CURRICULUM AND MODULE DESCRIPTION
Bachelor Program in Pharmacy

Faculty of Pharmacy

Universitas Padjadjaran

2019

PREFACE

Praise our gratitude to God Almighty for His mercy and approval in compiling the Curriculum and Module Description Bachelor Program in Pharmacy at the Faculty of Pharmacy, Universitas Padjadjaran (FPUP). This book was prepared to be a reference in the implementation of the Bachelor Program in Pharmacy at FPUP.

This book contains a variety of information about FPUP which is presented systematically starting from an introduction covering the history of the establishment of FPUP, vision, mission, educational objectives and graduate competencies;curriculum and study load; curriculum content;learning strategies;evaluation system and student affairs. This book is expected to improve the education management system, as well as material in developing education programs at FPUP.

Thank you.

Jatinangor, July 2019

Dean of the Faculty of Pharmacy

Prof. Dr. Ajeng Diantini, M.Sc., Apt.

CONTENT LIST

EDITORIAL TEAM

APPOINTMENT OF THE BACHELOR AND PHARMACIST PROGRAM MONITORING COMMITTEE TEAM FACULTY OF PHARMACY, UNIVERSITAS PADJADJARAN

NO	NAME	NIP	POSITION
1.	Prof. Dr. Ajeng Diantini, M.Si., Apt.	19640312 199001 2 001	Chief
2.	Dr. apt., Aliya Nur Hasanah M.SI	19790212 200604 2 001	Secretary
3.	Dr. apt.,Ida Musfiroh, M.Si.,	19751127 200112 2 002	Member
4.	apt., Nasrul Wathoni, M.Si, Ph.D.,	19820504 200604 1 003	Member
5.	Prof. apt., Muchtaridi, M.Si., Ph.D.,	19740602 199903 1 001	Member
3.	Dr. apt.,Sriwidodo, M.Si.,	19740330 199802 1 001	Member
6.	Dr. apt., Tiana Milanda, M.Si.,	19691212 199601 2 001	Member
5.	apt., Irma Melyani Puspitasari Ph.D	19790501 200604 2 002	Member
6.	Prof. Dr. apt., Sri Adi Sumiwi M.Si	195711101986032001	Member
7.	Dr. apt., Nyi Mekar, Saptarini, M.Si.,	19761016 20060 4 2001	Member
8.	Dr. apt.,Sandra Megantara, M. Farm	19830420 201504 1 003	Member
9.	Dr. apt., Ade Zuhrotun, M.Si.	19811010 200604 2 002	Member
10.	Dr. apt., Tina Rostinawati M.Si	19730103 200604 2 001	Member
11.	apt.,Dika Pramita D, M.Farm.,	19871201 201404 2 001	Member
12.	Dr. apt., Dolih Gozali MS.,	19591219 198601 1 002	Member
13.	apt., Holis Abd. Holik Ph.D.	19810201 200812 1 001	Member
14.	apt.,.Taofik Rusdiana , M.Si., Ph.D	19730330 199802 1 001	Member

Chapter 1

HISTORY OF THE FACULTY, VISION, MISSION, OBJECTIVES

1.1. History

The Faculty of Pharmacy, previously having the status as the Department of Pharmacy, was established on February 19, 1959, as the fifth of the seven departments belonged to the Faculty of Exact and Natural Sciences (FIPPA), Universitas Padjadjaran. At that time, academic activities of the Department of Pharmacy took place at Jl. Ir. H. Juanda No. 4 Bandung and the Institute of Natural Sciences (LIPA) at Jl. Singaperbangsa No. 1 Bandung. In 1978, the location moved to Jl. Maulana Yusuf No. 12 Bandung, which was previously occupied by the Faculty of Dentistry. After the new campus of the Faculty of Mathematics and Natural Sciences (FMIPA) in Jatinangor-Sumedang was completed, the Department of Pharmacy, together with other departments at FMIPA, moved to the campus in Jatinangor in September 1986. On October 17, 2006, the Department of Pharmacy changed its status to become the Faculty of Pharmacy.

