

**UNDERGRADUATE PROGRAM IN COMPUTER SCIENCE**  
**DEPARTMENT OF COMPUTER ENGINEERING**  
**FACULTY OF INTELLIGENT ELECTRICAL AND INFORMATICS TECHNOLOGY**

Module name	<b>Probability and Statistics</b>	
Module level	Undergraduate	
Code	EC184406	
Courses (if applicable)	Probability and Statistics	
Semester	4 / Spring (Genap)	
Contact person	Dr. Adhi Dharma Wibawa, S.T, M.T.	
Lecturer	Dr. Adhi Dharma Wibawa, S.T, M.T.	
Language	[Indonesia / English]	
Relation to curriculum	Undergraduate degree program, mandatory, 4 <sup>th</sup> semester. {semester}	
Type of teaching, contact hours	Lecture, < 60 students, 170 MINUTES 3 SKS	
Workload	1. Lectures: 3 x 50 = 150 minutes (3.3 hours) per week. 2. Exercises and Assignments: 3 x 60 = 180 minutes (3 hours) per week. 3. Private study: 3 x 60 = 180 minutes (3 hours) per week.	
Credit points	3 credit points (sks).	
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.	
Mandatory prerequisites		
Learning outcomes and their corresponding PLOs	CLO-1 Students are able to solve combinatorial problems.  CLO-2 Students are able to explain Bayes's theorem concept, conditional probability and freedom of occurrence, and solve problems associated with it.  CLO-3 Students are able to explain about kinds of discrete and continuous distribution, and solve problems associated with it.  CLO-4 Students are able to explain the theory of expectations and the law of large numbers, and use them in analyzing various distributions.  CLO-5 Students are able to explain the theory of estimation, Bayes estimator, and maximum likelihood estimator, and use it in solving problems associated with it.	PLO-3   PLO-3 PLO-5  PLO-3 PLO-5  PLO-3 PLO-5  PLO-3 PLO-5

	CLO-6 Students are able to perform hypothesis test and goodness of fit test.	PLO-3 PLO-5
Content	<p>In this course, students will learn about the probability theory and it's usefulness to analyze the probability of occurrence in various applications, as well as provide knowledge about the technique of sample data analysis to know the population characteristics. Topics include probability theory, random variables and their distribution, expectations, normal distribution, parameter estimation, and hypothesis testing.</p>	
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> <li>• In-class exercises</li> <li>• Quiz 1 and 2</li> <li>• Assignment 1, 2, 3</li> <li>• Mid-term examination</li> <li>• Final examination</li> </ul>	
Media employed	LCD, whiteboard, websites (myITS Classroom).	
Assessments and Evaluation	<p>CO-1: Question no 1 in midterm exam (10%)  CO-2: Question no 2 in midterm exam (10%)  CO-3: Question no 3 in midterm exam (10%), quiz 1 (5%)  CO-4: Assignment 1 (5%), question no 4 in midterm exam (10%), Quiz 2 (5%)  CO-5: Question no 1 in final exam (10%), question no 2 in final exam (10%)  CO-6: Assignment 2 (5%), question no 3 in final exam (10%)  CO-7: Assignment 3 (5%), question no 4 in final exam (5%)</p>	
Reading List	<ol style="list-style-type: none"> <li>1. Sheldon M. Ross, "Introduction to Probability and Statistics for Engineers and Scientists", 3rd ed., Academic Press, 2004.</li> <li>2. M. H. DeGroot, M. J. Schervish, "Probability and Statistics", 4th edition, Pearson Education Inc., 2012.</li> <li>3. D. C. Montgomery, G. C. Runger, "Applied Statistics and Probability for Engineers", 3rd edition, John Wiley and Sons Inc., 2002.</li> <li>4. R. E. Walpole, R. H. Myers, S. L. Myers, K. Ye, "Probability and Statistics for Engineers and Scientists", 9th edition, Prentice Hall, 2011.</li> </ol>	