# MODULE HANDBOOK

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| Module name | Advanced Operation Research |
| Module level, if applicable | Bachelor |
| Code, if applicable | SST-514 |
| Subtitle, if applicable | - |
| Courses, if applicable | Advanced Operation Research |
| Semester(s) in which the module is taught | 5th (Fifth) |
| Person responsible for the module | Chair of lab. Business, Social and Industry |
| Lecturer | Ayundyah Kesumawati, S.Si., M.Si. |
| Language | Bahasa Indonesia |
| Relation to curriculum | Compulsory course in the third year (5th semester) Bachelor Degree |
| Type of teaching, contact hours | 150 minutes lectures and 180 minutes structured activities per week. |
| Workload | Total workload is 130 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam. |
| Credit points | 3 |
| Requirements according to the examination regulations | Students have taken an Advanced Operation Research course (SST-514) and have an examination card where the course is stated on. |
| Recommended prerequisites | Students have taken Operation Research (SST - 405) . |
| Module objectives/intended learning outcomes | After completing this course, the students have ability to understand:<br>CO 1 Students are able to do experimental design, collect secondary data about flow network models, project management, and integer linear programming and primary data about game theory and queuing systems.<br>CO 2 students are able to use statistical techniques to calculate the optimum solution of problems with flow network models, project management, game theory, queuing systems, integer linear programming manually<br>CO 3 Students are capable do the organizing data, data analysis\ using techniques statistics, and withdrawals conclusion with using software R / TORA for problems flow network model, project management, games, queuing system, and a linear integer programming from data has been obtained<br>CO 4 Students are able to document, store, secure secondary data about flow network models, project management, and integer linear programming as well as primary data about game theory and queuing systems that have been obtained |
| Content | After completing this course, the students have ability:<br>1. Collect secondary data on network flow models, project management, and integer linear programming<br>2. Collecting primary data on game theory and queuing theory<br>3. Calculating the optimum solution of the flow network model problems, project management, theory games, queuing theory, integer linear programming manually / using software |
| Study and examination requirements and forms of examination | The final mark will be weighted as follows:<br>**No** **Assessment components** **Assessment Type** **Weight (percentage)**<br>1 CO 1 Quiz 30%<br>2 CO 2 Assignment 30% |

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| | 3 | CO 3 | Assignment and Mid Term Exam | 30% |
| | 4 | CO 4 | Assignment and Final Exam | 10% |
| Media employed | White-board, Laptop, LCD Projector, Zoom, Google Hangout | | | |
| Reading list | 1. Taha, H., A. (2017). Operations Research: An Introduction (8th ed.). Upper Saddle River, NJ: Prentice-Hall.<br>2. Taylor, B.W. (2017). Introduction to Management Science (9th ed). Upper Saddle River, NJ: Prentice-Hall.<br>3. Wiston, W. L., & Goldberg, J.B. (2004). Operation Research: Application and Algorithm (4th ed). Belmont, CA : Thomson/Brooks/Cole. | | | |

Mapping CO, PLO, and ASIIN's SSC

| ASIIN | | PLO | | | | | | | | | | | |
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| | | E | N | T | H | U | S | I | A | S | T | I | C |
| Knowledge | a | | | | | | | | | | CO1 | | |
| | b | | | | | | | | | | | | |
| | c | | | | | | | | | | CO2 | | |
| | d | | | | | | | | | | | | |
| Ability | e | | | | | | | | | | CO3 | | |
| | f | | | | | | | | | | | | |
| Competency | g | | | | | | | | | | | | |
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