Currently, the Faculty of Pharmacy has 5 study programs, namely the Bachelor of Pharmacy Study Program, the Pharmacist Professional Study Program, Master Program in Pharmacy, the Master Program in Clinical Pharmacy, and the Doctoral Program in Pharmacy. The Bachelor of Pharmacy Study Program (known as Program Studi Sarjana Farmasi (PSSF) was started in 1959. This study program has obtained an A accreditation from the Independent Accreditation Institution for Higher Education for Healthcare (LAM-PTKes) and its qualifications have been recognized by the Public Service Bureau (known as Jawatan Pengkhidmatan Awam (JPA) of Malaysia. Since 2006, PSSF has been accepting students from Malaysia.

The Pharmacist Professional Study Program was started in 1959 and has obtained an A accreditation from the Independent Accreditation Institution for Higher Education for Healthcare (LAM-PTKes). The Master program in Pharmacy was started on January 10, 2011 after obtaining permission from the Ministry of National Education. This study program began accepting new students in the semester period of August - February in Academic Year 2011/2012 and obtained an A accreditation from LAM-PTKes in December 2017. The Master Program in Clinical Pharmacy was started in the semester period of August - February in Academic Year 2016/2017 and obtained an A accreditation from LAM-PTKes in November 2017. The Doctoral Program in Pharmacy was started in the semester period of August - February in Academic Year 2016/2017 and obtained a B accreditation from LAM-PTKes in December 2017.

1.2. Vision and Mission

The vision of the Faculty of Pharmacy is to become the faculty of excellence in the implementation of research-based pharmaceutical education which is internationally competitive by 2024.

The mission of the Faculty of Pharmacy is:
1. Organizing research-based pharmaceutical education which is able to meet the demands of the community and has international competitiveness.
2. Organizing professional and accountable management of pharmacy higher education to improve public image.
3. Carrying out pharmaceutical research with local excellence which oriented towards scientific publications, patents and commercial products.
4. Organizing community service by utilizing the results of research in the pharmaceutical field.
5. Organizing cooperation in the pharmaceutical sector with the pentahelix concept.

The vision of the Bachelor of Pharmacy Study Program is to become an Excellent Pharmacy Program in Research and International Competitiveness by 2024.

The vision of the Bachelor of Pharmacy Study Program of the Faculty of Pharmacy are based on four grand strategies of faculty of pharmacy to which:
1. Year 2007-2011: to become an excellent bachelor study Program by 2011.
2. Year 2012-2016: to become an excellent bachelor study Program based on Research and national Competitiveness by 2016.
3. Year 2017-2019: to become an excellent bachelor study Program based on Research and regional Competitiveness by 2019.
4. Year 2020-2024: to become an excellent bachelor study Program based on Research and international Competitiveness by 2024.

The excellence of bachelor study program' vision of the faculty is conduct the education and community service which is based on Transformative Learning and University program as follows::
1. Pola Ilmiah Pokok (PIP) Unpad,.

2. employing the RESPECT (Responsible, Excellent, Scientific Rigor, Professionalism, Encouraging, Creative and Trust) system.
3. cultural and local values as well as international diversity

Mission of bachelor study program Faculty of pharmacy, Unpad (2020-2024) are:

1. Conducting pharmacy education which fulfill the principle of equal distribution and expansion of public access
2. Organizing research-based pharmaceutical education which is able to meet the demands of the community and has international competitiveness.
3. Organizing professional, accountable and internationally competitive undergraduate pharmacy education
4. Carrying out pharmaceutical research with local excellence which oriented towards scientific publications, patents and commercial products.
5. Organizing community service by utilizing the results of research in the pharmaceutical field
6. Organizing cooperation in the pharmaceutical sector with the pentahelix concept.

1.3. Objectives

The Objectives of the Faculty of Pharmacy are:

1. Creating pharmacy higher education graduates who are able to meet the demands of the community and have international competitiveness.
2. Realizing a professional and accountable education management to improve the public image.
3. Producing scientific publications, patents, and commercial products from local excellence-based pharmaceutical research.
4. Increasing the use of research results in the pharmaceutical sector which are appropriate for the benefit of the community.
5. Realizing mutual benefit in the pharmaceutical sector through the concept of pentahelix.

