Advanced Spectroscopy A

Module designation	Advanced Spectroscopy A
Semester(s) in which the module is taught	1
Person responsible for the module	1. Drs. Marcellino Rudyanto, Apt., MSi., PhD. **(Course Coordinator)** 2. Prof. Dr. Sudjarwo, MS., Apt. 3. Prof. Dr. Achmad Syahrani, Apt., MS. 4. Drs. Hadi Poerwono, Apt., MSc., PhD. 5. Dr. Riesta Primaharinastiti, M.Si., Apt.
Language	Bahasa Indonesia
Relation to curriculum	~~Compulsory/elective~~ / specialisation
Teaching methods	lecture, discussion, assignment
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: Contact hours (structured activities.): 90.67 hours Private study including independent learning activities: 90.67 hours
Credit points	2 SCU / 6 ECTS
Required and recommended prerequisites for joining the module	NA

Module objectives/intended learning outcomes	Students are: **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 **LO2**: Able to internalize the spirit of independence, struggle, and entrepreneurship **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. **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. **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. **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. **LO12**: Able to develop analytical methods to ensure the quality of drugs, cosmetics, foods, and beverages. **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.
Content	this course discusses techniques for quantitative analysis, validation, development of validation methods, and sample preparation for extracting active pharmaceutical ingredients in pharmaceutical products, food and beverages using spectroscopic methods (UV-Vis spectrophotometry, spectrofluorometry, AAS). The second part discusses various types of spectroscopy commonly used in determining the structure of organic compounds, namely mass spectroscopy, infrared, ultraviolet-visible, and nuclear magnetic resonance spectroscopy.
Exams and assessment formats	Final exam presentation and take-home written assignments

Study and examination Requirements	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
Reading list	1. Mishira P, Shah K and Gupta A; 2009; Spectrophotometric methods for simultaneous estimation of nebivolol hydrochloride and amlodipine besylate in tablets; Int. J Pharmacy and Pharmaceutical Sciences; 1; 2; Oct-Des; 55-61 2. Mishira P, Shah K and Gupta A; 2009; Spectrophotometric methods for simultaneous estimation of nebivolol hydrochloride and amlodipine besylate in tablets; Int. J Pharmacy and Pharmaceutical Sciences; 1; 2; Oct-Des; 55-61 3. Ederveen J; 2010; Apratical Approach to Biological Assay Validation; Progress, Project Management & Engineering, Netherlands 4. Jain V and Sharma R; 2010; Simultaneous Spectrophotometric estimation and validation of domperidone, tramadol hydrochloride andacetaminophen in tablet dosage form; S.J. Pharm. 5. Patel AH, Patel JK, Patel KN, Rajput GC, Rajgor NB; 2010; Development and validation of derivative spectrophotometric method for simultaneous estimation of domperidone and rabeprazole sodium in bulk and dosage forms; Int. J. On Pharmaceutical and Biological Research;1 (1)