

INSTRUMENTAL ANALYSIS AND ELECTROCHEMISTRY B

Module designation	<i>Instrumental Analysis and Electrochemistry B</i>
Semester(s) in which the module is taught	1
Person responsible for the module	1. Prof. Dr. apt. Amirudin Prawita. (Course Coordinator) 2. Prof. Dr.rer.nat. apt. M. Yuwono, MS.
Language	<i>Bahasa Indonesia</i>
Relation to curriculum	Compulsory / elective / specialisation
Teaching methods	<i>lecture, discussion, assignment</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: Contact hours (structured activities.): 90,67 hours Private study including independent learning activities: 90,67 hours</i>
Credit points	<i>2 SCU / 6 ECTS</i>
Required and recommended prerequisites for joining the module	NA

Module objectives/intended learning outcomes	<p>Students are:</p> <p>LO1: Able to realize excellence based on religious morals (excellence with morality), able to work together, and show a responsible attitude to work in their field of expertise independently</p> <p>LO2: Able to internalize the spirit of independence, struggle, and entrepreneurship</p> <p>LO4: Able to develop a pharmaceutical professional performance with analytical acumen in solving pharmaceutical problems and managing research in the pharmaceutical field related to national and global systems and policies, both inter and inter-disciplinary approaches.</p> <p>LO5: Able to access and review information through an Information and Communication Technology (ICT) system, decide on a specific subject of study, maintain the feasibility of implementing research designs, conduct research, analyze data, conclude research results comprehensively, and create strategic issues based on the study that reflect the latest updates in the field of pharmaceutical sciences, and communicate them in the media and scientific forums at the national and international level through an interdisciplinary or multidisciplinary approach in the form of a thesis or other equivalent forms.</p> <p>LO6: Able to make decisions in the context of solving problems related to science and technology development based on analytical or experimental studies through collaboration with colleagues, colleagues in institutions and research communities at both national and international levels and utilizing research results for the benefit of the user and other communities.</p> <p>LO11: Able to develop systems for evaluating the bioavailability of drugs in the body, pharmaceutical products circulation permits, and their in-vitro and in-vivo evaluations with specific delivery systems with appropriate analytical methods.</p> <p>LO12: Able to develop analytical methods to ensure the quality of drugs, cosmetics, foods, and beverages.</p> <p>LO15: Able to plan and organize concepts and procedures for quality assurance and recommendations on pharmaceutical products, which include drugs, cosmetics, foods, and beverages as products and therapeutic goods.</p>
Content	<p>The Instrumental Analysis & Electrochemistry course describes about Flame Atomic Absorption Spectroscopy (FAAS), Graphite Furnace AAS, Cold Vapor Technique, Hydride Method, Flame Atomic Emission Spectroscopy (FAES), ICP-AES, UV-Vis Spectrophotometry, IR Spectrophotometry (FT-R), Mass Spectrometry, Gas Chromatography, HPLC, Voltammetry, and Polarography in pharmaceutical dosage form analysis.</p>
Exams and assessment formats	<i>take-home written assignments</i>
Study and examination requirements	<i>the final grade in the module is composed of 25% presentation 65% take-home assignments, 10% in-class participation and soft-skills assessment. Students must have a final grade of 70% or higher to pass</i>

Reading list	<ol style="list-style-type: none">1. <i>Skoog, DA, 1998, Principles Instrumental Anaysis, 5 th Ed., Saunders Collage Publishing, Philadelphia</i>2. <i>Horwitz, W ., 2000 ,Official Methods of Analyss AOAC International, 17 th Ed. AOAC International Suite 500, Maryland.</i>3. <i>Kelner R. Et al., 1998. Analytical Chemistry, Wiley-VCH, New York, 1998</i>4. <i>Willard HH, 1967. Instrumental method of Analysis. 4th Ed D. Van Norstrand Company Ltd. Toronto</i>5. <i>Harris PI, 2003. Spectroscopy International Journals, Vol. 17 No. 2,3</i>6. <i>The USP Convention, 2015, The United Pharmacopoeia, 38th Ed, Washington DC, American Pharmaceutical Association and Pharmaceutical Press.</i>
--------------	--