MODULE HANDBOOK

Module Name:	Multivariable Calculus
Module Level:	Sarjana (S-1) / Bachelor
Abbreviation, if applicable:	8420204085
Sub-heading, if applicable:	-
Course included in the module, if applicable:	-
Semester/term:	4/ Second year
Module Coordinator(s):	Budi Priyo Prawoto, M.Si
Lecturer(s):	Prof. Dr. Mega Teguh Budiarto, M.Pd Achmad Wachidul Kohar, M.Pd Dr. Siti Khabibah, M.Pd Budi Priyo Prawoto, M.Si M. Jakfar, M.Si
Language:	Indonesia
Classification within the curriculum:	Compulsory course/ ~~elective studies~~
Teaching format/class hours per week during the semester	Teaching format: lectures, tutorial assignment, and individual study. 4 x 170 minutes = 680 minutes = 11.3 hours lectures
Workload:	15 weeks per semester consisting of: ➤ 3.3 hours lectures (4 x 50 minutes) per week, ➤ 4 hours tutorial assignments (4 x 60 minutes) per week, ➤ 4 hours individual study (4 x 60 minutes) per week, Total workload : 14x4x170 minutes = 9,520 minutes = 6.35 ECTS*
Credit Point:	4
Requirements:	Integral Calculus
Learning Goals:	**Knowledge (KNO-1)** CLO-1: Generalize concept about vector, vector valued function, real valued multivariable function, differential calculus of multivariable function, integral calculus of multivariable function, and calculus of vector field. CLO-2: Identify and to solve simple problems of vector, vector valued function, real valued multivariable vector, differential calculus of multivariable function, integral

	calculus of multivariable function, and calculus of vector field. **Skill (SKI-2)** CLO-3: Apply concept and properties of vector, vector valued function, real valued multivariable vector, differential calculus of multivariable function, integral calculus of multivariable function, and calculus of vector field for solving problems about the matter.
Content:	Studying two and three-dimensional vector, real function of two variable (definition, limit and continuity, partial derivative, algebraic derivation and the chain rule, higher order partial derivative, the Taylor theorem, maximum and minimum problems, the Lagrange method), vector valued function (definition, limit and continuity, partial derivative, algebraic derivation, higher order partial derivative, tensor), double integrals, line integral through active learning assisted by ICT and by expository, discussion, and question and answer.
Study/exam achievements	➢ Students are considered competent and pass if the final score calculated from the score of midterm exam, assignments, participation, and final exam is at least 55 or C. ➢ Final score is calculated as follows: ➢ 20% midterm exam + 30% assignments + 20% participation + 30% final exam ➢ Final index is defined as follow: | Index	Converted Score	Score Range
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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	$0 \leq E < 40$	
Forms of Media	Slides and LCD projectors, whiteboard

Literature	[1] Stewart, J., 2012, *Multivariable Calculus 7ᵗʰ edition,*Brooks/Cole Publishing, California. [2] Budiarto, M. T., 2013. *Kalkulus Peubah Banyak*. Surabaya: Zifatama. [3] Finney, Weir dan Giardano, 2001. *Thomas' Calculus 10ᵗʰ*, Addison-Wesley. [4] Holder, L.I, DeFranza, J., dan Pasachoff,J.M.1994, *Multivariable Calculus*, Brooks/Cole Publishing, California.
Note	*Total hours per 1 credit in 1 semester={(1 credit x 170 minutes x 14 weeks)/60 minutes}=39,67 hours. Each ECTS equals with 25 hours therefore 1 credit in 1 semester equals 1,59 ECTS.