		Faculty of Natural Sciences and Mathematics Chemistry Department Chemistry Education Study Program		
Module name		General Chemistry Labwork		
Module level, if applicable		1st Year		
Code, if applicable		SPK-106		
Semester(s) in which the module is taught		1st semester		
Person responsible for the module		Prof. Riyanto, Ph.D		
Lecturer		Prof. Riyanto, Ph.D Beta Wulan Febriana, M.Pd.		
Language		Bahasa Indonesia		
Relation to curriculum		*Compulsory*		
Teaching methods	Class size	Forms of active participation	Workload 45 hours	
Practice	20-25	Laboratory work, discussion	Laboratory work: 170 (min) x 10 (meeting)	28 hours
			Preparations: 60 (min) x 10 (meeting) + 200 (min) Exam: 120 (min) x 100 (meeting)	17 hours
ECTS Credits		1.61		
Credit points		1 SCU		
Requirements according to the examination regulations		Student must follow all the series of practicum activities. Violation of this will result in giving an E value (failing practicum). Student who do not participate in the practicum for 3 (three) times without justified reasons may not attend the next practicum and are considered to have resigned from the practicum. Student who for some reason cannot follow the practicum according to the predetermined schedule can apply for inhal practicum. Inhal costs are determined by the laboratory. Student who inhal allowed for a student a maximum of 3 (three) times. Student who have not completed laboratory expenses such as tools, materials or tasks (if any) within a certain time will be given a K or F value.		
Recommended prerequisites		Safety Laboratory Workshop		

<table>
<tr><td>Related course</td><td>General Chemistry</td></tr>
<tr><td>Module objectives/intended learning outcomes</td><td>On successful completion of the course students should be able to:
1. Conduct practical activities by paying attention to aspects of work safety and security (K3)
2. Evaluate practical activities
3. Explain basic theoretical chemistry concepts</td></tr>
<tr><td>Content</td><td>• Introduction to tools and techniques laboratory,
• Preparation of silver chloride and barium chromate compounds with the stoichiometry theory of precipitation reaction,
• Soap making by ester saponification reaction with NaOH base,
• Purification of kitchen salt by precipitation method,
• Formalin analysis,
• Neutralization of acidic and basic industrial wastes,
• Metal plating using electroplating technique and
• Making batteries from fruit</td></tr>
<tr><td>Study and examination requirements and forms of examination</td><td>Final score (NA) is calculated as follows:
<table>
<tr><th>Intended learning outcomes</th><th>Weight (%)</th><th>Technique of assessment</th></tr>
<tr><td>1</td><td>35</td><td>Non test: performance observation</td></tr>
<tr><td>2</td><td>30</td><td>Non test: lab work report</td></tr>
<tr><td>3</td><td>35</td><td>Written test (pretest, posttest)</td></tr>
</table></td></tr>
<tr><td>Media employed</td><td>Chemistry laboratory equipment</td></tr>
<tr><td>Reading list</td><td>Ebbing, D., and Gammon, S.D., 2009, General Chemistry, Enhanced 9th ed., Houghton Mifflin Company.
McQuarrie, D.A., Rock, P.A., and Gallogly, E.B., 2010, General Chemistry, University Science Books.
Chang, R., and Overby, J., 2010, General Chemistry: The Essential Concepts, McGraw-Hill Companies.
Hill, J.W., Petrucci, R.H., McCreary, T.W., and Perry, S.S., General Chemistry, 4th ed., 2004, John Welly and Sons Inc., New York.
Brown, T.L., LeMay, H.E., Bursten, B.E. & Murphy, C.J. 2006. Chemistry the Central Science. Tenth edition. Pearson Education Inc. United State of America.
Ebbing, D., and Gammon, S.D., 2009, General Chemistry, Enhanced 9th ed, (with Enhanced WebAssign with eBook Printed Access Card), Houghton Mifflin Company.
McQuarrie, D.A., Rock, P.A., and Gallogly, E.B., 2010, General Chemistry, University Science Books.</td></tr>
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	Chang, R., and Overby, J., 2010, *General Chemistry: The Essential Concepts*, The McGraw-Hill Companies. Hill, J.W., Petrucci, R.H., McCreary, T.W., and Perry, S.S., *General Chemistry, 4th ed.*, 2004, John Welly and Sons Inc., New York. Brady, J.E., 1990, *General Chemistry, Principles & Structure*, 5th ed, John Willy & Sons, New York. Petrucci, H.R., 1997, Gen*eral Chemistry Principle and Modern Apliccations*, Prentice Hall International, New Jersey.

Prepared by:	Verified by:	Authorized by:
Person responsible for the module	Student representative	Coordinator Program