The objectives of bachelor degree program are developed based on pharmacy professional profiles known as Nine Star Pharmacist including pharmacist as:

1. caregiver,
2. teacher/educator,
3. scientific comprehension & research abilities,
4. life long learner,
5. leader,
6. decision maker,
7. manager,
8. communicator,
9. teamwork abilities, personal/professional responsibilities.

Following the graduate profiles, the objective of the graduates are defined to impart the essential competencies in pharmaceutical sciences including pharmaceutical science such as chemical and biological pharmacy and pharmaceutical technology, as well as pharmacology and social behaviour. The objectives of bachelor program in Pharmacy is to develop students who are able to:

1. Identify problems concerning drugs and its alternative solutions.
2. Carry out the pharmaceutical practice based on standard procedure
3. Prepare the dispensing of pharmaceutical dosage forms based on standard procedure
4. Apply pharmaceutical science and technology in preparing and assuring the quality of pharmaceutical dosage forms
5. Search and provide the information on drug and medications
6. Communicate and develop interpersonal relationship
7. Develop the leadership and management
8. Behave with responsibility in behavior according to law and pharmaceutical ethics
9. Comprehend the application of research and technology, as well as ability in self development

1.4. Competency Analysis

Competencies and Learning objectives of Bachelor program are defined based on Indonesian Standard of Apothecary competences (SKAI) year 2016. as follows:

1. Obeying the law and discipline in social and state life.
2. Internalize academic values, norms, and ethics, and show an independent attitude of responsibility for pharmaceutical work.
3. Internalize independent attitude and entrepreneurship in pharmaceutical field
4. Apply the logical, critical, systematic, and innovative thinking in the context of developing or implementing pharmaceutical science and technology
5. Compile a scientific description of the results of the study in the form of a final assignment and upload it on the university webpage.
6. Able to make correct decisions in the context of problem solving in the pharmaceutical sector, based on the results of information and data analysis.
7. Able to be responsible for work in the pharmaceutical field in accordance with the pharmaceutical code of ethics.
8. Able to perform pharmaceutical practices supervised by pharmacists in accordance with regulatory provisions.
9. Able to optimize the use of rational pharmaceutical dosage forms based on scientific considerations, guidelines and evidence-based to optimize the success of therapy under pharmacist supervision
10. Able to perform dispensing of pharmaceutical dosage forms and medical devices based on regulatory and standard under supervision of pharmacist
11. Able to search, analyze, and organize information about pharmaceutical preparations and medical devices that are precise, accurate, relevant and communicate effectively with patients according to their needs under the supervision of pharmacists.
12. Able to formulate and produce appropriate pharmaceutical preparations, according to standards and statutory provisions under the supervision of pharmacists.
13. Able to search, analyze, and organize information about pharmaceutical preparations and communicate those informations effectively as preventive and promotive public health efforts under the supervision of pharmacists
14. Able to manage the design, selection, procurement, storage, distribution, destruction and withdrawal of pharmaceutical preparations and medical devices in an effective and efficient manner under the supervision of pharmacists.

15. Able to demonstrate effective communication skills with patients and health workers through verbal and non-verbal techniques under the supervision of a pharmacist.
16. Able to demonstrate managerial skills and interpersonal relationships in conducting pharmaceutical works under the supervision of a pharmacist.

