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 :	*Kalkulus Integral* Integral Calculus
Module level :	Bachelor degree/Undergraduate Program
Course Code :	4420104055
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	2nd/ first year
Module coordinator(s)	Prof. Dr. Manuharawati, M.Si
Lecturer(s):	Prof. Dr. Manuharawati, M.Si Dimas Avian Maulana, M.Si Dwi Nur Yunianti, M.Sc
Language:	Bahasa Indonesia (Indonesian Language)
Classification within the curriculum:	Compulsory/ ~~Elective~~
Teaching format/class hours per week during the semester:	4 contact hours of lectures (*sks* or credit unit*)
Workload :	4 x 50 minutes lectures, 4 x 60 minutes structured activity, and 4 x 60 minutes individual activity per week, 14 weeks per semester 158.66 total hours per semester ~ 6.36 ECTS**
Credit Unit:	4 credit unit (6.35 ECTS)
Requirements:	Differential Calculus

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Learning goals/competencies:	**Knowledge (KNO-1)** CLO-1 :Able to demonstrate mathematical knowledge and insights related to integrals of course and inde certainly, as well as its application. **Skill (SKI-1, SKI-2, SKI-4)** CLO-2: Formulating and solving integral calculation using techniques of integration CLO-3: Apply integral basic principles to solve simple mathematical problems. CLO-4: Use the application of integral for determining the area below the curve and volume of rotary objects as well as the volume of objects known to cross-section, the arc length and surface area, and the center of mass. **Competency (COM-2)** CLO-5: Use integral and application of *Maple* to solve the problem given and presenting the result.
Content	This course discusses the concept of indefinite integrals (anti-derivative), real functions with one variable (definition of anti-derivative, techniques of integration), certain integrals of real functions with one variable (understanding, properties, Fundamental Calculus Theorem, and unnatural integrals), the use of certain integral real functions with one modifier (parametric equations, polar coordinates, flat plane area, arc length, volume of rotary objects, volume of objects known to cross-section, surface area of play, and center of mass). Lecture activities are carried out in a student center with discussions, observations, 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%	

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Mid-semester test	20%
Final semester test	30%

Grade conversion of 0-100 scale into 0-4 scale is set as below:

Letter	Number	Grade Interval
A	4,00	$85 \leq A \leq 100$
A-	3,75	$80 \leq A- < 85$
B+	3,50	$75 \leq B+ < 80$
B	3,00	$70 \leq B < 75$
B-	2,75	$65 \leq B- < 70$
C+	2,50	$60 \leq C+ < 65$
C	2,00	$55 \leq C < 60$
D	1,00	$40 \leq D < 55$
E	0,00	$0 \leq E < 40$

Learning Methods :	Student-centered approach; project-based learning; lecturer and discussion; and presentations (structured activities). Skills or competence learning outcomes can be achieved by practicum activity
Form of Media:	Power point slides; video; worksheets, and textbooks
Literature (primary references):	1. Sulaiman, R. 2015. Integral and Its Application. Surabaya: Zifatama 2. Stewart, J. 2016. Calculus 8th Edition. Belmont: Brooks/Cole 3. Thomas Jr., G.,et. al. 2018. Thomas' Calculus 14th Edition. Boston: Addison-Wesley 4. Purcell, E. J. et al. 2010. Calculus Volume 1 Eighth Edition (Translation). Jakarta: Erlangga 5. Moesono, D. 1993. Calculus II (Revised Edition). Surabaya: University Press Surabaya

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Notes:	*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.
	**1 credit unit or *sks* = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2019