MODULE HANDBOOK
EXPERIMENTAL DESIGN

BACHELOR DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

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EXPERIMENTAL DESIGN

Module name	**Experimental Design**	
Module level	Undergraduate	
Code	KM184818	
Course (if applicable)	Experimental Design	
Semester	Spring (Genap)	
Person responsible for the module	Valeriana Lukitosari, S.Si., M.T.	
Lecturer	Valeriana Lukitosari, S.Si., M.T.	
Language	Indonesia and English	
Relation to curriculum	Undergraduate degree program, **elective**, 8th semester.	
Type of teaching, contact hours	Lectures, <60 students	
Workload	1. Lectures : 2 x 50 = 100 minutes per week. 2. Exercises and Assignments : 2 x 60 = 120 minutes (2 hours) per week. 3. Private learning : 2 x 60 = 120 minutes (2 hours) per week.	
Credit points	2 credit points (sks)	
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.	
Mandatory prerequisites	Statistical Methods	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, CLO-1 Students are able to understand basic concept of design of experiment. CLO-2 Students are able to determine environmental factor and system measurement which are used in design of experiment to get optimal response. CLO-3 Students are able to compare two different treatments based on historical data. CLO-4 Students are able to design an experiment with more than two treatments. CLO-5 Students are able to identify and process data obtained by the design of experiment accurately and make a decision based on the results.	

Content	This course discusses the basic concepts of experimental design, one-factor experimental design in RAL, RAKL and RBSL, two-factor experimental design in RAL and RAKL, average test after ANOVA, mean square expectations, and testing model assumptions.
Study and examination requirements and forms of examination	- In-class exercises - Assignment 1, 2 - Mid-term examination - Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading lists	Main: 1. Mattjik, AA., Sumertajaya M., "Perancangan percobaan dengan aplikasi SAS dan Minitab, jilid 1", IPB Press, Bogor, 2000 2. Box GEP., Hunter WG, Hunter JS, "Statistic for Experimenters, Design, Innovation and Discovery, 2nd Ed., John Wiley & Sons Inc., NewYork, 1995 Supporting: 1. Montgomery DC., "Design and Analysis of Experiments, 8th Edition, John Wiley & Sons, New York, 2011