 FPMIPA UPI	SILABUS	No. Dok. : FPMIPA-SE-SL-11
	Earth and Space Science SE-303, 3 credits 2nd Semester IPSE	Revisi : 00 Tanggal : 19 Januari 2011 Halaman : 1 dari 3
Dibuat Oleh :	Diperiksa Oleh :	Disetujui Oleh :
 (Dr. Lilik Hasanah)	 (Dr. Diana R.)	 (Dr. phil. Ari Widodo)

Description

The course is a concentration competencies course. Having enrolled the course, it is expected that students are able to gain wider knowledge and concept concerned with earth sciences and universe, then able to employ mathematical skills to understand earth sciences phenomena and universe through nature investigation physically. It contains of : Earth Structures, Historical of Astronomy, Universal Gravitation, Solar System, Stars, Galaxy, and Universe. Expository Method through meaningful speech will be conducted in the classroom, besides focus group discussion, slide presentation, computer simulation and some demonstration apparatus. The course evaluation consist of middle-final tes, assignment papers, student presentation, discussion report and practical works report.

Syllabus

1. Identity of Course

- | | |
|-------------------|--|
| a. Name | : Earth and Space Science |
| b. Code | : SE303 |
| c. Credit | : 3 |
| d. Grade | : 1 st of grade, on 2 nd Semester |
| e. Classification | : Concentration Competencies Courses |
| f. Program | : IPSE-FPMIPA UPI/ S-I |
| g. Statue | : Compulsory |
| h. Prerequisite | : - |
| i. Lecturer | : Dr. Lilik Hasanah, M.Si.
Judhistira Aria Utama, M.Si. |

2. Goal


Having enrolled the course, it is expected that students are able to gain wider knowledge and concept concerned with earth sciences and universe, then able to employ mathematical skills to understand earth sciences phenomena and universe through nature investigation physically

3. Content

Earth Structures, Historical of Astronomy, Universal Gravitation, Solar System, Stars, Galaxy, and Universe

4. Learning Activities

Approach : Expository and Inquiry

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Method	: Meaningful Speech, Presentation, Focus Group Discussion.
Task	: Students paper, Practical Report.
Media	: Software: Plate Tectonics, Tsunami, Volcanoe, Starry Night Helios planetarium Earth revolution demonstrator Planet's motion demonstrator Earth-Moon Model House Ceiling Model Model to demonstrate plate tectonic. Portable planetarium. Star's position observer Determining position of the Sun and Moon Model of the theory of continental drift

5. Assessment

Student paper, presentation, practical works, middle test, final test, and lecturer's policy.

6. Meeting's Agenda

Meeting 1	: Introduction, Description and Syllabus
Meeting 2	: Earth, Earth Crust Component and Weathering
Meeting 3	: magma and volcano
Meeting 4	: earthquake
Meeting 5	: hydrosfer: river, lake, sea and ocean
Meeting 6	: Earth Surface Changing: Erosion, Precipitation and Slush Motion
Meeting 7	: Air and Atmosfer, Atmosfer Layers: troposfer, stratosfer, ionosfer, and exsosfer
Meeting 8	: Wind, Weather and Ozonic Layer
Meeting 9	: History of Astronomy Astronomy pre-telescopic era Models of planetary motion Astronomy in telescopic era Theories of origin of the universe
Meeting 10	: The Solar System: Newton's and Kepler's Laws Compare theories of formation of the solar system Newton's Laws of Motion and Gravitation Orbital velocity in a two body system Motion and interaction of a planetary system according to Kepler's Laws Period, distance from the sun and orbital velocity of planets Using Kepler's Laws
Meeting 11	: Universal Gravitation Gravity Tides Tidal Force

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- Meeting 12 : Comets and Asteroids
Origin
Composition
Orbit
- Meeting 13 : Solar System Bodies
Planetary rotation and revolution
Planetary composition
Planetary orbit
Extra solar planet
- Meeting 14 : Methods of Observation and Instrumentation
Kinds of methods of observation
(astrometry, spectroscopy, photometry)
Telescope (optic and radio)
- Meeting 15 : Stars
Stellar classification
Stellar evolution
Energy production in stars
Distance measurement (triangulation & parallax method)
Binary star
- Meeting 16 : Galaxy and Cosmology
Celestial sphere & coordinates (horizon, equatorial, ecliptic)
Hubble classification
Shape of Milky Way
Distance to galaxy
Structure of the universe

7. References

- Winardi Sutantyo, 1983, *Astrofisika Mengenal Bintang*. Bandung : penerbit ITB.
- Roy, A., E. and D. Clarke, 1978, *Astronomy : Principle and Practice*, Adam Jilger Ltd, Bristol
- Gilmore, King, etc, 1989, *The Milky Way Galaxy*, California Univ Scienc Books.
- Pasachoff, J.M., 1994, *Journey Through The Universe*. USA: Sounders College Publishing.
- Tayler, R.J., 1994, *The Stars: Their Structure and Evolution*, Cambridge University Press.