



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

<i>Module Name :</i>	<i>Kajian Sains III/ Study of Science III*)</i>
<i>Module level :</i>	<i>Master Program of Science Education</i>
<i>Course Code :</i>	<i>8410102206</i>
<i>Abbreviation, if applicable:</i>	<i>-</i>
<i>Courses included in the module, if applicable:</i>	<i>Not Applicable</i>
<i>Semester/Term</i>	<i>2nd /First Year</i>
<i>Module coordinator(s)</i>	<i>Prof. Tjipto Prastowo, Ph.D.</i>
<i>Lecturer(s):</i>	<i>Prof. Tjipto Prastowo, Ph.D. Dr. Eko Hariyono, M.Pd. Mita Anggaryani, M.Pd., Ph.D.</i>
<i>Language:</i>	<i>Indonesian Language</i>
<i>Classification within the curriculum:</i>	<i>Compulsory/ Elective</i>
<i>Teaching format/class hours per week during the semester:</i>	<i>2 contact hours of lectures (Indonesia credit semester or CU*)</i>
<i>Workload :</i>	<i>2 x 50 minutes lectures, 2x 90 minutes structured activity, 2x 100 minutes individual activity, 14 weeks per semester, 112 total hours per semester ~ 4.48 ECTS**</i>
<i>Credit Point:</i>	<i>2 CU (4.48 ECTS)</i>
<i>Requirements:</i>	
<i>Learning goals/competencies:</i>	<p>Knowledge (KNO-2)</p> <p>CLO-1 <i>Mastering a structured study of the role of the Earth as a complex physical system in human life.</i></p> <p>CLO-2 <i>Mastering the dynamic aspects of interdependence between Earth and humans.</i></p> <p>CLO-3 <i>Mastering knowledge Understand the various potential earth disasters including geological and hydrometeorological disasters in Indonesia.</i></p> <p>CLO-4 <i>Understand the concept of Sustainable Development Goals (SDGs) in geophysical science education and mitigation studies disasters based on local wisdom</i></p> <p>Competency (COM-3)</p> <p>CLO-5 <i>Designing and creating the role of disaster science education in universities in introducing disaster mitigation studies and building</i></p>



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	<p>disaster preparedness. CLO-6 Creating the concepts of disaster risk reduction, community resilience, and disaster risk management.</p>																														
Content	<p>This course is an in-depth study of earth science with class discussion topics including understanding the role of the Earth (land, oceans, atmosphere and biosphere) in human life; interaction between man and nature; the impact of human activities on nature and the environment; types of earth disasters that often occur in Indonesia and their countermeasures; disaster awareness and preparedness as part of disaster mitigation education to reduce disaster risk; understanding and application of local wisdom in disaster mitigation education; Earth Science Literacy Principles (ESLP) and Sustainable concepts Development Goals (SDGs) in geophysical science education and disaster studies based on local wisdom.</p>																														
Attribute Soft skill:	Scientific report, public speaking, and team work																														
Study/exam achievements:	<p>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) Final index is defined as follow:</p> <table border="1"> <thead> <tr> <th>Index</th> <th>Converted Score</th> <th>Score Range</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>4.00</td> <td>85 ≤ A ≤ 100</td> </tr> <tr> <td>A-</td> <td>3.75</td> <td>80 ≤ A- < 85</td> </tr> <tr> <td>B+</td> <td>3.50</td> <td>75 ≤ B+ < 80</td> </tr> <tr> <td>B</td> <td>3.00</td> <td>70 ≤ B < 75</td> </tr> <tr> <td>B-</td> <td>2.75</td> <td>65 ≤ B- < 70</td> </tr> <tr> <td>C+</td> <td>2.50</td> <td>60 ≤ C+ < 65</td> </tr> <tr> <td>C</td> <td>2.00</td> <td>55 ≤ C < 60</td> </tr> <tr> <td>D</td> <td>1.00</td> <td>40 ≤ D < 55</td> </tr> <tr> <td>E</td> <td>0.00</td> <td>0 ≤ E < 40</td> </tr> </tbody> </table>	Index	Converted Score	Score Range	A	4.00	85 ≤ A ≤ 100	A-	3.75	80 ≤ A- < 85	B+	3.50	75 ≤ B+ < 80	B	3.00	70 ≤ B < 75	B-	2.75	65 ≤ B- < 70	C+	2.50	60 ≤ C+ < 65	C	2.00	55 ≤ C < 60	D	1.00	40 ≤ D < 55	E	0.00	0 ≤ E < 40
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Learning Methods :	Case Method, Discussion, and Project																														
Form of Media:	Power Point slides, e-book file, and multimedia.																														
Literature (primary references):	<ol style="list-style-type: none"> 1. Acecolla, V. 2021. <i>Volcano-Tectonic Processes (in Advances in Volcanology, an official Book Series of the International Association of Volcanology and Chemistry of the Earth's Interior – IAVCEI, Barcelona, Spain)</i>. Edited by Karoly Nemeth. Cham, Switzerland: Springer Nature AG, pp 1-552. 2. Amri, A., Bird, D. K., Ronan, K., Haynes, K. and Towers, B. 2017, <i>Disaster Risk Reduction education in Indonesia: Challenges and recommendations for scaling up. Natural Hazards and Earth System Sciences Discussions, Vol. 17, Issue 4, pp. 595-612.</i> 3. Amri, A., Lassa, J. A., Tebe, Y., Hanifa, N. R., Kumar, J. and Sagala, S. 2022. <i>Pathways to Disaster Risk Reduction education integration in schools: Insights from SPAB</i> 																														



