FI363 Material Physics

Module name:	Material Physics	
Module level, if applicable:	Undergraduate	
Code:	FI363	
Sub-heading, if applicable:	-	
Classes, if applicable:	-	
Semester:	5th	
Module coordinator:	Andhy Setiawan	
Lecturer(s):	Andhy Setiawan	
Language:	Bahasa Indonesia	
Classification within the curriculum:	Elective 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 presentation). 2. Structured activities (assignments based on conceptual, contextual and problem-solving approaches) 3. Self-study (reading literature)	2 hours 30 minutes	20
Workload:	The total workload is 136 hours/8160 minutes (4.8 ECTS) per semester, consisting of 35 hours/2100 minutes lectures (1.24 ECTS), 42 hours/2520 minutes structured activities (1.48 ECTS) and 42 hours/2520 minutes self-study (1.71 ECTS) per week for 14 weeks, 17 hours/1020 minutes for two exams (0.6 ECTS).	
Credit points:	4.8 ECTS	
Pre-requisites course(s):	FI121 Basic Physics I, FI122 Basic Physics II	
Course Learning Outcomes (CLO):	After taking this course the students have ability to: CLO1. Analyze materials science and engineering. CLO2. Analyze properties of materials. CLO3. Analyze metal alloy, ceramic, polymer, and composite. CLO4. Identify of the types and properties of materials, and the material physics research in scientific articles	

<table>
<tr><td>Content:</td><td>Materials Science and Engineering, Metals Alloy, Ceramic, Polymer, Composite, Properties of Solid Materials (Mechanical, Electrical, Magnetic, Optical, Thermal, Deteriorative)</td></tr>
<tr><td>Study/exam achievements:</td><td>
<table>
<tr><th>No</th><th>CLO</th><th>Assessment Object</th><th>Assessment Techniques</th><th>Weight</th></tr>
<tr><td>1</td><td>CLO1,
CLO2,
CLO3,</td><td>Subject specific competences:
a. Assignments
b. Worksheets
c. Exam
- Mid exam
- Final exam</td><td>

Written
Written

Written test
Written test</td><td>

10%
10%

25%
25%</td></tr>
<tr><td>2</td><td>CLO4</td><td>Subject specific competences:
Presentation</td><td>
Performance</td><td>
30%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
</table>
The final mark will be weight as follow:
</td></tr>
<tr><td>Forms of media:</td><td>Board, LCD Projector, Laptop/Computer, LMS, internet line.</td></tr>
<tr><td>Literature:</td><td>

Callister, W.D. Jr. and Rethwisch, D.G, 2018, Materials Science and Engineering an Introduction 10th Ed. John Wiley and Sons Inc. USA.
Hasse Fredriksson, & Ulla Åkerlind. (2008). Physics of Functional Materials. John Wiley & Sons.
Naumann, R. J. (2008). Introduction to the Physics and Chemistry of Materials. CRC Press.
Various articles in the field of material physics from international journals (at least last 10 years issue).

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</table>

PLO and CLO mapping

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