

NANOPARTICLE TECHNOLOGY

Module designation	<i>Nanoparticle Technology</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Prof. Dr. Retno Sari, M.Sc., Apt (Course Coordinator) 2. Prof. Esti Hendradi, MSi, PhD., Apt 3. Prof. Dr. Noorma Rosita, MSi., Apt 4. Dr. Muh. Agus Syamsur Rijal, M.Si., Apt. 5. Mahardian Rahmadi, MSc., Ph.D., Apt.
Language	<i>Bahasa Indonesia</i>
Relation to curriculum	<i>Compulsory / elective / 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

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>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>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>LO13: Able to design drug development both from natural products and/or synthetic compounds by considering the biological mimicry system.</p> <p>LO14: Able to build drug management systems from active pharmaceutical ingredients to finished products that are ready for therapeutic uses</p>
Content	Nanoparticle Technology lecture discusses concepts, various nanoparticle systems, characteristics, technological aspects, nanoparticle technology including polymeric nanoparticles, solid lipid nanoparticles, nanolipid carriers, vesicle systems (niosomes, liposomes, transfersomes), micelle systems, biopharmaceutical aspects, toxicity and clinical application of nanoparticle systems, ethics and regulation of nanoparticles in the pharmaceutical field
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% performance on final exams, 30% presentations, 30% 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"><li data-bbox="619 188 1374 293">1. Gupta, RB, Kompella, UB (Editor), 2006, Nanoparticle Technology for Drug Delivery, Taylor&Francis, New York.<li data-bbox="619 293 1374 398">2. Pathak, Y., Thassu, D., (Editor), 2009, Drug Delivery Nanoparticles Formulation and Characterization, Informa Healthcare, New York.<li data-bbox="619 398 1374 472">3. Shegakor, R., 2020, Nanopharmaceuticals, Elsevier, Amsterdam
--------------	---