



MINISTRY OF HIGHER EDUCATION, SCIENCE, AND
TECHNOLOGY

UNIVERSITAS NEGERI SURABAYA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNDERGRADUATE PROGRAM OF MATHEMATICS EDUCATION

Ketintang Campus, Jalan Ketintang, C8 C9 Building, Surabaya 60231

Phone: +62 895335466373, email: s1-pmat@unesa.ac.id

Website: <https://pendidikan-matematika.fmipa.unesa.ac.id/>

Undergraduate Program of Mathematics

Module Handbook

Module Name:	Differential Calculus Kalkulus Diferensial
Module Level:	Sarjana (S-1) / Undergraduate
Abbreviation, if applicable:	8420203004
Sub-heading, if applicable:	-
Course included in the module, if applicable:	-
Semester/term:	1 / First year
Module Coordinator(s):	Dr. Abdul Haris Rosyidi, M.Pd
Lecturer(s):	Prof. Dr. Masriyah, M.Pd Dr. Abdul Haris Rosyidi, M.Pd Rudianto Artiono, S.Pd, M.Si Ika Kurniasari, M.Pd Novita Vindri Harini, M.Pd Dr. Sugihartono, M.Pd
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/ $3 \times 170 \text{ minutes} = 510 \text{ minutes} = 8.5 \text{ hours}$ lectures
Workload:	16 weeks per semester consisting of: • 1 hour lectures (1 x 50 minutes) per week, • 1 hours assignments (1 x 60 minutes) per week, ➤ 1 hours individual study (1 x 60 minutes) per week, Total workload : $16 \times 3 \times 170 \text{ minutes} = 8,160 \text{ minutes} = 136 \text{ hours} = 4.8 \text{ ECTS}^*$
Credit Point:	3
Requirements:	N/A



MINISTRY OF HIGHER EDUCATION, SCIENCE, AND
TECHNOLOGY

UNIVERSITAS NEGERI SURABAYA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNDERGRADUATE PROGRAM OF MATHEMATICS EDUCATION

Ketintang Campus, Jalan Ketintang, C8 C9 Building, Surabaya 60231

Phone: +62 895335466373, email: s1-pmat@unesa.ac.id

Website: <https://pendidikan-matematika.fmipa.unesa.ac.id/>

Learning Goals :	PLO-5: Possesses basic mathematical knowledge to solve mathematical problems and their applications in education. PLO-6: Masters the principles of mathematical knowledge to support mathematical thinking skills in solving mathematical problems.																																																																				
Content:	Studying the real number system, real functions, limits and continuity, derivatives of a real function and their uses, transcendent functions and their derivatives, limits of improper forms, Taylor and Maclaurin series, applying these concepts to the problem of determining the asymptotes of function graphs, optimization problems and determining the approximation of a function at a point																																																																				
Study/exam achievements	- Students are considered competent and pass if the final score is at least 55 or C. - Final score is calculated as follows: <table><tr><th>Week</th><th>Course Learning Outcomes (CLO)</th><th>Programme Learning Outcomes (PLO)</th><th>Evaluation (%)</th></tr><tr><td>1</td><td>CLO-1</td><td>PLO-6</td><td>5</td></tr><tr><td>2</td><td>CLO-2</td><td>PLO-5</td><td>5</td></tr><tr><td>3</td><td>CLO-2</td><td>PLO-5</td><td>3</td></tr><tr><td>4</td><td>CLO-3</td><td>PLO-5</td><td>10</td></tr><tr><td>5</td><td>CLO-4</td><td>PLO-5</td><td>5</td></tr><tr><td>6</td><td>CLO-4</td><td>PLO-5</td><td>5</td></tr><tr><td>7</td><td>CLO-5</td><td>PLO-6</td><td>10</td></tr><tr><td>8</td><td>CLO-6</td><td>PLO-6</td><td>5</td></tr><tr><td>9</td><td>CLO-6</td><td>PLO-6</td><td>5</td></tr><tr><td>10</td><td>CLO-6</td><td>PLO-6</td><td>10</td></tr><tr><td>11</td><td>CLO-7</td><td>PLO-6</td><td>5</td></tr><tr><td>12</td><td>CLO-7</td><td>PLO-6</td><td>5</td></tr><tr><td>13</td><td>CLO-7</td><td>PLO-6</td><td>10</td></tr><tr><td>14</td><td>CLO-10</td><td>PLO-5</td><td>5</td></tr><tr><td>15</td><td>CLO-8</td><td>PLO-5</td><td>10</td></tr><tr><td>16</td><td>CLO-9</td><td>PLO-5</td><td>2</td></tr></table>	Week	Course Learning Outcomes (CLO)	Programme Learning Outcomes (PLO)	Evaluation (%)	1	CLO-1	PLO-6	5	2	CLO-2	PLO-5	5	3	CLO-2	PLO-5	3	4	CLO-3	PLO-5	10	5	CLO-4	PLO-5	5	6	CLO-4	PLO-5	5	7	CLO-5	PLO-6	10	8	CLO-6	PLO-6	5	9	CLO-6	PLO-6	5	10	CLO-6	PLO-6	10	11	CLO-7	PLO-6	5	12	CLO-7	PLO-6	5	13	CLO-7	PLO-6	10	14	CLO-10	PLO-5	5	15	CLO-8	PLO-5	10	16	CLO-9	PLO-5	2
Week	Course Learning Outcomes (CLO)	Programme Learning Outcomes (PLO)	Evaluation (%)																																																																		
1	CLO-1	PLO-6	5																																																																		
2	CLO-2	PLO-5	5																																																																		
3	CLO-2	PLO-5	3																																																																		
4	CLO-3	PLO-5	10																																																																		
5	CLO-4	PLO-5	5																																																																		
6	CLO-4	PLO-5	5																																																																		
7	CLO-5	PLO-6	10																																																																		
8	CLO-6	PLO-6	5																																																																		
9	CLO-6	PLO-6	5																																																																		
10	CLO-6	PLO-6	10																																																																		
11	CLO-7	PLO-6	5																																																																		
12	CLO-7	PLO-6	5																																																																		
13	CLO-7	PLO-6	10																																																																		
14	CLO-10	PLO-5	5																																																																		
15	CLO-8	PLO-5	10																																																																		
16	CLO-9	PLO-5	2																																																																		



