



# MODULE HANDBOOK OPERATION RESEARCH I

**BACHELOR DEGREE PROGRAM  
DEPARTMENT OF MATHEMATICS  
FACULTY OF SCIENCE AND DATA ANALYTICS  
INSTITUT TEKNOLOGI SEPULUH NOPEMBER**

# MODULE HANDBOOK

## OPERATION RESEARCH I

Module name	<b>Operation Research I</b>	
Module level	Undergraduate	
Code	KM184302	
Course (if applicable)	Operation Research I	
Semester	Fall (Ganjil)	
Person responsible for the module	Dr. Valeriana Lukitosari, S.Si, MT	
Lecturers	Dr. Valeriana Lukitosari, S.Si, MT Drs. Sentot Didik Surjanto, M.Si Drs. Suhud Wahyudi, M.Si	
Language	Indonesia and English	
Relation to curriculum	Undergraduate degree program, <b>mandatory</b> , 3 <sup>rd</sup> semester.	
Type of teaching, contact hours	Lectures, <60 students	
Workload	1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 60 = 180 minutes (3 hours) per week. 3. Private learning : 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 80% of the lectures to sit in the exams.	
Mandatory prerequisites	Elementary Linear Algebra	
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, CLO-1 Be able to understand optimization problems in a real phenomenon in operations research and solve them using existing methods. CLO-2 Be able to identify simple problems in transportation problems, linear programming, assignments and form mathematical models using existing methods. CLO-3 Be able to provide optimal alternative solutions for simple problems.	
Content	This subject is the basis of mathematical modeling, especially linear and non-probabilistic ones.	

	The scope of this course covers the use of mathematics in management problems, especially in decision making based on simple mathematical modeling of real problems.
Study and examination requirements and forms of examination	<ul style="list-style-type: none"> <li>• In-class exercises</li> <li>• Assignment 1, 2</li> <li>• Mid-term examination</li> <li>• Final examination</li> </ul>
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading lists	<p>Main:</p> <ol style="list-style-type: none"> <li>1. F.S. Hillier &amp; G.J. Lieberman (2005), "Introduction to Operations Research ", Eighth Editions, McGraw-Hill Publishing Company, Singapore.</li> <li>2. Taha, Hamdy A (2007), "Introduction to Operations Research", Fifth Editions, Prentice Hall Inc., Englewood Cliffs, New Jersey.</li> </ol> <p>Supporting:</p> <ol style="list-style-type: none"> <li>1. H.M. Wagner (1972), "Principles of Operations Research", Prentice-Hall, Inc., London.</li> <li>2. Winston (1994), "Operation Research Applications and Algorithms", Duxbury Press Belmont, California.</li> </ol>

