MODULE HANDBOOK
Introduction to Dynamic Optimization

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

MODULE HANDBOOK

Introduction to Dynamic Optimization

Module name	**Introduction to Dynamic Optimization**
Module level	Undergradute
Code	KM184716
Course (if applicable)	Introduction to Dynamic Optimization
Semester	Fall (Ganjil)
Person responsible for the module	Prof. Dr. Dra. Mardlijah, MT
Lecturer	Prof. Dr. Dra. Mardlijah, MT
Language	Indonesia and English
Relation to curriculum	Undergradute degree program, **elective**, 7th semester.
Type of teaching, contact hours	Lectures, <60 students
Workload	1. Lectures : 2 x 50 = 100 minutes per week. 2. Exercises and Assignments : 2 x 60 = 120 minutes (2 hours) per week. 3. Private learning : 2 x 60 = 120 minutes (2 hours) per week.
Credit points	2 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	-
Learning outcomes and their corresponding PLOs	Course Learning Outcome (CLO) after completing this module, CLO-1 Be able to follow developments and apply mathematics and are able to communicate actively and correctly both orally and in writing. CLO-2 Be able to explain the basic and advanced principles of the theory they understand, especially with regard to optimization design formulations and methods of completion. CLO-3 Be able to explain intelligently and creatively about the significant role of the optimization system in the field of related knowledge clumps or other fields.
Content	The discussion of dynamic optimization courses includes the study of the basics of the calculus of variations, and the calculus of variation approach to optimal control. In the learning process in the classroom, students will learn to identify problems, model. Besides being directed to learn independently through assignments, students are directed to work together in group work.

Study and examination requirements and forms of examination	• In-class exercises • Assignment 1, 2 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading lists	Main : 1. Naidu, D.S, Optimal Control Systems, CRC Press, 2002 2. Bolza, O. Lectures on the Calculus of Variations, American Mathematical Society; 3 edition (October 31, 2000) Supporting : 1. Subchan, S and Zbikowski, R., Computational Optimal Control: Tools and Practice, Wiley, 2009.