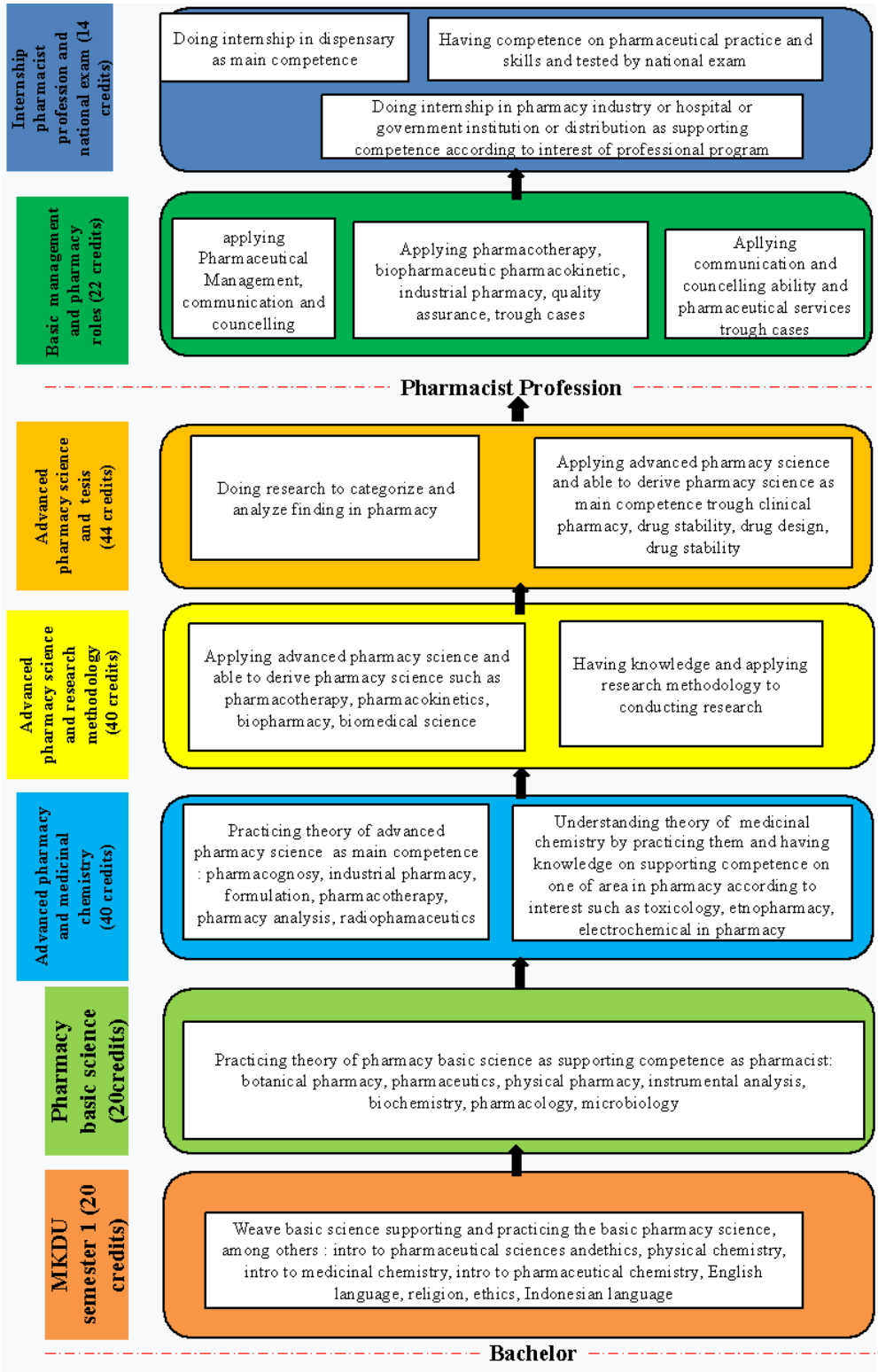


Figure 1. Competency Analysis Program Bachelor of Pharmacy and Pharmaist Professional Program

