



UNIVERSITY OF LAMPUNG

FACULTY OF TEACHER TRAINING AND EDUCATION

Department of Physics Education

Jl. Prof. Dr. Soemantri Brodjonegoro No. 1 Bandar Lampung 35145

MODULE HANDBOOK

Bachelor in Physics education

Module name	General Chemistry
Module level	Undergraduate
Code	KIE620106
Courses	General Chemistry
Description	The study of (a) realizing that the importance of Chemistry in our Environment (b) explaining the concept of Stoichiometry (c) completing various ways of making Laruta (d) explaining the properties of solutions by calculating the concentration of substances in solution
Semester	Odd
Lecturer	Dr. Chansyanah Diawati, M.Si. Dr. Marina Setyarini, M.Si.
Contact Person	+62 878-9921-5810
Language	Indonesian
Relation to curriculum	Undergraduate degree program, Mandatory, 1rd semester
Type of teaching, contact hours	Assignment, discussion and ask answer
Workload	Contact hours: 14 weeks x 150 minutes Structured learning: 14 weeks x 180 minutes Independent study: 14 weeks x 180 minutes
Credit points	3 (3-0) CP or 4.8 (ECTS) ((14 weeks x 150 minutes) + (14 weeks x 180 minutes) + (14 weeks x 180 minutes) : 60 minutes/hour = 119 hours : 25 hours of study/ECTS = 4.8 (ECTS)

Requirements according to the Examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Learning outcomes (course outcomes) and their corresponding PLOs	After completing this module, a student is expected to: 1. KNO-1 : Demonstrate knowledge of classical physics (mechanics, electrodynamics, thermodynamics, oscillations, waves and optics) and are familiar with the fundamentals of quantum, atomic and molecular, nuclear, elementary particle and solid state physics. 2. KNO-3 : Applying Technology, Pedagogy, and Content Knowledge (TPACK) in planning, teaching, and evaluating physics learning. 3. KNO-4 : Using research methodology knowledge to solve physics education and learning problems.
Competencies/ Course Learning Outcomes	1. Students are able to recall several examples of chemical reaction processes in the surrounding environment 2. Students are able to master the basic H.of chemistry and the concept of stoichiometry 3. Students are able to explain various ways of making solutions 4. Students are able to explain chemical equilibrium 5. Students are able to explain the colligative properties of electrolyte and nonelectrolyte solutions, 6. Students are able to solve redox equations 7. Students are able to explain the concentration of the solution 8. Students are able to explain the process of making solutions, the concept of acid-base 9. Students are able to explain the pH of strong acid-alkaline solutions 10. Students are able to explain the pH of weak acid-weak-alkaline solutions 11. Explains the ph of a solution of strong acid- weak base and vice versa
Contents	1. The process of chemical reactions in the surrounding environment 2. H. chemical basis and concepts and stoichiometry 3. Different ways of making solutions 4. Chemical equilibrium

	5. Colligative properties of electrolyte solutions and non-electrolyte ethics in society 6. Solution concentration 7. The process of making the solution, the concept of acid-base 8. pH of strong acid-strong alkaline solution 9. pH of strong acid solution- weak base and vice versa
Study and examination requirements and forms of examination	<i>Participants are evaluated based on ;</i> 1. <i>Quizzes (10%)</i> 2. <i>Assignment (10%)</i> 3. <i>Final Semester Exam (15%)</i> 4. <i>Midterm exams (15%)</i> 5. <i>Participation Activities (15%)</i> 6. <i>Products (35%)</i>
Media employed	LCD, whiteboard, and online resources
Assessments and Evaluation	Written tests, quizzes, essays and performance appraisals
Reading list	1. Atkins, P.W., Physical Chemistry, Volume 1, Erlangga. 2. Chang Raymond, Basic Chemistry, Volume 1, Erlangga, 2003. 3. Petrucci, S., Basic Chemistry, Volume 2. Erlangga, 1987. 4. Syukri S., Basic Chemistry, Volume 2, ITB, 1999.