

## Module Handbook

Module Name:	Synthesis and Physical Properties of Materials as well as their Functionalizations
Module Level:	Bachelor
Abbreviation, if applicable:	FI4121
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	Fourth Years
Module coordinator(s):	
Lecturer(s):	
Language:	Bahasa Indonesia
Classification within the curriculum:	<del>General Studies</del> / Major Subject / Elective Studies
Teaching format / class hours per week during the semester:	3 hours lectures
Workload:	3 hours lectures, 6hours individual study and Laboratories work, 16 weeks per semester, and total 144 hours a semester
Credit Points:	3
Requirements:	FI 2201 Electricity and Magnetism FI 3103Quantum Physics
Learning goals/competencies:	<p>Knowledge:</p> <ol style="list-style-type: none"> <li>1. Demonstrate knowledge of the principle and applications of soft matter</li> <li>2. Demonstrate comprehension of the synthesis method of soft matter and able to apply it to simple cases of soft matter</li> <li>3. Demonstrate knowledge of characterization methods and able to apply it to find microscopic structure of soft matter</li> <li>4. Demonstrate knowledge of characterization methods of mechanical, electrical and optical properties of soft matter</li> </ol> <p>Skills:</p> <ol style="list-style-type: none"> <li>1. Demonstrate comprehension of the synthesis method of soft matter and able to apply it to simple cases of soft matter</li> <li>2. Demonstrate knowledge of characterization methods and able to apply it to find microscopic structure of soft matter</li> </ol>
Content:	This course is offered to equipped students with knowledge of the synthesis method of soft materials and the underlying physics and chemistry principles. The participants will be also introduced to physical properties of matter as well as their functionalization for advanced technology applications. The topics of this lecture are: methods of synthesizing soft materials, phenomenological models of physical properties such as: heat and electric conduction properties, magnetic properties and optical properties; and the method of characterization.
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"> <li>1. Introduction to soft matter, I. W. Hamley, John Wiley &amp; Sons, 2007</li> <li>2. Soft matter physics: an introduction, Maurice Kleman, Oleg D. Lavrentovich, Springer, 2001</li> </ol>

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