FI340 Mechanics

Module name:	Mechanics
Module level, if applicable:	Undergraduate
Code:	FI340
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	3rd
Module coordinator:	Selly Feranie
Lecturer(s):	Selly Feranie
Language:	Bahasa Indonesia
Classification within the curriculum	Compulsory course

Type of Teaching	Contact hours per week during the semester	Class Size
1. Lecture (conceptual, contextual and problem-solving approaches through expository, discussions and exercises). 2. Structured activities (assignments based on conceptual, contextual and problem-solving approaches) 3. Self-study (reading literature)	3 hours 20 minutes	35

Workload:	The total workload is 181 hours 20 minutes (6.4 ECTS) per semester, consisting of 40 hours/2400 minutes lectures (1.41 ECTS), 56 hours/3360 minutes structured activities (1.98 ECTS) and 56 hours/3360 minutes self-study (1.98 ECTS) per week for 12 weeks, 29 hour 11 minutes for four exams (1.03 ECTS)
Credit points:	6.4 ECTS
Pre-requisites course(s):	FI121 Basic Physics I, FI222 Mathematical Physics I
Course Learning Outcomes (CLO):	After taking this course the students have ability to: CLO1: Apply procedural knowledge and mathematics skills in solving problems of kinematics particles systematically and logically CLO2: Apply procedural knowledge and mathematics skills in solving problems of dynamics of particles systematically and logically CLO3: Apply procedural knowledge and mathematics skills in solving problems of oscillations systematically and logically CLO4: Apply procedural knowledge and mathematics skills in solving problems of gravitation and central field systematically and logically CLO5: Apply procedural knowledge and mathematics skills in solving problems of non-inertial reference frame systematically and logically CLO6: Apply procedural knowledge and mathematics skills in

		solving problems of dynamics of system particles systematically and logically		
	CLO7:	Apply procedural knowledge and mathematics skills in solving problems of mechanics of rigid bodies systematically and logically		
	CLO8:	Apply procedural knowledge and mathematics skills in solving problems of Lagrangian mechanics systematically and logically		
	CLO9:	Apply basic programming, computational physics to solve physics-related problems		

Content:	Kinematics particle, Dynamics particle, oscillation, Gravitation and Central Field, Non-inertial reference frame, dynamics of System Particles, Mechanics of Rigid bodies, Lagrangian Mechanics

Study/exam achievements:

The final mark will be weight as follow:

No	CLO	Assessment Object	Assessment Techniques	Weight
1	9	Subject specific competences: a. Individual assignments	Written and programming-based problem	40%
		b. Exam		
	1 – 2	- Exam 1	Written test	15%
	3 – 4	- Exam 2	Written test	15%
	5 – 6	- Exam 3	Written test	15%
	7 – 8	- Exam 4	Written test	15%
Total				100%

Forms of media:	Board, LCD Projector, Laptop/Computer

Literature:	1. John L. Bohn. (2018). A Student's Guide to Analytical Mechanics (Student's Guides) 1st Edition 2. Hamill, P., & Cambridge University Press. (2018). *A student's guide to Lagrangians and Hamiltonians*. Cambridge University Press. 3. Grant R. Fowles and George L. Cassiday (2004), *Analytical Mechanics 7th Edition*, Publisher Cengage Learning 4. David Morin. (2008). *Introduction to Classical Mechanics with Problems and Solutions*, Cambridge university press 5. Deshmukh, P. C. (2019). F*oundations of classical mechanics*. Cambridge University Press.

PLO and CLO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12
CLO1		√										
CLO2		√										
CLO3		√										
CLO4		√										
CLO5		√										
CLO6		√										
CLO7		√										

CLO8		√										
CLO9					√							