

PHARMACEUTICAL POLYMER

Module designation	<i>Pharmaceutical Polymer</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Drs. Hadi Poerwono, MSc., Ph.D (Course Coordinator) 2. Prof. Dr. Retno Sari, MSc. 3. Dr. M. Agus Syamsur Rijal, M.Si
Language	<i>Bahasa Indonesia</i>
Relation to curriculum	<i>Compulsory</i> / <i>elective</i> / <i>specialisation</i>
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

<p>Module objectives/intended learning outcomes</p>	<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>LO9: Able to carry out molecular manipulation of substances and develop formulations and manufacturing of pharmaceutical preparations with active pharmaceutical ingredients derived from natural products and synthetic compounds through the manufacture of polymorphs, nanoparticles, solid dispersions.</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>
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Content	This course studies the concept of polymer chemistry, the use of polymers in drug delivery, the application of polymers in buccal drug delivery, the application of polymers in drug delivery in the stomach, the application of polymers in drug delivery in the small intestine, the application of polymers in delivery transdermal drugs, polymers used in targeting Peyer's Patches, polymer applications in colon drug delivery, polymer applications in parenteral drug delivery, polymer applications in rectal drug delivery, polymer applications in vaginal drug delivery, polymer applications in nasal drug delivery, polymer applications in pulmonary drug delivery, polymer applications in ophthalmic drug delivery, targeting approaches using polymer nanocarriers, Self-Assembled Block Copolymer Nanoaggregates in drug delivery applications, polymer applications in biological delivery.
Exams and assessment formats	<i>Final exam (100 minutes), Presentation (100 minutes), take-home written assignments</i>
Study and examination requirements	<i>the final grade in the module is composed of 30% presentations, 30% take-home assignments, 30% discussions, 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. Misra, A and Shahiwala, A. Applications of Polymers in Drug Delivery, 2nd ed., 2021. Elsevier, Amsterdam. 2. Carraher Jr, C.E. Introduction to Polymer Chemistry, 4th ed, 2017. Taylor & Francis, CRC Press, New York.