

## FI223 Basic Physics Experiment I

Module name:	Basic Physics Experiment I	
Module level, if applicable:	Undergraduate	
Code:	FI223	
Sub-heading, if applicable:	-	
Classes, if applicable:	-	
Semester:	1 <sup>st</sup>	
Module coordinator:	Mimin Iryanti	
Lecturer(s):	Mimin Iryanti and Selly Feranie	
Language:	Bahasa Indonesia	
Classification within the curriculum:	Compulsory course	
Type of Teaching	Contact hours per week during the semester	Class Size
<ol style="list-style-type: none"> <li>1. Lecture (expository method, discussion, presentation, Inquiry and experiment).</li> <li>2. Structure activities (assignments based on conceptual, contextual and problem-solving approaches)</li> <li>3. Self-study (reading literature)</li> </ol>	1 hour 40 minutes	20
Workload:	Total workload is 90 hours 3,2 ECTS (5440 minutes) per semester which consists of 1400 minutes (0.82 ECTS) lectures, 1680 minutes (0.98 ECTS) structured activities, 1680 minutes (0.98 ECTS) self-study per week for 14 weeks, 400 minutes (0.2 ECTS) for each exam, and 480 (0.22 ECTS) minutes for each exam preparation.	
Credit points:	3,2 ECTS (2 SKS)	
Pre-requisites course(s):	-	
Course Learning Outcomes (CLO):	<p>After taking this course, the students have the ability to:</p> <p>CLO1: Apply the concept of fundamental physics 1</p> <p>CLO2: Measure physical quantities</p> <p>CLO3: Explain about measurement errors.</p> <p>CLO4: Develop the basic physics experiments</p> <p>CLO5: Complete the given practicum assignments according to the quality standards and the time allotted.</p> <p>CLO6: Retrieve and process fundamental physics experimental data.</p>	

	<p>CLO7: Communicate the results of basic physics experiments.</p> <p>CLO8: Compile reports on the results of fundamental physics experiments.</p> <p>CLO9: Apply academic ethics and discipline during lectures.</p>															
Content:	<p>This course is a compulsory subject for Physics study program students who provide knowledge and skills to experiment with basic physics concepts. The topics/titles of the experiment include: basic measurement, spring oscillations, pendulum swings, dynamic trains, Atwood planes, viscosity, calorimeters</p>															
Study/exam achievements:	<p>The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CLO</th> <th>Assessment Object</th> <th>Assessment Techniques</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1 - 9</td> <td>           Subject specific competences:            a. Individual assignments            b. Class activity            c. Mid exam            d. Final exam         </td> <td>           Written             Performance            Written test            Written test         </td> <td>           20%             40%            20%            20%         </td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CLO	Assessment Object	Assessment Techniques	Weight	1	1 - 9	Subject specific competences: a. Individual assignments b. Class activity c. Mid exam d. Final exam	Written  Performance Written test Written test	20%  40% 20% 20%	Total				100%
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Total				100%												
Forms of media:	<p>Board, LCD Projector, Laptop/Computer, Demonstration Equipment Package, LMS</p>															
Literature:	<ol style="list-style-type: none"> <li>Squires, G. L. (2012). <i>Practical Physics</i>. Cambridge University Press.</li> <li>Shailaja Mahamuni, et al. (2020). <i>Foundations of Experimental Physics</i>. CRC Press.</li> <li>Werner Boeglin, (2022), <i>a summary of Error Analysis and Statistical Method</i>, Wanda Fiu. Edu</li> <li>P.N Kaloyerou, 2018, <i>Basic Concepts of Data and Error Analysis: With Introduction to Probability and Statistics and Computer Methods</i>, Springer.</li> <li>Herman. (2011). <i>A Student's Guide to Data and Error Analysis</i>. Cambridge University Press.</li> <li>Ostdiek, V. J., &amp; Bord, D. J. (2005). <i>Inquiry into physics</i>. Thomson Brooks/Cole.</li> <li>Steven Adam &amp; Jonathan Allday, (2013), <i>Advance Physics, 2nd Edition</i>, Oxford.</li> <li>M.I. Pergament, (2015), <i>Methods of Experimental Physics</i>, Taylor and Francis Group.</li> <li>Paul Allen Tipler, &amp; Mosca, G. (2008). <i>Physics for scientists and engineers</i>. W.H. Freeman.</li> <li>Walker, J., Resnick, R., &amp; Halliday, D. (2014). <i>Halliday &amp; Resnick fundamentals of physics</i>. John Wiley &amp; Sons, Inc.</li> <li>Giancoli, D. C. (2005). <i>Physics. volume 1: principles with applications</i>. Pearson/Prentice Hall.</li> </ol>															

