UNIVERSITAS NEGERI PADANG
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
MATHEMATICS DEPARTMENT, MATHEMATICS EDUCATION STUDY PROGRAM
Main Campus Universitas Negeri Padang.
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Bachelor of Mathematics Education **MODULE HANDBOOK**

Module name:	Introduction to Operations Research
Module level, if applicable:	Bachelor
Code:	MAT1.61.6301
Sub-heading, if applicable:	-
Classes, if applicable:	Introduction to Operations Research
Semester:	6th (Sixth)
Module coordinator:	Fridgo Tasman, S.Pd., M.Si.
Lecturer(s):	Fridgo Tasman, S.Pd., M.Si., and team
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Study Program Compulsory Course
Teaching format / class hours per week during the semester:	Teaching format: ✓ Lectures (face to face activities): Expository, discussion, and question and answer, ✓ Structured assignment, ✓ Independent activities ✓ Practice. 3 x 170 minutes = 510 minutes = 8.50 hours
Workload:	16 weeks per semester include midterm exam and final exam consisting of: ● 1.67 hours lectures (2 x 50 minutes) per week, ● 2 hours structured assignments (2 x 60 minutes) per week, ● 2 hours independent activities (2 x 60 minutes) per week ● 2.83 hours practice (1 x 170) per week 16 x 170 x 3 = 8160 Minute =136 hours = 4.53 ECTS
Credit points:	3 SKS (4.53 ECTS)
Prerequisite's course(s):	Elementary Linear Algebra
Course outcomes:	After taking this course the students have ability to: CO 1 : Express an introduction operation research concept, in solving the optimization problem of a problem that can be formulated into linear functions and resolved graphically, algebraically, matrices, simplex method, two-phase method, quality and transportation and conclude it

	CO 2 : Interpret an introduction operation research concept, in solving the optimization problem of a problem that can be formulated into linear functions and resolved graphically, algebraically, matrices, simplex method, two-phase method, quality and transportation and conclude it CO 3. : Apply an introduction operation research concept, in solving the optimization problem of a problem that can be formulated into linear functions and resolved graphically, algebraically, matrices, simplex method, two-phase method, quality and transportation and conclude it CO 4. : Analyze an introduction operation research concept, in solving the optimization problem of a problem that can be formulated into linear functions and resolved graphically, algebraically, matrices, simplex method, two-phase method, quality and transportation and conclude it CO 5. : Show the responsibility attitude in own works CO 6. : Maintain the responsibility attitude in team works
Content:	This course discusses: 1. definition of operation research 2. linear program 3. simplex method 4. table simplex method 5. two phase method 6. big M method 7. duality and sensitivity analysis 8. transportation model 9. assignment model 10. network analysis 11. planning and controlling projects 12. queuing model
Study/exam achievements:	Total Score = (30% x Midterm Exam Score) + (35% x Final Exam Score) + (20% x Assignment) + (15% x Affective Score (Responsibility, class attendance) The initial cut - off points for grades A, A-, B+, B, B-, C+, C, C-, and D should not be less than 85, 80, 75, 70, 65, 60, 55, 50, and 40 out of 100 respectively. **Explanation:** **1. Midterm Exam** ✓ Midterm exam will be conducted in the 9th meeting ✓ Midterm exam is in the form of a written test and will be conducted in the classroom ✓ The time allocation is 120 minutes according to the module schedule

	2. Final Exam ✓ Final exam will be conducted in the 16th meeting. ✓ Final exam is in the form of a written test and will be conducted in the classroom. ✓ The time allocation is 120 minutes which follows the Final exam Schedule provided by the Department. **3. Assignment** ✓ In group students will discuss particular topics in this module and submit their discussion report. Lecturer also facilitates students to conduct a whole class discussion about the topics. ✓ As individual assignments, students should solve the drill problems as well as contextual problems which involve operation research concepts. **4. Affective Assessment** ✓ Affective assessment is held in every meeting by observing students' attitude in the classroom. ✓ The assessment is based on the observation sheet by using the given scoring rubrics
Forms of media:	White-board, Laptop, LCD Projector
Literature:	1. Taha, Hamdy A. (2017). Operations Research An Introduction, 10th Edition. England: Pearson Education Limited 2. Bu'ulolo, Faigiziduhu. (2017). Riset Operasi Program Linear. Meda: USU Press. 3. Syaifuddin, Desy Takdir. (2011). Riset Operasi (Aplikasi Quantitative Analysis for Management). Malang: Percetakan CV Citra. 4. Kandiller, Lavent. (2007). Principles of Mathematics in Operations Research. Middle East Technical University: Springer

PLO and CO mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11
CO1	✓										
CO2	✓										
CO3	✓										
CO4	✓										
CO5										✓	
CO6										✓	