

Module Handbook Applied Analytical Chemistry

Modul Name	Applied Analytical Chemistry
Module Level	Bachelor
Abbreviation, if applicable	KIA 302
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	7 th / fourth year
Modul coordinator(s)	Dr. Miratul Khasanah, M.Si
Lecturer(s)	Dra. Usreg Sri Handajani, M.Si. Dr. Muji Harsini, M.Si Dra. Aning Purwaningsih, M.Si Dr. Ganden Supriyanto, M.Sc. Yanuardi Raharjo, S.Si., M.Sc.
Language	Bahasa Indonesia
Classification within the curriculum	Compulsory Course / Elective Studies
Teaching format/class hours per week during the semester	4 hours laboratory work (50 min / hours)
Workload	4 hours doing worksheet and pretest preparation, 4 hours laboratory work, 4 hours group discussion, searching literature and writing report , 13 week per semester , and total 156 hours per semester ~ 5.2 ECTS *
Credit point	2
Requirement	Spectrometry and Electrometry
Learning Outcomes	<p>General Competence (Knowledge) :</p> <p>-</p> <p>Skill :</p> <ul style="list-style-type: none"> • prepare reagents for sample preparation and analysis of food, industrial materials and waste • perform sampling, sample preservation and storage of samples • analyzing the proximate levels in foodstuffs by spectrophotometry • analysis of food additives and contaminants by spectrophotometry • analysis of heavy metals in industrial products in AAS • analyzing the hardness of water based on the reaction by spectrophotometry pengomplekan • a paper topic lab results all groups • presented papers lab results (presentation and discussion) <p>Specific Competence :</p> <ul style="list-style-type: none"> • designing experiments and chemical analysis in foodstuffs, industrial and waste properly
Content	Sampling theory to the laboratory; dilution; destruction of wet and dry destruction; analysis of food ingredients include carbohydrates, proteins, fats, vitamins, minerals, food additives and contaminants;

	analysis of elements in minerals and industry
Atribut sofskill	Team-work (<i>group skills</i>), effort, discipline, communication
Study/exam achievements	<p>Students are considered to be competent and pass if at least get 55 of maximum mark of the practical work, (paper), presentation (seminar)</p> <p>Final score is calculated by follow:</p> <p>Laboratory work including:</p> <p>Discussion 25%</p> <p>Motoric 50%</p> <p>Report 25%</p> <p>Seminar including;</p> <p>Paper 50 %</p> <p>Presentation 50%</p> <p>Final score (NA) is calculated as follow: 60% laboratory work + 40% Seminar</p> <p>Final index is defined as follow</p> <p>A : 100>NA≥75</p> <p>AB : 74.99>NA≥70</p> <p>B : 69.99>NA≥65</p> <p>BC : 64.99>NA≥60</p> <p>C : 59.99>NA≥55</p> <p>D : 54.99>NA≥40</p> <p>E : NA≤40</p>
Learning Methods	Lecture , discussion, practicum, seminar
Forms of media	LCD, laptop, White board, journal
Literatur	<ol style="list-style-type: none"> 1. AOAC, editor: Cunniff,, P.,1995, <i>Official Methods of Analysis</i>, 16th ed., AOAC International, Virginia 2. Baiulescu, B.E.,1991, <i>Sampling</i>, Ellis Horwood, New York. 3. Anderson, Richard, 1987, <i>Sample Pretreatment and Separation: Analytical Chemistry</i>, John Wiley and Sons, New York. 4. Karges, Barry L., 1973, <i>An Introduction to Separation Science</i>, John Wiley and Sons, New York. 5. Van Loon J.C., 1985, <i>Selected Methods of Trace Metal Analysis</i>, John Wiley and Sons, New York. 6. James, C. S., 1995, <i>Analytical Chemistry of Foods</i>, Blackie Academic and Profesional, London.
Notes	<p>*Total ECTS = {(total hours workload x 50 min) / 60 min } / 25 hours</p> <p>Each ECTS is equals with 25 hours</p>