MINISTRY OF EDUCATION, CULTURE, RESEARCH, AND TECHNOLOGY
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCE
UNDERGRADUATE PROGRAM OF MATHEMATICS
Ketintang Campus, C8-C9 Buildings of FMIPA, Surabaya
Email: s1-mat@unesa.ac.id

Module Handbook

Module Name :	*Topologi diferensial* Differential Topology
Module level :	Bachelor degree/Undergraduate Program
Course Code :	4420103148
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	8th/ fourth year
Module coordinator(s)	Prof. Dr. Dwi Juniati, M.Si.
Lecturer(s):	Prof. Dr. Dwi Juniati, M.Si.
Language:	Bahasa Indonesia (Indonesian Language)
Classification within the curriculum:	~~Compulsory~~/ Elective
Teaching format/class hours per week during the semester:	3 contact hours of lectures (*sks* or credit unit*)
Workload :	3 x 50 minutes lectures, 3 x 60 minutes structured activity, and 3 x 60 minutes individual activity per week, 14 weeks per semester 119 total hours per semester ~ 4.77 ECTS**
Credit Unit:	3 credit unit (4.77 ECTS)
Requirements:	Real Analysis II

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Learning goals/competencies:	**Knowledge (KNO-1)** CLO-1: Demonstrate the concept of space R^n and the functions in that space are based on the properties of continuity, differentiability. **Skill (SKI-2)** CLO-2: Apply the basic principles of space R^n and the functions in that space are based on the properties of continuity, differentiability to solve simple mathematical problems **Skill (SKI-3)** CLO-3: Analyze the formal structure of mathematical problems and relevant fields related to space R^n and the functions in that space are based on the properties of continuity, differentiability. **Competences (COM-1)** CLO-4: Prove mathematical properties/statements related to continuity and differentiability on the space $R^n$by various methods.
Content	This course discusses Topological properties, especially the n-dimensional real number topology and its properties are seen from the continuity, the differentiability, and the properties of continuous functions seen from its topology. Lecture activities are carried out in a student center with discussions, observations, project assignments, and presentations.

Attribute Soft skill:	Active communication; Discipline; Collaboration; Responsibility; and Argumentation in class.
Study/exam achievements:	The final grade (NA) is calculated based on the following ratio:

Assessment Components	Percentage of contribution
Participation	20%
Assignment	30%
Mid-semester test	20%
Final semester test	30%

<table>
<tr><td></td><td>Grade conversion of 0-100 scale into 0-4 scale is set as below:
<table>
<tr><th>Letter</th><th>Number</th><th>Grade Interval</th></tr>
<tr><td>A</td><td>4,00</td><td>85 ≤ A ≤ 100</td></tr>
<tr><td>A-</td><td>3,75</td><td>80 ≤ A- < 85</td></tr>
<tr><td>B+</td><td>3,50</td><td>75 ≤ B+ < 80</td></tr>
<tr><td>B</td><td>3,00</td><td>70 ≤ B < 75</td></tr>
<tr><td>B-</td><td>2,75</td><td>65 ≤ B- < 70</td></tr>
<tr><td>C+</td><td>2,50</td><td>60 ≤ C+ < 65</td></tr>
<tr><td>C</td><td>2,00</td><td>55 ≤ C < 60</td></tr>
<tr><td>D</td><td>1,00</td><td>40 ≤ D < 55</td></tr>
<tr><td>E</td><td>0,00</td><td>0 ≤ E < 40</td></tr>
</table></td></tr>
<tr><td>Learning Methods :</td><td>Student-centered approach; project-based learning; lecturer and discussion; and presentations (structured activities)</td></tr>
<tr><td>Form of Media:</td><td>Power point slides; video; worksheets, and textbooks</td></tr>
<tr><td>Literature (primary references):</td><td>1. Gauld D.B. 2006. Differential Topology: An Introduction. New York: Dover Publication Inc.
2. Wallace, Andrew H. 1968. Differential Topology: First Step. Kota: W.A. Benjamin Inc.
3. Chilingtoworth, D.R.J. 1976. Differensial Topology with a View to Applications. Kota: Pitma Publishing</td></tr>
<tr><td>Notes:</td><td>*1 credit unit or sks in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research,
Technology, and Higher Education No. 50 Year 2018.</td></tr>
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	**1 credit unit or *sks* = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019