



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

Colombo St. Number 1 Yogyakarta 55281
Telephone (0274)565411 Ext. 217, fax (0274) 548203
Web: <http://fisika.fmipa.uny.ac.id/>, E-mail: fisika@uny.ac.id

Bachelor of Physics

MODULE HANDBOOK

Module name:	Light Scattering Technology
Module level, if applicable:	Undergraduate
Code:	FSK6256
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	5 th
Module coordinator:	Suparno, Ph.D.
Lecturer(s):	Suparno, Ph.D.
Language:	Bahasa Indonesia
Classification within the curriculum:	Elective Course
Teaching format / class hours per week during the semester:	100 minutes lectures ,120 minutes structured activities, and 120 minutes individual study per week
Workload:	Total workload is 90,67 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 SKS (3.25 ECTS)
Prerequisites course(s):	Basic Colloidal Physics (FSK6228)

Course Outcomes	<p>A. mastering the phenomena that occur in the interaction of light photons and colloidal particles in various spectroscopic techniques</p> <p>B. mastering the monochromatization of light in various spectroscopic techniques</p> <p>C. analyze the particle size with Static Light Scattering and Dynamic Light Scattering</p> <p>D. analyze the charge and size of colloidal particles at once with Laser Doppler Electrophoresis techniques (LDE), and Phase Analysis Light Scattering</p>																			
Content:	This course discusses the interaction between electrons on the particle surface, absorption of light photons by electrons on the particle surface, monochromatization techniques, types of light scattering, Static Light Scattering, Dynamic Light Scattering, Laser Doppler Electrophoresis (LDE), and Phase Analysis Light Scattering (PALS), Properties of light, and light scattering techniques.																			
Study / exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="3">1</td> <td rowspan="3">CO1, CO2, CO3, and CO4</td> <td>a. Assignment (Individual, Case Study)</td> <td rowspan="3">Written Test</td> <td>50%</td> </tr> <tr> <td>b. Mid</td> <td>25%</td> </tr> <tr> <td>c. Final Exam</td> <td>25%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3, and CO4	a. Assignment (Individual, Case Study)	Written Test	50%	b. Mid	25%	c. Final Exam	25%	Total				100%
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		b. Mid		25%																
		c. Final Exam		25%																
Total				100%																
Forms of media:	Board, LCD Projector, Laptop/Computer																			
Literature:	<p>A. Absorption and Scattering of Light by Small Particles, Craig F. Bohren and Donald R. Huffman, John Wiley & Sons, New York, 1998.</p> <p>B. Hamburan Cahaya dalam Sistem Koloid: Teori dan Instrumentasi, Suparno, P2IS FMIPA UNY, Yogyakarta, 2012.</p>																			

PLO and CO mapping

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