MODULE HANDBOOK

Modul Name	Pharmaceutical Chemistry
Module Level	Bachelor
Abbreviation, if applicable	8420402128
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	8th/Fourth year
Modul coordinator(s)	Dr. Ismono, M.S.
Lecturer(s)	Prof. Dr. Titik Taufikurohmah, M.Si. Dr. Mitarlis, S.Pd., M.Si. Dra. Nurul Hidayati, M.Si.
Language	Bahasa Indonesia
Classification within the curriculum	Elective Course
Teaching format/class hours per week during the semester	2 hours lectures (50 min / hour)
Workload	1 CU for bachelor degree equals to 3 workhours per week or 170 minutes (50' face to face learning, 60' structured learning, and 60' independent learning). In one semester, courses are conducted in 14 weeks (excluding mid and end-term exam). Thus, 1 CU equals to 39.67 workhours per semester. One CU equals to 1.59 ECTS.
Credit point	2 CU = 2 x 1.59 = 3.18 ECTS
Requirement	Organic Chemistry II
Targeted Learning Outcomes	**CLO 1** Students can use information based on experiences and cases in everyday life, other learning resources, and ICT to support understanding of the concept of pharmaceutical chemistry with discussions, presentations, and collaboration to study pharmaceutical chemistry. **CLO 2** Students can mastering the role of chemical concepts and their implementation in the pharmaceutical field and having the ability to relate chemical concepts and their role in studying the physicochemical properties of drugs and their relationship with biological activities **CLO 3** Students can mastering the theoretical concepts (knowledge) about pharmaceutical science, the position of chemistry in pharmaceutical science, the concept of drugs, drug limitations, drug dosage forms and administration, and phases of drug travel in the body. Have knowledge of vitamins, addictive substances, and pharmaceutical analysis **CLO 4** Students can have an honest and responsible attitude in applying the understanding of pharmaceutical chemistry in the context of everyday life and being able to participate in society by implementing knowledge of pharmaceutical chemistry.

<table>
<tr><td>Content</td><td>Introduction: 1. Position of Chemistry in Pharmaceutical Sciences, 2. History of the Development of Pharmaceutical Sciences
Definition and Limitations of Drugs: 1.Definitions of drugs, 2. Terms in pharmaceuticals, 3. How to use drugs and forms of medicine
The Path Drugs Take Through the Body: 1. Biopharmacetic, pharmacokinetic and pharmacodynamic phases, 2. Absorption, distribution, metabolism and excretion of drugs in the body, 3. Effects of drug use
Drug molecular structure and biological activity: 1. The relationship between the structure and biological activity of drugs, 2. The relationship between stereochemistry and biological activity of drugs, 3. the effect of pH on the activity of drug compounds in ionized and non-ionized forms, 4. Explaining the relationship between redox reactions and biological activity of drugs
Several types of drugs: 1. Analgesics and Antipyretics 2. Antihistamines and Antitussives, 3. Antibiotics
Vitamins: 1. Water-soluble vitamins, insoluble in water, 2. Source of vitamins, 3. Function of vitamins, 4. Due to vitamin deficiency
Drugs: Definition, prevention and control of drug abuse
Pharmaceutical Analysis: 1. Sample preparation procedures, 2. Various preparations analysis techniques</td></tr>
<tr><td>Study/exam achievements</td><td>Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:
<table>
<tr><td>Assessment Components</td><td>Percentage of contribution</td></tr>
<tr><td>Participation</td><td>20%</td></tr>
<tr><td>Assignment</td><td>30%</td></tr>
<tr><td>Mid-semester test</td><td>20%</td></tr>
<tr><td>Final semester test</td><td>30%</td></tr>
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<tr><td>Media:</td><td>Computer, LCD, White board</td></tr>
<tr><td>Learning Methods</td><td>Individuals assignment, group assignment, discussion, and presentation</td></tr>
<tr><td>Literature:</td><td>1. Nugroho, Nurfina Aznam. 2001. Materi Pokok Kimia Farmasi. Modul 1-6. Pusat Penerbitan Universitas Terbuka. Jakarta.
2. Schunack, Walter. Et al. 1990. Senyawa Obat. Buku Pelajaran Kimia Farmasi. Gajah Mada University Pers. Yogyakarta
3. Azis, Hubeis, 1996. Ilmu Farmasetika dan Perkembangannya Masa Kini. Jurusan Farmasetika</td></tr>
</table>

	Universitas Airlangga. Surabaya. 4. Moh. Anief. 1997.**Apa Yang Perlu Diketahui Tentang Obat**. Gajah Mada Uneversity Press. Yogyakarta. 5. Siswandono dan Soekardjo, 2000. **Kimia Medisinal**. Airlangga University Press. 6. Sukandar, E. Y., (……) Trend dan Paradigma Dunia Farmasi https://www.itb.ac.id/files/focus_file/orasi-ilmiah-dies-45.pdf 7. Haeira. 2017. Pengantar Ilmu Farmasi. http://repositori.uin-alauddin.ac.id/7289/1/BUKU%20DARAS%20PIF.pdf 8. Articles related to Pharmaceutical Chemistry from the internet
Notes:	*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.
	**1 CU = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019