

## Module Handbook

<b>Module Name</b>	Physicochemical Analysis Lab Work					
<b>Module Level</b>	Higher Diploma					
<b>Code, if applicable</b>	VKD321					
<b>The subtitle, if applicable</b>	-					
<b>Courses, if applicable</b>	-					
<b>Semester(s) in which the module is taught</b>	3 <sup>rd</sup> semester					
<b>A person responsible for the module</b>	Bayu Wiyantoko, S.Si., M.Sc. Tri Esti Purbaningtias, S.Si., M.Si.					
<b>Lecturer</b>	Bayu Wiyantoko, S.Si., M.Sc. Tri Esti Purbaningtias, S.Si., M.Si.					
<b>Language</b>	Bahasa Indonesia					
<b>Relation to curriculum</b>	Compulsory					
<b>Type of teaching, contact hours</b>	Laboratory Practice (teaching, preparation, lab work, data analysis and report) and Exams: 5.7 hours x 16 week					
<b>Workload</b>	<b>Total Workload</b>	91 hours; 2 CU				
		Face to face teaching	Laboratory preparation	Laboratory work	Data analysis and report	Exam (Theory and Practice)
	Hours	11	11	50	11	8
<b>Credit Points</b>	2 CU/3.4 ECTS					
<b>Requirements according to the examination regulations</b>	100% of requirements attendance in laboratory activities					
<b>Recommended prerequisites</b>	Laboratory work of lab technique					
<b>Module objectives/intended learning outcomes</b>	<p>PLO 7: Students can select and carry out chemical analysis methods and operate instruments by applying the principles of chemical occupational health and safety</p> <p>Subject LO:</p> <p>Students are able to determine volume and pressure of gas</p> <p>Students are able to determine physicochemical properties</p> <p>Students are able to determine solution thermodynamic</p> <p>Students are able to determine partial molar volume</p> <p>Students are able to determine reaction rate</p> <p>Students are able to build teamwork in carrying out laboratory procedures</p> <p>Students are able to apply principles and build a culture of chemical safety and health</p> <p>Students are able to analyze data and report test results in writing and orally</p>					
<b>Content</b>	<ol style="list-style-type: none"> <li>1. Gas</li> <li>2. Liquid</li> <li>3. Thermodynamic</li> </ol>					

	<p>4. Reactions kinetic</p> <p>5. Solid</p>
<b>Study and examination requirements and forms of examination</b>	Assessment lab work (55%), team work (10%), analysis and report (25%), safety lab (10%)
<b>Media employed</b>	Google classroom, youtube, zoom meeting, google form, google doc
<b>Reading list</b>	<p>Addison NJH, 1989, <i>Physical Chemistry</i>, 3<sup>rd</sup> ed, Harper Collin Florida</p> <p>Atkin PW, 1999, <i>Physical Chemistry</i> Volume 1, Translated by Dra. Irma I. Kartohadiprojo, Erlangga, Jakarta</p> <p>Atkin PW, 1999, <i>Physical Chemistry</i> Volume 2, Translated by Dra. Irma I. Kartohadiprojo, Erlangga, Jakarta</p> <p>Castelan, GW, 1983, <i>Physical Chemistry</i>, 3<sup>rd</sup> ed Addission Wesley Publishing Company, Massachuset</p> <p>Dogra, S.K., Dogra, K., 1990, <i>Physical Chemistry and Questions</i>, UI Press Jakarta</p> <p>Wiyantoko, W., Purbaningtias, T.E., 2019, <i>Guidebook Physicochemical Analysis</i>, Chemical Analysis Study Program, Yogyakarta</p>