

## MODULE HANDBOOK

Course:	<b>Biomaterial Analysis</b>
Module Level:	Undergraduate
Code:	FIM306
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/Term:	6 <sup>th</sup> / Third Year
Module Coordinator:	Jan Adi, S.Si. M.Si.
Lecture(s):	Jan Adi, S.Si. M.Si. and Dyah Hikmawati S.Si., M.Si.
Language:	Bahasa Indonesia
Classification Within The Curriculum:	<del>Compulsory Course</del> / Elective Course
Teaching format/ class hours per week during semester:	3 hours of lectures (50 minutes/hour)
Workload:	3 hours of lectures, 3 hours of tutorial and structured activities, 3 hours of individual activities, 13 weeks per semester, and total of 117 hours per semester ~ 3.9 ECTS*
Credit Points:	3
Requirement(s):	(FIM302) Biomaterials
Learning Goals/Competencies:	<p><b>General Competence (Knowledge):</b> After following this course, students are able to analyze biomaterial properties, applications and characterization with physics knowledge point of view.</p> <p><b>Specific Competence:</b></p> <ol style="list-style-type: none"> <li>1. Students are able to apply biomaterials in living organism by means of recognize, characterize, and implementations too.</li> <li>2. Students are able to analyze biomaterials from materials such as metals, polymers, ceramics &amp; glasses, and composite.</li> </ol>
Contents:	<p>The course is consist of some topics such as metals, polymers, ceramics &amp; glasses, and composite to emphasize the materials in the bulk properties (microstructure) on metallic bonding, ionic bonding, covalent bonding, Van deer Waals force, crystallinity, electricity, density, porosity, permeability, and capillarity. To describe the microstructure properties, it will use some tests such as; XRD, SEM, SEM-EDX, Conductivity meter, and Thermal Gravimetric Analysis (TGA), Universal testing machine (UTM), Rockwell Hardness Test, Vickers Hardness Test, Impact Test, Flexural test, Dilatometer, and FTIR.</p> <p>The example of the biomaterials synthesize into the physical and chemical treatment will be shown by precipitation method and/or sol-gel method, and thermal method.</p>
Soft Skill Attribute:	Effort and ethic
Study/Exam Achievements:	<p>Students are considered competent and eligible to pass the course upon obtaining at least 50% of maximum score for midterm test, final exam, quizzes and homework.</p> <p>Final score is calculated as follow: 20 % homework + 15% quizzes</p>

	<p>+ 30% midterm test + 30% final exam + 5% soft skill.</p> <p>Final grade is defined as follow :</p> <p>A : 75 - 100</p> <p>AB : 70 - 74.99</p> <p>B : 65 - 69.99</p> <p>BC : 60 - 64.99</p> <p>C : 55 - 59.99</p> <p>D : 40 - 54.99</p> <p>E : 0 - 39.99</p>
Forms of Media:	Powerpoint slides, LCD projectors and whiteboards
Learning Methods:	Lecture, discussion and tutorial
Literature(s)	<ol style="list-style-type: none"> <li>1. Black, J., and Hastings, G. 1998. Handbook of Biomaterial Properties.</li> <li>2. Biomaterial Science “ An introduction to material in medicine” edited by Buddy D. Ratner et al, Copyrigh @ 1996 by Academic Press.</li> </ol>
Notes:	<p>*Total ECTS = {(total hours workload × 50 min) / 25 hours</p> <p>Each ECTS is equals with 25 hours.</p>

