



**Universitas Negeri Surabaya  
Faculty of Engineering,  
Electrical Engineering Masters Study Program**

Document Code

**SEMESTER LEARNING PLAN**

|  |  |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|--|--|----------------------|-----------------------------------|---|--------------------------|--|------------------------------|---|---|---|----|----|----|----|----|----|----|
| <b>Courses</b>                         | <b>CODE</b>  | <b>Course Family</b> | <b>Credit Weight</b>              | <b>SEMESTER</b>   | <b>Compilation Date</b>  |  |                              |   |   |   |    |    |    |    |    |    |    |
| Probability and Statistics             | 2010102010   |                      | T=2 P=0 ECTS=4.48                 | 1   | July 17, 2024            |  |                              |   |   |   |    |    |    |    |    |    |    |
| <b>AUTHORIZATION</b>                   | <b>SP Developer</b>  |                      | <b>Course Cluster Coordinator</b> | <b>Study Program Coordinator</b>  |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | .....  |                      | .....                             | Unit Three Kartini, S.T.,<br>M.T., Ph.D.  |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
| <b>Learning model</b>                  | <b>Case Studies</b>  |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
| <b>Program Learning Outcomes (PLO)</b> | <b>PLO study program that is charged to the course</b>   |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | <b>Program Objectives (PO)</b>   |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | <b>PLO-PO Matrix</b>   |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  |  | P.O                  |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | <b>PO Matrix at the end of each learning stage (Sub-PO)</b>  |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | P.O  | Week                 |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  |  | 1                    | 2                                 | 3   | 4                        | 5  | 6                            | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| <b>Short Course Description</b>        | This Probabilistics and Statistics course examines how to choose statistical formulations that are appropriate to the type of data to describe data and carry out inferential analysis and interpretation using software for the purpose of drawing up research analysis conclusions. Learning is carried out using a student-centred approach, namely inquiry-based learning and project-based learning with case solving methods or team-based group learning. |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
| <b>References</b>                      | <b>Main :</b>  |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | 1. Allan G. Bluman. 2012. Elementary Statistics: A Step by Step Approach. Eight Edotion. New York: The McGraw-Hill Companies, Inc. E E. Bassett, et. al. 2000. Statistics. Problems and Solutions. Second Edition. Singapore: World Scientific Publishing Co. Re. Ltd.Siegel, Andrew F and Charles J. Morgan. 1996. Statistics and Data Analysis An Introduction. 2 nd Edition. New York: John Wiley & Sons, Inc.  |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
|  | <b>Supporters:</b>   |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
| <b>Supporting lecturer</b>             | Dr. Raden Roro Hapsari Peni Agustin Tjahyaningtjas, S.Si., M.T.<br>Dr. Lusia Rakhmawati, S.T., M.T.  |                      |                                   |   |                          |  |                              |   |   |   |    |    |    |    |    |    |    |
| <b>Week-</b>                           | <b>Final abilities of each learning stage (Sub-PO)</b>   | <b>Evaluation</b>    |                                   | <b>Help Learning, Learning methods, Student Assignments, [ Estimated time ]</b> |                          | <b>Learning materials [ References ]</b> | <b>Assessment Weight (%)</b> |   |   |   |    |    |    |    |    |    |    |
|  |  | <b>Indicator</b>     | <b>Criteria &amp; Form</b>        | <b>Offline ( offline )</b>  | <b>Online ( online )</b> |  |                              |   |   |   |    |    |    |    |    |    |    |
| (1)                                    | (2)  | (3)                  | (4)                               | (5)   | (6)                      | (7)                                      | (8)                          |   |   |   |    |    |    |    |    |    |    |

|   |   |  |  |  |  |  |    |
|---|---|--|--|--|--|--|----|
| 1 | Know the aims and objectives of statistics and probability  | Students know the aims and objectives of statistics and probability  | <b>Criteria:</b><br>1. The assessment criteria are carried out by looking at aspects:<br>2.1. Participation: carried out by observing student activities (weight 2)<br>3.2. UTS: carried out with an assessment during the middle of the semester (weight 2)<br>4.3. UAS: carried out every semester to measure all indicators (weight 3)<br>5.4. Task: carried out on each indicator (weight 3)<br>6. Student Final Grade:<br>7. Participation Score (2) x Lever Score (3) x UTS Score (2) x UAS Score (3) divided by 10. | Lectures and Questions and Answers<br>3 X 50                         |  |  | 0% |
| 2 | Understand and explain the concept of probability<br>Understand and operate probability formulas                                | Students understand and are able to explain the concept of probability. Students understand and operate probability formulas   |  | Lectures, questions and answers and solving<br>6 X 50 questions      |  |  | 0% |
| 3 |   |  |  |  |  |  | 0% |
| 4 | Understand and explain enumeration rules<br>Understand and explain factorial numbers, permutations and combinations             | Students understand and are able to explain enumeration rules. Students understand and are able to explain factorial numbers, permutations and combinations                |  | Lectures, questions and answers and solving<br>3 X 50 questions      |  |  | 0% |
| 5 | Understand and explain theoretical distribution. Understand and operate uniform, binomial and multinomial distribution formulas | Students understand and are able to explain theoretical distributions. Students understand and are able to operate uniform, binomial and multinomial distribution formulas |  | Lectures, Questions and Answers and Problem Based Learning<br>9 X 50 |  |  | 0% |
| 6 |   |  |  |  |  |  | 0% |
| 7 |   |  |  |  |  |  | 0% |

|    |  |  |  |  |  |  |    |
|----|--|--|--|--|--|--|----|
| 8  | UTS  |  |  | 3 X 50   |  |  | 0% |
| 9  | Understand and explain the normal distribution<br>Explain the properties of the normal distribution<br>Understand the use of the standard normal curve                                 | Students understand and explain the normal distribution.<br>Students explain the properties of the normal distribution.<br>Students understand the use of the standard normal curve  |  | Lectures, Questions and Answers and Problem Based Learning<br>6 X 50 |  |  | 0% |
| 10 |  |  |  |  |  |  | 0% |
| 11 | Understand and explain sample statistics and population parameters<br>Understand and explain types of sampling<br>Understand the concept of sampling distribution and its calculations | Students understand and explain sample statistics and population parameters.<br>Students understand and explain types of sampling.<br>Students understand the concept of sampling distribution and its calculations                          |  | Lectures, Questions and Answers and Problem Based Learning<br>6 X 50 |  |  | 0% |
| 12 |  |  |  |  |  |  | 0% |
| 13 | Understand and explain the concept of parameter estimation.<br>Understand and explain the criteria for a good estimator  | Students understand and explain the concept of parameter estimation.<br>Students understand and explain the criteria for a good estimator  |  | Lectures, Questions and Answers and Problem Based Learning<br>1 X 1  |  |  | 0% |
| 14 | Understand and explain hypotheses and research hypotheses<br>Understand and explain various types of errors<br>Understand and operate formulas for various hypothesis tests            | Students understand and are able to explain hypotheses and research hypotheses<br>Students understand and are able to explain various types of errors<br>Students understand and are able to operate formulas for various hypothesis testing |  | Lectures, Questions and Answers and Problem Based Learning<br>6 X 50 |  |  | 0% |
| 15 |  |  |  |  |  |  | 0% |
| 16 | UAS  |  |  | UAS<br>3 X 50  |  |  | 0% |

**Evaluation Percentage Recap: Case Study**

| No | Evaluation | Percentage |
|----|------------|------------|
|    |            | 0%         |

## Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.