1.5. Material of Organization

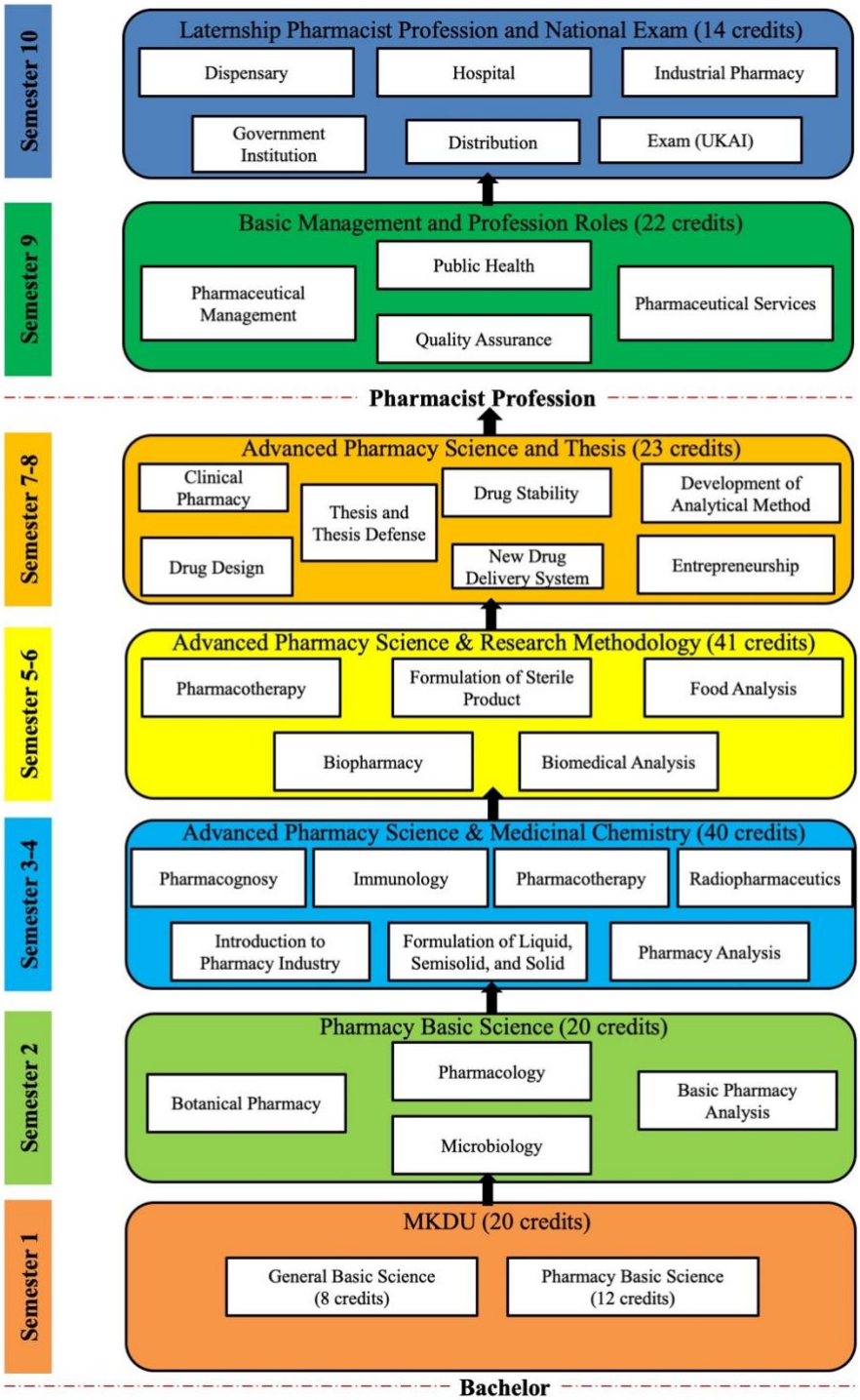


Figure 2. Material Organization Studies Program Bachelor of Pharmacy and Pharmacy Professional Program

Chapter 2

CURRICULUM STRUCTURE AND STUDY LOAD

2.1. Subjects of Study and Learning Outcome

The formulation of courses offered in the Bachelor Program in Pharmacy, Faculty of Pharmacy, Universitas Padjadjaran is based on the profiles of graduates and mastery of skills in each profile. The following steps are thus taken:
1. determining the subjects of study by referring to the learning outcomes, and
2. identifying the breadth and depth of mastery of the subjects based on the discipline.

