

Module Handbook

Module Name	Advanced Topics in Physical Chemistry
Module Level	Bachelor
Abbreviation, if applicable:	KST413
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	Physical Chemistry II
Semester/term:	VI / Third years
Module coordinator(s):	Dr. Mochamad Zakki Fahmi
Lecturer(s):	Dr. Abdulloh Dr. Faidur Rochman Siti Wafiroh, M.Si
Language:	Indonesia
Classification within the curriculum	Elective course
Teaching format / class hours per week during semester:	2 hours lectures (50 min / hour)
Workload:	2 hours lectures, 2 hours structural assignment and 2 hour individual work, 13 weeks per semester, and 78 hours a semester ~ 2.6 ECTS *
Credit Points:	2 SCU
Requirements:	Physical Chemistry II
Learning goals/competencies:	<p>General Competence (Knowledge): Understanding the development of the latest research in the field of physical chemistry, primarily the development of nanomaterial science, the synthesis and characterization of nanomaterials, nanomaterial applications. Understand about membrane technology, materials and material properties of the membrane, the membrane material synthesis, characterization of the membrane, the membrane transport processes, concentration polarization, fouling phenomenon membranes, modules and process design, calculation and application of membrane technology.</p> <p>Skills: Having skills in searching for the latest publications and of good quality. the ability to understand the scientific journals, especially the field of nanoparticles and membrane technology properly.</p> <p>Spesific Competence: Understanding basic concepts and principles related to nanotechnology research and membrane technology on the latest research.</p>
Content:	To understand the latest research in the field of physical chemistry who has been published internationally, primarily the development of nanomaterial science, the synthesis and characterization of nanomaterials, nanomaterial applications. Membrane technology, materials and material properties of the membrane, the membrane material synthesis, characterization of the membrane, the membrane transport processes, concentration polarization,

	fouling phenomenon membranes, modules and process design, calculation and application of membrane technology.																					
Attribut soft skill	Discipline and team-work																					
Study/exam achievements:	<p>Students are considered to be competent and pass if at least get D</p> <p>Final Score is calculated as follows : 40% UAS; 40% UTS; 10% assessment before the middle examination ; 10% assessment after the middle examination</p> <p>Final index is defined as follows</p> <table> <tr> <td>75,00 – 100,00</td> <td>A</td> <td>4</td> </tr> <tr> <td>70,00 – 74,99</td> <td>AB</td> <td>3,5</td> </tr> <tr> <td>65,00 – 69,99</td> <td>B</td> <td>3</td> </tr> <tr> <td>60,00 – 64,99</td> <td>BC</td> <td>2,5</td> </tr> <tr> <td>55,00 – 59,99</td> <td>C</td> <td>2</td> </tr> <tr> <td>40,00 – 54,99</td> <td>D</td> <td>1</td> </tr> <tr> <td>0,00 – 39,99</td> <td>E</td> <td>0</td> </tr> </table>	75,00 – 100,00	A	4	70,00 – 74,99	AB	3,5	65,00 – 69,99	B	3	60,00 – 64,99	BC	2,5	55,00 – 59,99	C	2	40,00 – 54,99	D	1	0,00 – 39,99	E	0
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55,00 – 59,99	C	2																				
40,00 – 54,99	D	1																				
0,00 – 39,99	E	0																				
Forms of Media:	LCD Projectors, whiteboard, slides																					
Learning Methods	Course material is delivered with lectures, discussions and tutorials Students are also asked to present the task of understanding the current journal of the journal reputations																					
Literature:	<ol style="list-style-type: none"> Mulder, M. 1996, <i>Basic Principles of Membrane Technologi</i>, 2nd edition, Kluwer Academic Publisher, Dordrecht Winston, W.S. & Kamalesh K.Sirkat., 1992, <i>Membrane Handbook</i>, Chapman & Hall, New York 455-571 Rao, R.N.C., and Gopalakrishna, J., 1997, <i>New Direction in Solid State Chemistry</i>, 2 Ed, Cambridge University Press, Cambridge Callister William, D., Jr., 1994, <i>Materials Sciences and Engineering an in Introduction</i>, 3 ed, John Wiley & Sons, Inc, New York. Online scopus index and ISI Thomson 																					
Notes:	<p>*Total ECTS = {(total hours workload x 50 min) / 60 min } / 25 hours</p> <p>Each ECTS is equals with 25 hours</p>																					