FPMIPA UPI	**SILABUS** **Mehanics And Fluids** **SE-401, 3 credits** **2nd semester IPSE**	No. Dok. : FPMIPA-SE-SL-10 Revisi : 00 Tanggal : 19 Januari 2011 Halaman : 1 dari 2
Dibuat Oleh : (Arif Hidayat,M.Si)	Diperiksa Oleh : (Dr. Diana R.)	Disetujui Oleh : (Dr. phil. Ari Widodo)

Description

This course is compulsory course, which is an advance of mechanics matter from basics physics. Its hope that student could understand the concepts, principles and laws of physics about mechanics fundamentally, detail and comprehensive. So that students has broader knowledge, could analyze and solve particle mechanics, particle system, rigid body, and fluids problems. The subject matter which will explain in this course are concept and fundamental principle of particle kinematics, coordinate polar system, dynamic of particle, harmonic motion, central force, inertia and non inertia reference, particle system, rigid body, Lagran mechanics, static and dynamic fluids. This course is conducted using expository and discussion approach. Inquiry approach is used to solve problems in the assessment and presentation method is used present the paper by LCD, OHP, instrument for demonstration. Evaluation of student are UTS and UAS (in essay unit I, II, II, IV), evaluation of presentation performance, paper, and report of homework. Main sources are Fowles, R. Grant, Analytical Mechanics, Sounders College Publishing, Philadelphia, 1986; Symon. R. Keith, *Mechanics*, Addison-Wesley Publishing Company, Massachusent,1961; Francis W. Sears, *Mechanics Heat and Sound*, Second Edition, Addison Wesley Publishing Company, Inc. Reading, Massachusetts, 1962.

Syllabus

1. Course Identity

a. Name	: Mechanics and Fluids
b. Code	: SE-401
c. Credits	: 3 credits
d. Grade	: 2nd semester
e. Classification	:
f. Program	: IPSE- FPMIPA UPI
g. Statue	: compulsory
h. Prerequisite	:
i. Lecturer	:

2. Goals

Students could understand the concepts, principles and laws of physics about mechanics fundamentally, detail and comprehensive. So that students has broader knowledge, could analyze and solve particle mechanics, particle system, rigid body, and fluids problems.

3. Content

The subject matter which will explain in this course are concept and fundamental principle of particle kinematics, coordinate polar system, dynamic of particle, harmonic motion, central force, inertia and non inertia reference, particle system, rigid body, Lagran mechanics, static and dynamic fluids.

4. Learning Activities

- Methods : expository and discussion
- approach : inquiry
- assignment : homework and paper
- Media : LCD, OHP, instrument for demonstration

5. Assessment

UTS and UAS, evaluation of presentation performance, paper, report of homework, and also based on lecturer's policy.

6. Meeting Agenda:

- 1st meeting: Basic of mechanics, oral test
- 2nd meeting: Kinematics of Particle, assignment: paper, group discussion
- 3rd meeting : Dynamics of Particle
- 4th meeting : Test Unit I
- 5th meeting: Harmonic motion
- 6th meeting: Central Force: gravitation
- 7th meeting: Central Force: particle motion
- 8th meeting: Test Unit II
- 9th meeting: Non-Inertia Reference
- 10th meeting: System of particle
- 11th meeting: Test Unit III
- 12th meeting: Rigid body rotation: center of mass, inertial momentum, rotation characteristics
- 13th meeting: Rigid body rotation : inertial momentum in unparticular axis, characteristics and rotation
- 14th meeting: Lagrange's mechanic
- 15th meeting: mechanics fluid (I): basic principle of mechanics static fluids
- 16th meeting: mechanics fluid (I): basic principle of fluids flow
- 17th meeting: Test Unit IV