Table 2.1. Subjects with Reference to the Learning Outcomes

No	Learning objectie	Subjects
1	Obeying the law and discipline in social and state life.	Civil Education
		Sport fitness creativity and character development
		Religion
		Community service

2	Internalize academic values, norms, and ethics, and show an independent attitude of responsibility for pharmaceutical work.	Introduction to Pharmacy and ethics
		Field study
3	Internalize independent attitude and entrepreneurship in pharmaceutical field	Management, Regulation and Entrepreneurship Pharmacy
4	apply the logical, critical, systematic, and innovative thinking in the context of developing or implementing pharmaceutical science and technology	Research methodology and biostatistics
5	Compile a scientific description of the results of the study in the form of a final assignment and upload it on the university webpage.	Research methodology and biostatistics
6	Able to make correct decisions in the context of problem solving in the pharmaceutical sector, based on the results of information and data analysis.	Research methodology and biostatistics
7	Able to be responsible for work in the pharmaceutical field in accordance with the pharmaceutical code of ethics.	Management, Regulation and Entrepreneurship Pharmacy
		Pharmacoeconomy
8	Able to perform pharmaceutical practices supervised by pharmacists in accordance with regulatory provisions.	Pharmacotherapy of Immunology and Oncology
		Pharmacotherapy of Infection Disease
		Pharmacotherapy of Infectious Diseases, Immunologic Disorders and Oncology Practice

		Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Ent, Nerves and Psychiatry Practice
		Pharmacotherapy of Neurological Disorders and Psychiatry
		Pharmacotherapy Respiratory Disorders
		Pharmacotherapy Gastrointestinal and Nutritional Therapy Disorders
		Pharmacotherapy of Endocrine and Gynaecology Disorder
		Pharmacotherapy Gastrointestinal Disorders, Nutrition, Endocrine and Gynecology practice
		Pharmacotherapy Hematology, Vascular and Cardiovascular disorders
		Pharmacotherapy Kidney and Urinary Tract Disorders
		Pharmacoepidemiology and Pharmacovigilans
9	Able to optimize the use of rational pharmaceutical dosage forms based on scientific considerations, guidelines and evidence-based to optimize the success of therapy under pharmacist supervision	Pharmacotherapy of Immunology and Oncology
		Pharmacotherapy of Infection Disease
		Pharmacotherapy of Infectious Diseases, Immunologic Disorders and Oncology Practice
		Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Ent, Nerves and Psychiatry Practice

		Pharmacotherapy of Neurological Disorders and Psychiatry
		Pharmacotherapy Respiratory Disorders
		Pharmacotherapy Gastrointestinal and Nutritional Therapy Disorders
		Pharmacotherapy of Endocrine and Gynaecology Disorder
		Pharmacotherapy Gastrointestinal Disorders, Nutrition, Endocrine and Gynecology practice
		Pharmacotherapy Hematology, Vascular and Cardiovascular disorders
		Pharmacotherapy Kidney and Urinary Tract Disorders
		Pharmacoepidemiology and Pharmacovigilans
10	Able to perform dispensing of pharmaceutical dosage forms and medical devices based on regulatory and standard under supervision of pharmacist	Pharmaceutics
		Pharmaceutics practice
		Pharmaceutical Practice
11	Able to search, analyze, and organize information about pharmaceutical preparations and medical devices that are precise, accurate, relevant and communicate effectively with patients according to their needs under the supervision of pharmacists.	Physical chemistry
		Physical pharmacy
		Physical pharmacy practice
		Physical chemistry practice
		introduction on chemical pharmacy
		introduction on chemical pharmacy practice
		introduction on medicinal chemistry

		introduction on medicinal chemistry practice
		instrumental analysis
		instrumental analysis practice
		biochemistry
		biochemistry practice
		medicinal chemistry
		Formulation and Technology of Liquid and Semisolid Preparations
		Formulation and Technology of Liquid and Semisolid Preparations Practice
		Formulation and Technology of solid Preparations
		Formulation and Technology of solid Preparations Practice
		Pharmacy Analysis of Liquid and Semisolid Preparations
		Pharmacy Analysis of Liquid and Semisolid Preparations Practice
		Pharmacy Analysis of Solid Preparations
		Pharmacy Analysis of solid Preparations Practice
		Theory and Synthesis of Radiopharmaceuticals
		Electrochemical Application in the Field of Pharmacy
		Analysis of Food and Contaminants