MINISTRY OF HIGHER EDUCATION, SCIENCE, AND
TECHNOLOGY

UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
UNDERGRADUATE PROGRAM OF MATHEMATICS EDUCATION

Ketintang Campus, Jalan Ketintang, C8 C9 Building, Surabaya 60231

Phone: +62 895335466373, email: s1-pmat@unesa.ac.id

Website: <https://pendidikan-matematika.fmipa.unesa.ac.id/>

	Final index is defined as follow:<table><tr><th>Index</th><th>Converted Score</th><th>Score Range</th></tr><tr><td>A</td><td>4.00</td><td>$85 \leq A \leq 100$</td></tr><tr><td>A-</td><td>3.75</td><td>$80 \leq A- < 85$</td></tr><tr><td>B+</td><td>3.50</td><td>$75 \leq B+ < 80$</td></tr><tr><td>B</td><td>3.00</td><td>$70 \leq B < 75$</td></tr><tr><td>B-</td><td>2.75</td><td>$65 \leq B- < 70$</td></tr><tr><td>C+</td><td>2.50</td><td>$60 \leq C+ < 65$</td></tr><tr><td>C</td><td>2.00</td><td>$55 \leq C < 60$</td></tr><tr><td>D</td><td>1.00</td><td>$40 \leq D < 55$</td></tr><tr><td>E</td><td>0.00</td><td>$0 \leq E < 40$</td></tr></table>	Index	Converted Score	Score Range	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	$0 \leq E < 40$
Index	Converted Score	Score Range																													
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	- Thomas Jr., G. B., Hass, J., Heil C., & Weir, M.D., et.al. 2018. Thomas, Calculus 14th Edition (Revised) . Boston: Pearson - Purcell, E.J., Varberg, D., and Rigdon, S.E. 2007 . Calculus 9th Edition . Ontario: Pearson, Prentice Hall - Stewart, J. 2020. Calculus: Early Transcendental 9th Edition. Boston: Cengage Learning - Adams, R. A. 2017. Calculus: A Complete Course, 9th Edition. Ontario: Pearson - Abadi & Wintarti, A. 2014 (in press). Kalkulus, Buku 1. Surabaya - Moesono, D. 1994. Kalkulus I (Edisi Revisi). Surabaya: University Press Surabaya																														
Note	Based on the regulation of the minister of education and culture of Indonesia number 3 of 2020 concerning national higher education standards, it is state 1 CU equals to 170 minutes per week. Therefore, in one semester (16 weeks, including midterm a final exam) 1 CU = 170 X 16 = 2.720 minutes or 45.3 hours. Therefore, workhours in 144 CU x 45.3 hours = 6.523,2 hours. Unesa decided that 1 ECTS with 144 CU, 6.523,2/229 ECTS = 28.48 hours, so that 1 CU = 1.59 ECTS																														