

Module Handbook

Module Name:	Material Science and Engineering
Module Level:	Bachelor
Abbreviation, if applicable:	FI3131
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	5/ Third Years
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	General Studies / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	2 hours lectures
Workload:	2 hours lectures, 4 hours individual study and Laboratories work, 16 weeks per semester, and total 96 hours a semester
Credit Points:	2
Requirements:	-
Learning goals/competencies:	<p>Knowledge:</p> <ol style="list-style-type: none"> 1. Describe the structure, processing and key properties of the main classes of materials. 2. Explain how materials are characterized. 3. Describe the relationship between processing-structure-property of materials. 4. Assess the suitability of a material for a given purpose, using quantitative analyses where appropriate
Content:	The concepts of materials science and the relation of structure of material properties. Atomic structure/interatomic bonding; crystal and non-crystalline solid; structure of: metal, semiconductor, ceramic, polymers, alloys and composites; imperfections in solids; diffusions; phase diagrams; mechanical, electrical, optical and magnetic properties of materials.
Study/exam achievements:	Students are considered to be competent and pass if at least get 50% of examinations (mid-term test, final test, quizzes), homework, Research based learning.
Forms of Media:	Slides and LCD projectors, blackboards, lab.
Literature:	<ol style="list-style-type: none"> 1. William D. Callister, Fundamental of Materials Science and Engineering : An Integrated Approach, 4, John Wiley & Sons, 2013 2. William D. Callister, Materials Science and Engineering : An Introduction, 8, John Wiley & Sons, 2013
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