MINISTRY OF EDUCATION AND CULTURE
UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS
Ketintang Campus, Jalan Ketintang, C3 Building, Surabaya 60231
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Undergraduate Programme of Physics Education **Module Handbook**

Module Name :	*Ilmu Pengetahuan Bumi dan Antariksa* Earth and Space Science
Module level :	Bachelor degree/Undergraduate Programme
Course Code :	8420302099
Abbreviation, if applicable:	-
Courses included in the module, if applicable:	Not Applicable
Semester/Term	6/Third Year
Module coordinator(s)	
Lecturer(s):	Mita Anggaryani, M.Pd., Ph.D Setyo Atmoko, S.Pd., M.Pd.
Language:	*Bahasa Indonesia*
Classification within the curriculum:	Compulsory/ ~~Elective~~
Teaching format/class hours per week during the semester:	2 contact hours of lectures (Indonesia credit semester or sks*)
Workload :	2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 90 total hours per semester ~ 3.18 ECTS**
Credit Point:	2 sks (3.18 ECTS)
Requirements:	Basic Physics I Basic Physics II
Learning goals/competencies:	1. Realizing independent, creative, and honest characters in carrying out lecture assignments, UTS and Earth Physics UAS. 2. Mastering a structured study of the role of the earth as a complex physical system in human life. 3. Mastering the dynamic aspects of interdependence between the earth and humans. 4. Understand various potentials of earth disasters including geological and hydro-meteorological disasters in Indonesia. 5. Implementing an attitude of being aware and responsive to the environment and being prepared for earth disasters.
Content	This course discusses: universal gravity, motion and position of celestial bodies, the structure of the earth, the solar system, asteroids and comets, stars and their dynamics, galaxies and the universe. This lecture can be attended by students who have attended Basic Physics I lectures. The lectures use the lecture, discussion, presentation method, observing celestial bodies with tools or software relevant to IPBA and making power point media and posters to practice effective communication skills in IPBA.

<table>
<tr><td>Attribute Soft skill:</td><td>Scientific report, public speaking, and team work</td></tr>
<tr><td>Study/exam achievements:</td><td>Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:
<table>
<tr><th>Assessment Components</th><th>Percentage of contribution</th></tr>
<tr><td>Participation</td><td>20%</td></tr>
<tr><td>Assignment</td><td>30%</td></tr>
<tr><td>Mid-semester test</td><td>20%</td></tr>
<tr><td>Final semester test</td><td>30%</td></tr>
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<tr><td>Learning Methods :</td><td>Student-centered approach, lecture and discussion, and presentations (structured activities)</td></tr>
<tr><td>Form of Media:</td><td>Power Point slides, e-book file, and multimedia.</td></tr>
<tr><td>Literature (primary references):</td><td>1. Farndon, J. et al. 2003. Planet Earth, London, UK, Lorenz Books
2. Gribbin, J. 1998. A Brief History of Science, Sussex, UK, The Ivy Press Limited
3. Robinson, A. 2002. Earth Shock, London, UK, Thames and Hudson Limited
4. Scarth, A. 2001. Savage Earth, London, UK, Harper Collins Publishers
5. McConnell David and Steer David (2013), “The Good Earth” , Introductory to Earth Science, Third Edition, Pergamon Press
6. Some ppt files and images relevant to Earth Physics from internet</td></tr>
<tr><td rowspan="2">Notes:</td><td>*1 sks in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</td></tr>
<tr><td>**1 sks = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019</td></tr>
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