		Practical Analysis of Food and Contaminants
		Analysis of the Herbal Medicinal Chemicals
		Development of analytical methods
		Development of analytical methods practice
		Drug design and development
		Drug design and development practice
		quality assurance
		Basic Pharmacology
		Basic Pharmacology practice
		toxicology
		Phytochemistry
		Phytochemistry practice
12	Able to formulate and produce appropriate pharmaceutical preparations, according to standards and statutory provisions under the supervision of pharmacists	Preformulation of Liquid and Semisolid Preparation
		Preformulation of solid Preparation
		Formulation and technology of Liquid and Semisolid Preparation
		Formulation and technology of Liquid and Semisolid Preparation Practice
		Formulation and technology of solid Preparation
		Formulation and technology of solid Preparation practice
		Cosmetics and cosmeceuticals
		New drug delivery system

		Drug stability
		Pharmacokinetics
		Biopharmacy
		Formulation and technology of sterile preparations
		Formulation and technology of sterile preparations practice
		Pharmaceutical engineering
		Pharmaceutical excipients
13	Able to search, analyze, and organize information about pharmaceutical preparations and communicate those informations effectively as preventive and promotive public health efforts under the supervision of pharmacists.	Formulation and technology of Liquid and Semisolid Preparation
		Formulation and technology of Liquid and Semisolid Preparation Practice
		Formulation and technology of solid Preparation
		Formulation and technology of solid Preparation practice
		Formulation and technology of sterile preparations
		Formulation and technology of sterile preparations practice
		Medicinal chemistry
		Pharmacy Analysis of Liquid and Semisolid Preparations
		Pharmacy Analysis of Liquid and Semisolid Preparations Practice
		Pharmacy Analysis of Solid Preparations

		Pharmacy Analysis of solid Preparations Practice
		Theory and Synthesis of Radiopharmaceuticals
		Botanical pharmacy
		Botanical pharmacy practice
		Pharmacognosy and herbal pharmacy of liquid and semisolid preparation
		Pharmacognosy and herbal pharmacy of liquid and semisolid preparation practice
		Pharmacognosy and herbal pharmacy of solid preparation
		Pharmacognosy and herbal pharmacy of solid preparation practice
		Herbal medicine
		ethnopharmacy
		Marine pharmacy
14	Able to manage the design, selection, procurement, storage, distribution, destruction and withdrawal of pharmaceutical preparations and medical devices in an effective and efficient manner under the supervision of pharmacists.	Pharmaceutical supply management
		Introduction to industrial pharmacy
15	Able to demonstrate effective communication skills with patients and health workers through verbal and non-verbal techniques under the supervision of a pharmacist.	Clinical pharmacy
		Clinical pharmacy practice

16	Able to demonstrate managerial skills and interpersonal relationships in conducting pharmaceutical works under the supervision of a pharmacist.	Clinical pharmacy
		Clinical pharmacy practice

2.3. Areas of Knowledge and Depth of Study Material

Table 2.2. Areas of Knowledge ad Depth of Study Material Program Bachelor of Pharmacy

The field of science	Study Material		Subjects
	Level of area	Depth Level	
Pharmaceutics and Pharmaceutical Technology	preformulation manufacturer Quality Contrlol	• Dept Theoretical Concept • General Theoretical Concept • Factua lknowledge	1. Physical Pharmacy 2. Physical Pharmacy 3. Preformulation of Liquid and Semisolid dosage formsd 4. Physical pharmacy 5. Physical pharmacy practice 6. basic pharmaceutics 7. basic pharmaceutics practice 8. introduction to industrial pharmacy 9. Formulation and Technology of Liquid and Semisolid dosage forms Practice 10. Formulation and technology of non sterile preparations practice 11. Preformulation and technology of non sterile preparation 12. cosmetic and cosmeceutical 13. Formulation and technology of sterile preparations 14. Pharmacokinetics 15. Biopharmacetics 16. Biopharmacetics practice 17. drug stability 18. new durg delivery system 19. Pharmaceutical excipient 20. Pharmaceutical engineering 21. Community services 22. pharmaceutical management supply
Pharmacology and Clinical Pharmacy	human anatomy and physiology	• Dept Theoretical Concept • General Theoretical Concept	1. cell and molecular biology 2. Basic pharmacology 3. basic pharmacology practice 4. Pharmacotherapy of Infectious Disease

