

## Module Handbook

<b>Module Name</b>	Chromatography Lab Work					
<b>Module Level</b>						
<b>Code, if applicable</b>	VKD429					
<b>The subtitle, if applicable</b>						
<b>Courses, if applicable</b>						
<b>Semester(s) in which the module is taught</b>	4 <sup>th</sup> semester					
<b>A person responsible for the module</b>	Bayu Wiyantoko, M.Sc.					
<b>Lecturer</b>	Bayu Wiyantoko, M.Sc. Ganjar Fadillah, M.Si. Kuntari, M.Sc.					
<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: 11.3 hours x 16 week					
<b>Workload</b>	Total workload	181 hours; 4 CU				
		Face to face teaching	Laboratory preparation	Laboratory work	Data analysis and report	Exam (Theory and Practice)
	Hours	22	22	99	22	16
<b>Credit Points</b>	4 CU/6.8 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 3: Students can express basic concepts of chemistry, chemical analysis, operation, and maintenance of chemical instruments that can be applied in their work</p> <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 carry out sample preparation procedures in chemical testing using chromatography</p> <p>Students are able to build teamwork in carrying out laboratory procedures</p> <p>Students are able to analyze data and report test results in writing and oral</p> <p>Students are able to analyze the components in the sample chromatographically</p> <p>Students are able to apply testing procedures with standard and non-standard methods</p>					

	<p>Students are able to apply principles and build a culture of chemical safety and health</p> <p>Students are able to determine and implement the test method according to the characteristics of the sample both instrumental and non-instrumental</p>
<b>Content</b>	<ol style="list-style-type: none"> <li>1. Preparation of test samples</li> <li>2. Principles and techniques of chromatography analysis both conventional and instrumentation</li> <li>3. Interpretation of test results data qualitatively and quantitatively</li> </ol>
<b>Study and examination requirements and forms of examination</b>	<p>Assessment lab work (60%), team work (10%), report (20%), safety lab (10%)</p>
<b>Media employed</b>	<p>Google classroom, youtube, zoom meeting, google form, google doc, standard method, laboratory handbook</p>
<b>Reading list</b>	<ol style="list-style-type: none"> <li>1. Armarego, W.L.F., Chai, L.L.C., 2009, Purification of Laboratory Chemicals, Elsevier, Oxford</li> <li>2. Beran, J.A., 2011, Laboratory Manual for Principles of General Chemistry, John Wiley &amp; Sons, New Jersey</li> <li>3. Day, Jr.,R.A., Underwood, A.L., 2002, Analisis Kimia Kuantitatif, Diterjemahkan oleh Aloysius Pudjaatmaka, Edisi ke 6, Penerbit Erlangga, Jakarta</li> <li>4. Meloan, C.E., 1999, Chemical Separations: Principles, Techniques, and Experiments, John Wiley and Sons Inc., New York</li> </ol>