



MINISTRY OF EDUCATION, CULTURE, RESEARCH,
AND TECHNOLOGY

UNIVERSITAS NEGERI SURABAYA

FACULTY OF MATHEMATICS AND NATURAL SCIENCES
Ketintang Campus, D-1 Building, Surabaya 60231 +6231-8296427
Website: www.fmipa.unesa.ac.id, email: info_fmipa@unesa.ac.id

Master Program of Science Education

Module Handbook

Module Name :	<i>Pengembangan Bahan Pembelajaran/ Development Learning Materials</i>
Module level :	<i>Master Program of Science Education</i>
Course Code :	<i>8410104194</i>
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	<i>Not Applicable</i>
Semester/Term	<i>2nd /First Year</i>
Module coordinator(s)	<i>Dr. Sifak Indana, M.Pd.</i>
Lecturer(s):	<i>Dr. Sifak Indana, M.Pd.</i>
Language:	<i>Indonesian Language</i>
Classification within the curriculum:	<i>Compulsory/ Elective</i>
Teaching format/class hours per week during the semester:	<i>3 contact hours of lectures (Indonesia credit semester or CU*)</i>
Workload :	<i>3 x 50 minutes lectures, 3 x 90 minutes structured activity, 3 x 100 minutes individual activity, 14 weeks per semester, 168 total hours per semester ~ 6,72 ECTS**</i>
Credit Point:	<i>3 CU (6,72 ECTS)</i>
Requirements:	
Learning goals/competencies:	<p>Knowladge (KNO-3) CLO-1 <i>Mastering TPACK (Technology, pedagogic, content and knowledge) knowledge by using learning models, learning principles, and learning conditions that suit the characteristics of students, characteristics of science learning materials, and the applicable curriculum.</i></p> <p>SKILL (SKI-1) CLO-2 <i>Develop appropriate learning tools for use in science learning or for research activities in accordance with research ideas in their scientific fields</i></p> <p>Competency (COM-2) CLO-3 <i>Able to Solving science/physics/chemistry/biology learning problems using TPACK according to the characteristics of students, characteristics of science learning materials, and the applicable curriculum.</i></p>
	<i>This course examines and provides students with a comprehensive understanding of methods for developing science learning</i>



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<p><i>Content</i></p>	<p><i>materials that are appropriate to the conditions of students and provides skills in developing teaching materials according to the background of the student's field of study. The study covers the assumptions of instructional design, learning principles and learning conditions, rationale for instructional design and instructional system design. Included in this study are learning processes, learning objectives, various learning processes. Learning design: formulating learning objectives, task analysis, designing learning sequences, selecting strategies, learning methods, learning media, developing evaluation instruments, learning resources. At the end of the lecture an analysis of the lesson material that has been developed in the form of a results seminar is carried out</i></p>																														
<p><i>Attribute Soft skill:</i></p>	<p><i>Scientific report, public speaking, and team work</i></p>																														
<p><i>Study/exam achievements:</i></p>	<p><i>Students are considered to be competent and pass if at least get 70. Final score is calculated as follows: 20% Participation + 30% Assignment + 20% Middle Exam (UTS) + 30% Final Exam (UAS)</i> Final index is defined as follow:</p> <table border="1" data-bbox="667 1055 1294 1431"> <thead> <tr> <th><i>Index</i></th> <th><i>Converted Score</i></th> <th><i>Score Range</i></th> </tr> </thead> <tbody> <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> </tbody> </table>	<i>Index</i>	<i>Converted Score</i>	<i>Score Range</i>	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	$0 \leq E < 40$
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<p><i>Learning Methods :</i></p>	<p><i>Case Method, Discussion, and Article Review</i></p>																														
<p><i>Form of Media:</i></p>	<p><i>Power Point slides, e-book file, and multimedia.</i></p>																														
<p><i>Literature (primary references):</i></p>	<ol style="list-style-type: none"> 1. Abruscato, J. (2004). <i>Teaching children science: discovery methods for the elementary and middle grades</i>. Boston: Allyn and Bacon. 2. Arends, R.I. (2012). <i>Learning to teach</i>. Boston: McGraw-Hill. 3. Bell, R.I. (2008). <i>Teaching the nature of science through process skill</i>. New York: Allyn and Bacon. 4. Bernstein, D. et al. (2006). <i>Making teaching and learning visible: course portfolio and the peer review of teaching</i>. San Francisco: Angker Publishing Company. 5. Cbism, N. (2007). <i>Peer review of teaching: a sourcebook</i>. Bolton, Massachussetts: Angker Publishing Co. 6. Fenrich, P. (1997). <i>Practical guidelines for creating intructional multimedia applications</i>. New York: The Dryden Press. 7. Goethals, M.S. et al. (2004). <i>Student a process app reflective practice a guide preservice and inservice teachers</i>. New Prentice Hall. 																														



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	<p>8. Heinich, R. (1999). <i>Instructional media and technology for learning</i>. Jersey: Prentice-hall.</p> <p>9. Kemp, J.E. et al. (tt). <i>Designing effective instruction</i>. New Macmillan.</p> <p>10. Smith, P.L. (1999). <i>Instructional design</i>. New York: John Willey.</p> <p>11. Thiagarajaan, S. t al. (1974). <i>Instructionaldevelopment for training of exceptional children: a sourcebook</i>. Minneapolis, Minnesota Publication</p>
Notes:	<p>*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom (50 minutes); (b) structured activity (90 minutes); and (c) individual activity (100 minutes) according to according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</p> <p>**1 CU = 2.24 ECTS according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</p> <p>*Total ECTS = (total hours workload/ 60 min) / 25 hours Each ECTS is equals with 25 hours</p>
Last Amendment	5 January 2023