



INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)  
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS  
DEPARTEMEN TEKNIK ELEKTRO  
Program Studi Sarjana (S1) Teknik Elektro

*INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)  
FACULTY OF INTELLIGENT ELECTRICAL & INFORMATICS TECHNOLOGY  
DEPARTMENT OF ELECTRICAL ENGINEERING  
Bachelor Degree Program in Electrical Engineering*

1	<b>Nama Mata Kuliah / Course Name</b> : Probabilitas dan Statistik / <i>Probability and Statistics</i>
2	<b>Kode Mata Kuliah / Course Code</b> : EE234302
3	<b>Kredit / Credits</b> : 2 SKS
4	<b>Semester / Semester</b> : 3

#### **Deskripsi Mata Kuliah / Course Description**

Mata kuliah Probabilitas dan Statistik mempelajari konsep dasar dan teknis tentang probabilitas dan statistik yang dapat digunakan untuk menyelesaikan permasalahan yang muncul dalam praktek terkait bidang teknik elektro. Materi terkait probabilitas meliputi konsep probabilitas, variabel acak diskrit dan kontinu beserta penghitungan moment dari variabel-variabel acak tersebut. Sedangkan materi terkait statistik meliputi deskriptif, estimasi parameter, testing hipotesis dan regresi linier sederhana. / *The course Probability and Statistics covers fundamental concepts and techniques related to probability and statistics that can be used to address problems in the practice of electrical engineering. Topics related to probability include probability concepts, discrete and continuous random variables, as well as calculating moments of these random variables. On the other hand, statistics-related topics include descriptive statistics, parameter estimation, hypothesis testing, and simple linear regression.*

#### **Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / Program Learning Outcomes Charged to The Course**

- CPL 6 Mampu mengkaji dan memanfaatkan matematika, ilmu pengetahuan alam dan teknologi serta mengidentifikasi, memformulasikan dan menyelesaikan permasalahan di bidang teknik elektro / *Able to evaluate and utilize mathematics, natural sciences, and technology, as well as identify, formulate, and solve problems in the field of electrical engineering.*
- CPL 7 Mampu mengetahui dan mengaplikasi metode, keahlian sesuai perkembangan terkini di bidang ilmu pengetahuan dan teknologi untuk menyelesaikan

permasalahan teknik elektro dengan mengedepankan nilai-nilai universal / *Able to understanding and applying the latest methods and skills in the field of science and technology to solve electrical engineering problems while emphasizing universal values.*

#### **Capaian Pembelajaran Mata Kuliah / Course Learning Outcomes**

1. Mampu menghitung probabilitas event untuk event bersyarat dan independent / *Able to calculate the probability of events for conditional and independent events.*
2. Mampu menghitung probabilitas dan moment (mean, varians, korelasi dan kovarians) untuk variabel acak diskrit dan kontinu / *Able to calculate the probabilities and moments (mean, variance, correlation, and covariance) for discrete and continuous random variables.*
3. Mampu membuat deskripsi data secara numerik dan visual / *Able to create numerical and visual data descriptions.*
4. Mampu menghitung estimasi parameter model / *Able to calculate parameter estimates for models.*
5. Mampu memformulasi dan menyelesaikan uji hipotesis / *Able to formulate and conduct hypothesis tests.*
6. Mampu membangun model dengan regresi linier / *Able to build models with linear regression.*

#### **Pokok Bahasan / Contents**

1. Probability
2. Discrete Random Variables
3. Continuous Random Variables
4. Joint Probability Distributions
5. Descriptive Statistics
6. Parameters Estimation
7. Tests of Hypotheses
8. Linear Regression

#### **Prasyarat / Pre-requisite**

Kalkulus 2

#### **Pustaka / Reference**

1. Douglas C. Montgomery and George C. Runger, Applied Statistics and Probability for Engineers, 7th Edition, John Wiley & Sons Inc., 2018
2. Alberto Leon-Garcia, Probability, Statistics, and Random Processes For Electrical Engineering, 3rd Edition, Pearson Prentice Hall, 2007.