



UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF PHYSICS EDUCATION
PHYSICS STUDY PROGRAM

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Bachelor of Physics

MODULE HANDBOOK

Module name:	Analytical Mechanics
Module level, if applicable:	Bachelor Programme
Code:	FSK6215
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	2 rd
Module coordinator:	Dr. R. Yosi Aprian Sari, M.Si
Lecturer(s):	Dr. R. Yosi Aprian Sari, M.Si , Denny Darmawan, M.Sc
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures and 120 minutes structured activities per week
Workload:	Total workload is 91 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes individual study per week for 16 weeks.
Credit points:	2
Prerequisites course(s):	FSK6414
Course Outcomes	After taking this course the students have ability to: CO1. Demonstrate a collaborative and independent attitude in carrying out individual and group tasks CO2. Able to use calculus of variations in analytical mechanics CO3. Able to analyze motion through a scalar approach CO4. Application of the Lagrangian and Hamiltonian methods in the special theory of relativity
Content:	This course examines the analysis of motion through a scalar mechanics approach (Lagrangian and Hamiltonian). The materials studied include: virtual work, Lagrange mechanics, calculus of variations, central force, Hamiltonian mechanics, rigid body dynamics.

<p>Study / exam achievements:</p>	<p>Attitude assessment is carried out at each meeting by observation and / or self-assessment techniques using the assumption that basically every student has a good attitude. The student is given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude.</p> <p>The final mark will be weight as follow:</p> <table border="1" data-bbox="638 594 1442 856"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO2, CO3 and CO4</td> <td>a. Assignment b. Quiz c. Mid d. Final Exam</td> <td>Presentation / written test</td> <td>30% 15% 25% 30%</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO2, CO3 and CO4	a. Assignment b. Quiz c. Mid d. Final Exam	Presentation / written test	30% 15% 25% 30%	Total				100%
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1	CO2, CO3 and CO4	a. Assignment b. Quiz c. Mid d. Final Exam	Presentation / written test	30% 15% 25% 30%												
Total				100%												
<p>Forms of media:</p>	<p>Board, LCD Projector, Laptop/Computer</p>															
<p>Literature:</p>	<p>A. Fowles, G. R. and Cassiday, G. L. 2005. "Analytical Mechanics", 7th Ed, Thomson brooks/cole, Belmont CA USA</p> <p>B. Goldstein, H., Poole, C., and Safko, J. 2000, "Classical Mechanics", 3rd Ed, Addison Weley</p>															

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1	✓							
CO2		✓	✓		✓			
CO3		✓	✓		✓			
CO4		✓	✓		✓			