


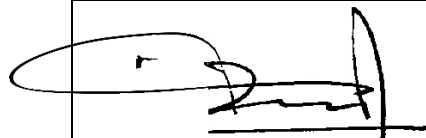




Faculty of Natural Sciences and Mathematics  
Chemistry Department  
Chemistry Education Study Program

		Faculty of Natural Sciences and Mathematics Chemistry Department Chemistry Education Study Program		
Module name		Laboratory Techniques		
Module level, if applicable		1 <sup>st</sup> year		
Code, if applicable		SPK-107		
Semester(s) in which the module is taught		1 <sup>st</sup> semester		
Person responsible for the module		Dr. Tatang Shabur Julianto, M.Si		
Lecturer		Dr. Tatang Shabur Julianto, M.Si Lina Fauzi'ah, M.Sc		
Language		Bahasa Indonesia		
Relation to curriculum		Compulsory		
Teaching methods	Class size	Forms of active participation	Workload 91 hours	
Theory and Practice	50-60	Discussion, Lab work	Lecture: 100 (min) x 16 (meeting)	27 hours
			Labwork: 240 (min) x 16 (week)	64 hours
ECTS Credit		3.25		
Credit points		2 SCU		
Requirements according to the examination regulations		Minimum attendance at lectures is 75% (according to UII regulation)		
Recommended prerequisites		N/A		
Related course		General Chemistry Labwork		
Module objectives/intended learning outcomes		On successful completion of the course students should be able to: 1. Explain laboratory equipment and laboratory safety equipment 2. Explain the handling of chemical tools and materials 3. Explain the handling of laboratory waste 4. Explain the technique of using glass tools and calibration of tools 5. Explain the basic principles of separation techniques: extraction, distillation, fractional distillation, chromatography		

	6. Explain the basic principles of purification techniques: recrystallization 7. Explain the technique of determining the physical properties of compounds and their destruction 8. Explain the basic principles of using chemical instruments: UV-Vis spectrophotometer, FTIR, AAS		
Content	<ul style="list-style-type: none"> <li>Laboratory equipment and laboratory safety equipment,</li> <li>Handling of chemical tools and materials,</li> <li>Handling laboratory waste,</li> <li>Techniques for using glass tools and calibrating laboratory tools and instruments,</li> <li>Basic principles of separation techniques: extraction, distillation, fractional distillation, chromatography,</li> <li>Basic principles purification techniques: recrystallization, techniques for determining the physical properties of compounds and digestion</li> </ul>		
Study and examination requirements and forms of examination	Final score (NA) is calculated as follows:		
	Intended learning outcomes	Weight (%)	Technique of assessment
	1	20	Non test: project assessment
	2	15	Non test: project assessment
	3	10	Non test: project assessment
	4	15	Non test: project assessment
	5	10	Written test (Final Examination)
	6	10	Written test (Final Examination)
	7	10	Written test (Final Examination)
	8	10	Written test (Final Examination)
Media employed	Power point slide presentation, video, Google classroom		
Reading list	James W. Zubrick, 2000, <i>The Organic Chemistry Lab Survival Manual: A Student Guide to Techniques</i> , John Wiley & Sons, New York. Neal G. Anderson, 2012, <i>Practical Process Research and Development - A guide for Organic Chemists</i> , Second Edition, Academic Press.		

	<p>Robert H. Hill, &amp; David Finster, 2010, <i>Laboratory Safety for Chemistry Students</i>, John Wiley and Sons. New York.</p> <p>Lbrown, S., 2010, <i>Laboratory Techniques for General Chemistry</i>, Hayden Mcneil; 3rd edition.</p> <p>Beran, J.A., 2010, <i>Laboratory Manual for Principles of General Chemistry</i>, Wiley; 9 edition.</p> <p>Thompson, R.B., 2008, <i>Illustrated Guide to Home Chemistry Experiments: All Lab, No Lecture</i> (DIY Science), O'Reilly Media</p>
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Prepared by:	Verified by:	Authorized by:
		
Person responsible for the module	Student representative	Coordinator Program