

Module Description

MPK 2101 Introduction to Analytical Chemistry

Module Name	Introduction to Analytical Chemistry
Module Level, if applicable	Undergraduate Programme
Code, if applicable	MPK 2101
Subtitle, if applicable	-
Course, if applicable	-
Semester(s) in which the module is taught	3 rd Semester
Module Coordinator (s)	Firman Shantya Budi, S.Pd.,M.Sc
Lecturer	Titin Anita Zaharah, S.Si., M.Sc Firman Shantya Budi, S.Pd.,M.Sc, Dr. Lia Destiarti, S.Si., M.Si, Elliska Murni Harfinda, S.Si.,M.Si
Language	Bahasa Indonesia
Relation to curriculum	Compulsory course for the undergraduate programme in Chemistry
Type of teaching, contact hours	Decide teaching/training components for each course outcome • Theory/face-to-face lecture (for understanding): 9 lecture meetings • Seminar (for communication skills): 1 • Problems: 2 • Assignments: 2
Workload	(Estimated) Total workload: 3 x 2,83 hours = 8,49 hours per week. Contact hours (lecture): 3 x 0,83 hours = 2,49 hours per week Private study including examination preparation, specified in hours: 3 x 2 hours = 6 hours per week 2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 119 total hours
Credit Points	2 (5.01 ECTS)
Requirements according to	Registered in this course

the examination regulations	Minimum 75% attendance in this course
Learning goals/competencies:	Intended Learning Outcomes (ILO) After taking this course, students will be able to: 1. LO-1 2. LO-3
Module objectives	1. Students are able to explain the scope and role of analytical chemistry and can make analytical work designs 2. Students are able to explain the reactions of cations and anions, can classify cations, and can identify ions contained in a solution 3. Students are able to explain qualitative and quantitative analysis, along with solution stoichiometry 4. Students are able to explain the calibration methods for glassware, pH meters, and the validation of analytical methods, including precision, accuracy, sensitivity, detection limit, and quantification limit of measurement results
Content	1. Scope of Analytical Chemistry 2. Qualitative Analysis (Identification of cations and anions) 3. Performance characteristics of analytical procedures 4. Solution stoichiometry 5. Precision, accuracy, sensitivity, and limit of detection 6. Comparison of analysis methods based on analysis performance characteristics 7. Calibration of glassware, pH meter, and UV-Vis spectrophotometer. 8. Reference materials and traceability. 9. Validation and verification of analysis methods
Attribute Soft skill	Discipline, collaboration, responsibility, and argumentation in the natural classroom setting
Recommended prerequisites	-
Study and examination requirements and forms of examination	Students are considered to be competent and pass if they get at least 50% of the maximum final grade. The final grade (NA) is calculated based on the following :

	Assessment Components	Percentage Contribution	
	Participation	10%	
	Assignment	20%	
	Mid-semester test	35 %	
	Final semester test	35%	
	Total	100%	
	Mid and final semester tests are carried out as an essay exam.		
Learning Methods	Case-Based Teaching Method		
Media employed	Whiteboard, PowerPoint presentation, and e-learning system		
Reading list	1. Svehla, B. 1998. Vogel’s Qualitative Inorganic Analysis. 7th ed. Longman Group Limited 2. Skoog, D. A., West, D. M., Holler, F. J. 1996. Fundamentals of Analytical Chemistry. 7th ed. Saunders College Publishing 3. Mendham, J., Denney, R. C, Barnes, J. D. Thomas, M. 2000. Vogel’s Textbook of Quantitative Chemical Analysis. 7th ed. Pearson Education Limited 4. Harris, D.C., 2010. Quantitative Chemical Analysis. New York: W.H. Freeman and Company 5. Schenk, G.H. and Ebbing, D.D. 1976. Qualitative Analysis And Ionic Equilibrium. Boston: Houghton Mifflin Company		