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	<p><i>evaluation in Indonesia. International Journal of Disaster Risk Reduction, Vol. 73, No. 102860, pp. 1-13.</i></p> <ol style="list-style-type: none"> 4. Beer, T. 2010. <i>Geophysical Hazards: Minimizing Risk, Maximizing Awareness.</i> London, UK: Springer, pp. 1-262. 5. Cummins, P. R. 2017. <i>Geohazards in Indonesia: Earth Science for Disaster Risk Reduction – Introduction.</i> Geological Society of London: Special Publications, Vol. 441, pp. 1-7. 6. Fearnley, C. J., Bird, D. K., Haynes, K., McGuire, W. J. and Jolly, G. 2018. <i>Observing the Volcano World: Volcano Crisis Communication ((in Advances in Volcanology, an official Book Series of the International Association of Volcanology and Chemistry of the Earth’s Interior – IAVCEI, Barcelona, Spain). Edited by Karoly Nemeth. Cham, Switzerland: Springer Nature AG, pp 1-771.</i>IOS/EVS/PI/105 REV. 2010. <i>Evaluation of UNESCO’s contribution to Strategic Programme Objective 5: Disaster Preparedness and Mitigation.</i> Paris, France: United Nations Educational, Scientific and Cultural Organization, pp. 1-60. 7. James, B. 2007. <i>Disaster Preparedness and Mitigation: UNESCO’S role.</i> Paris, France: United Nations Educational, Scientific and Cultural Organization, pp. 1-48. 8. Strong, K, Carpenter, O. and Ralph, D. 2020. <i>Scenario Best Practices: Developing Scenarios for Disaster Risk Reduction.</i> Cambridge, UK: Cambridge Centre for Risk Studies at the University of Cambridge Judge Business School and Lighthill Risk Network, pp. 1-44.
Notes:	<p><i>*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 Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</i></p> <p><i>**1 CU = 2.24 ECTS according to Rector Decree of Universitas Negeri Surabaya No. 598/UN38/HK/AK/2020</i></p> <p><i>*Total ECTS = (total hours workload/ 60 min) / 25 hours</i> Each ECTS is equals with 25 hours</p>
Last Amendment	5 January 2023