



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:	Development of Teaching Materials / Pengembangan Bahan Ajar
Module Level:	Sarjana (S-1) / Undergraduate
Abbreviation, if applicable:	8420202004
Sub-heading, if applicable:	-
Course included in the module, if applicable:	-
Semester/term:	4 th / Second year
Module Coordinator(s):	Dr. Pradnyo Wijayanti, M.Pd.
Lecturer(s):	Prof. Dr. Masriyah, M.Pd. Prof. Dr. Rini Setianingsih, M.Kes. Dr. Janet Trineke Manoy, M.Pd. Dr. Endah Budi Rahaju, M.Pd. Dr. Ismail, M.Pd. Dr. Pradnyo Wijayanti, M.Pd. Prof. Dr. Tatag Yuli Eko Siswono, S.Pd., M.Pd. Prof. Rooselyna Ekawati, Ph.D. Ika Kurniasari, S.Pd., M.Pd. Dr. Lestariningsih, S.Pd., M.Pd. Dr. Sri Suryanti, S.Pd., M.Si. Liza Puspita Yanti, S.Pd., MAE.
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/ 2 x 170 minutes = 340 minutes = 5.7 hours lectures



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Workload:	<p>16 weeks per semester consisting of:</p> <ul style="list-style-type: none">• 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, <p>Total workload : 16 x 2 x 170 minutes = 5,440 minutes = 90,67 hours = 3.1 ECTS*</p>																																				
Credit Point:	2																																				
Requirements:	N/A																																				
Learning Goals:	<p>PLO 7: Communicate ideas and research results effectively, orally, and in writing.</p> <p>PLO 8: Make decisions based on data/information in completing tasks that are the student's responsibility and evaluating the work that has been done.</p> <p>PLO 11: Demonstrate knowledge related to mathematics education research.</p>																																				
Content:	<p>This course examines the definition, types, roles, and procedures for developing mathematics instructional materials, including concept analysis, the relationships between concepts, learner characteristics, and the learning context. Students develop and evaluate print and non-print instructional materials, including those supported by ICT and artificial intelligence (AI), which are used in a pedagogically sound and responsible manner. Classes are conducted through discussions and project-based assignments focused on developing instructional materials that are suitable for use and enable students to communicate the development process and results in an academic manner.</p>																																				
Study/exam achievements	<ul style="list-style-type: none">• 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-7</td><td>3</td></tr><tr><td>2</td><td>CLO-1</td><td>PLO-7</td><td>3</td></tr><tr><td>3</td><td>CLO-2</td><td>PLO-8</td><td>3</td></tr><tr><td>4</td><td>CLO-1</td><td>PLO-7</td><td>4</td></tr><tr><td>5</td><td>CLO-2</td><td>PLO-8</td><td>3</td></tr><tr><td>6</td><td>CLO-2</td><td>PLO-8</td><td>3</td></tr><tr><td>7</td><td>CLO-2</td><td>PLO-8</td><td>10</td></tr><tr><td>8</td><td>CLO-2</td><td>PLO-8</td><td>15</td></tr></table>	Week	Course Learning Outcomes (CLO)	Programme Learning Outcomes (PLO)	Evaluation (%)	1	CLO-1	PLO-7	3	2	CLO-1	PLO-7	3	3	CLO-2	PLO-8	3	4	CLO-1	PLO-7	4	5	CLO-2	PLO-8	3	6	CLO-2	PLO-8	3	7	CLO-2	PLO-8	10	8	CLO-2	PLO-8	15
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1	CLO-1	PLO-7	3																																		
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9	CLO-2	PLO-8	5
10	CLO-2	PLO-8	5
11	CLO-2	PLO-8	3
12	CLO-3	PLO-7	3
13	CLO-3	PLO-7	3
14	CLO-4	PLO-11	3
15	CLO-4	PLO-11	4
16	CLO-4	PLO-11	4

- Final index is defined as follow:

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

- Pribadi, B.A., & Putri, D.A.P. (2019). Pengembangan Bahan Ajar (Edisi Revisi). Jakarta: Universitas Terbuka.
- Kosasih. (2021). Pengembangan Bahan Ajar. Jakarta: Bumi Aksara.
- Nana. (2020). Pengembangan Bahan Ajar. Klaten: Lakeisha.
- Arikunto, S. (2023). Dasar-dasar Evaluasi Pendidikan. Bumi Aksara.
- Wina Sanjaya (2023). Strategi Pembelajaran Berorientasi Standar Proses Pendidikan. Kencana.
- Gravemeijer, K., Stephan, M., Julie, C., Lin, F. L., & Ohtani, M. (2017). What Mathematics Education May Prepare Students for the Society of the Future? Rotterdam: Sense Publishers.
- VandenHeuvel-Panhuizen, M. (2020). National Reflections on the Netherlands Didactics of Mathematics. Springer.
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- Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Boston:
- Center for Curriculum Redesign.



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	<ol style="list-style-type: none">11. UNESCO.(2023).Guidance on Generative AI in Education and Research. Paris: UNESCO.12. Arikunto,S.(2023).Dasar-dasar Evaluasi Pendidikan.Jakarta: Bumi Aksara.13. Nazir,M.(2022).Metode Penelitian (Rev.).Jakarta:Ghalia Indonesia.14. Rahayu,S.(2023). Pengembangan Bahan Ajar:Teori dan Aplikasi untuk Pendidik.Jakarta: Prenada media.15. Morrison,G.R.,Ross,S.M.,Morrison,J.R.,&Kalman,H.K.(2019).Designing Effective Instruction(8thed.).Hoboken, NJ: Wiley.16. Referensi mutakhir lain yang relevan dengan pengembangan bahan ajar matematika berbasis teknologi. (artikel/publikasi ilmiah).17. Manoy, J. dkk (2023). Pengembangan Bahan Ajar Etnomatematika Berbasis Budaya. Laporan Penelitian18. Setianingsih, R. dkk (2024). Culturally Responsive Mathematics Instruction:
Note	<p>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) $1 \text{ CU} = 170 \times 16 = 2.720$ minutes or 45.3 hours. Therefore, workhours in 144 CU $\times 45.3 \text{ hours} = 6.523,2$ hours. Unesa decided that 1 ECTS with 144 CU, $6.523,2/229 \text{ ECTS} = 28.48$ hours, so that $1 \text{ CU} = 1.59 \text{ ECTS}$</p>