds of Discrete Opportunity Distribution 9. Distribution of Continuous Opportunities 10. Basic Sampling Distribution 11. Theory of Estimation 12. Hypothesis Testing 13. ANOVA (Analysis of Variance)
Direct Asessment	

Direct Asessment Plan	**Measured Learning Outcome**
Mid Exam	LO1 LO2 LO3
Final Exam	LO4 LO5 LO6
Homework	LO1 LO2 LO3 LO4 LO5 LO6
Quiz	LO1 LO2 LO3 LO4 LO5 LO6

Indirect Assesment	Questionnaire and direct communication
References	[1] Walpole, Myers, Myers & Ye, 2012, *Probability and Statistics For Engineers and Scientists*, Prentice Hall, Upper Saddle River [2] Yates & Goodman, 2005, *Probability and Stochastic Process, John Wiley and Sons,* Hoboken, New Jersey