

Module Handbook

Module Name:	Analytical Chemistry
Module Level:	Bachelor
Abbreviation, if applicable:	Lecture KIA101 Practical Work KIA102
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	2 / First year
Module coordinator(s):	Prof.Dr.Sugijanto, Apt., MS.
Lecturer(s):	Prof.Dr.Sugijanto, Apt., MS. Dr. Riesta Primaharinastiti, Apt., MSi Prof. Dr.Noor Erma N.S., Apt., MS. Dr. Isnaeni, Apt., MS Prof. Dr. Sudjarwo, Apt., MS. Dr. Djoko Agus Purwanto, Apt., MSi. Dr. Asri Darmawati, Apt, MS Drs.A.Toto Poernomo.,Apt.,MSi. Febri Annuryanti, S.Farm., Apt., M.Sc. M. Faris Adrianto, S Farm., Apt. M Farm.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course/ Elective Studies
Teaching format/class hours per week during the semester:	Lecture 150 minutes lectures, 13 lecture classes/semester Practical Work 200 minutes practical work classes, 13 practical work classes /semester
Workload:	Lecture Total 32 hours a semester Practical Work Total 43 hours a semester
Credit Points:	Lecture 3 Practical Work 2
Requirements:	
Learning goal/competencies:	<p>Knowledge</p> <ul style="list-style-type: none"> – To understand the concept of qualitative analysis and basic concepts; and principles in conventional method analysis. <p>Skills</p> <ul style="list-style-type: none"> – Critical thinking, comprehensive and valid operating scientific-academic, active learning for accessing information to make scientific decision-academic. – Analyze the conventional of qualitative and quantitative method. <p>Competence</p> <ul style="list-style-type: none"> – To understand and able to identify, examine and establish purity levels of drugs and drug ingredients.

	<p>– To understand and able to apply the concept of carboxylic acids and carbonyls.</p>
Content:	<p>Lecture General principles and systematic analysis, qualitative analysis method for inorganic compounds (preliminary reaction, classification, separation, determination) and identification of functional groups of organic compounds; quantitative analysis of conventional method (acid-base titrations, redox, argentometry, complexometry and gravimetric)</p> <p>Practical Work Qualitative analysis method for inorganic compounds (preliminary reaction, classification, separation, determination) and identification of functional groups of organic compounds; quantitative analysis of conventional method (acid-base titrations, redox, argentometry, complexometry and gravimetric) from the chemical compound selected based on Farmakope Indonesia</p>
Study/exam achievements:	<p>Lecture Student are considered to be competent and pass if at least get 50% of maximum mark of the exams based learning.</p> <p>Final score (NA) is calculated as follow : 50% Exam I + 50% Exam II</p> <p>Final index is defined as follow : A : $100 > NA > 75$ AB : $75 > NA > 70$ B : $70 > NA > 65$ BC : $65 > NA > 60$ C : $60 > NA > 55$ D : $55 > NA > 50$ E : $50 < NA$</p> <p>Practical Work Student are considered to be competent and pass if at least get 50% of maximum mark of the exams based learning.</p> <p>Final score (NA) is calculated as follow : 90% daily practical laboratory + 10% pretest</p> <p>Final index is defined as follow : A : $100 > NA > 75$ AB : $75 > NA > 70$ B : $70 > NA > 65$ BC : $65 > NA > 60$ C : $60 > NA > 55$ D : $55 > NA > 50$ E : $50 < NA$</p>
Forms of Media:	Slides and LCD Projector, whiteboards, practical laboratory equipments.

Literature:	1. Alexeyev.V., 1996. <i>Quantitative Analysis</i> , 2 nd ed., MIR Publisher, pages 64-133
	2. Alexeyev.V., 1997. <i>Qualitative Analysis</i> , 2 nd ed., MIR Publisher
	3. Anonim, 2014, <i>Farmakope Indonesia</i> , Edisi V, Depkes RI
	4. Anonim, 2016, <i>United State of Pharmacopoeia 39</i> , US Pharm, Convention Inc., Twinbrook Parkway, Rockville
	5. Aurtherhoff Kovar, 1997, <i>Identifikasi Obat</i> , ITB, Bandung
	6. Christian GD. 1999. <i>Analytical Chemistry</i> . John Wiley & Sons, New York.
	7. Feigl Fritz, <i>Spot test in organic Analysis</i> , 1990, Elsevier Publisher Comp, Yapan
	8. Day R.A., and Underwood A.L., 1999, <i>Quantitative Analysis</i> , Prentice-Hall International Inc.
	9. Higuchi T., Brochman H., 1999, <i>Pharmaceutical Analysis</i> , Intersciene, New York
	10. Jeffery G.H. et al, 1999, <i>Vogel's textbook of quantitative Cemical Analysis</i> , 5 ^{ed} , Longman
	11. Kolthoff I.M., and Sandel E.B., 1999, Textbook of quantitative Inorganic analysis, Macmillan company
	12. Shriner R.L., et al, 1999, <i>The systematic Identification of organic compound</i> , 6 th , John Willey, NY
	13. Svehla G. and Vogel A.I., 1999. <i>Macro and Semi Micro Qualitative Inorganic Analysis</i> , 5 th Ed., Longman.
	14. Skoog. 2007. <i>Fundamental of Analytical Chemistry</i> , 7 th Ed., Sanders.
	15. Susan Bufadari, 2007, <i>The Merck Index</i> , Merck & Co
Notes:	