	pharmaceutical care pharmacotherapy according to human physiology	• Factual knowledge	5. Pharmacotherapy of Immunology and Oncology 6. Pharmacotherapy of Infectious Diseases, Immunologic disorders and oncology practice 7. Pharmacoterapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry 8. Pharmacoterapy of Neurological Disorders and Psychiatry 9. Pharmacotherapy of Gartrointestinal Disorders and Nutrition 10. Pharmacotherapy of Endocrine Disorders 11. Pharmacotherapy of Gynaecoly Disordersi 12. Pharmacotherapy of gastrointestine, nutrition, endocrine and Gynaecology disorders practice 13. Pharmacotherapy of Hematology, Vascular and Cardiovascular disorder 14. Pharmacotherapy of Kidney and Urinary Tract Disorders 15. Pharmacotherapy of Hematology, Vascular and Cardiovascular, kidney and urinary disorder and biotechnology Practice
Analysis Pharmacy and Medicinal Chemistry	drug and cosmetics quality control drug design radiopharmaceutical analysis of food	• Dept Theoretical Concept • General Theoretical Concept • Factual knowledge	1. Introduction to Medicinal Chemistry 2. Introduction of Medicinal Chemistry Practice 3. Introduction to Pharmaceutical chemistry 4. Introduction to Pharmaceutical chemistry Practice 5. Instrumental Analysis 6. Instrumental Analysis Practice 7. Biochemistry 8. Biochemistry practice 9. Pharmaceutical Analysis of Liquid and Semisolid dosage forms 10. Pharmacy Analysis of Liquid and Semisolid dosage forms Practice 11. Pharmaceutical Analysis of Solid dosage forms and Cosmetic 12. Pharmaceutical Analysis of Solid dosage forms and Cosmetic practice 13. Theory and Synthesis of Radiopharmaceutics 14. Food and Contaminant Analysis 15. Food and Contaminant Analysis practice 16. Analysis of biomedics and forensic 17. Analysis of biomedics and forensic practice 18. Development of analytical method 19. Development of analytical method practice 20. Drug design and development

			21. Drug design and development practice
Biology Pharmacy	pharmacognosy herbal medicine microbiology and immunology of human	• Dept Theoretical Concept • General Theoretical Concept • Factual knowledge	1. Microbiology 2. Microbiology and immunology 3. Botanical Pharmacy 4. Botanical Pharmacy Practice 5. Pharmacognosy of Natural Pharmaceutical Ingredients 6. Pharmacognosy and Natural Product Pharmacy of Liquid and Semisolid dosage form 7. Phytochemistry 8. Phytochemistry practice

2.4. Curriculum Structure Outline

Table 2.3. Curriculum Structure Outline Program Bachelor of Pharmacy

Semester & Stages		**Study Load Amount**
Semester 1	MKDU	20 credits
Sub Total MKDU		20 credits
Semester 2	Pharmacy Basic Science	20 credits
Sub Total Pharmacy Basic Science		20 credits
Semester 3-4	Advanced Pharmacy Science	38 credits
	Medicinal Chemistry	2 credits
Sub Total Advanced Pharmacy Science and Medicinal Chemistry		40 credits
Semester 5-6	Advanced Pharmacy Science	38 credits
	Research Methodology	3 credits
Sub Total Advanced Pharmacy Science and Research Methodology		41 credits
Semester 7-8	Advanced Pharmacy Science	19 credits
	Thesis	4 credits
Sub Total Advanced Pharmacy Science and Thesis		23 credits
Amount		144 credits

2.4. Curriculum Structure

The curriculum implemented in the bachelor program in pharmacy follows the standards of the National Curriculum of Higher Education and of the Indonesian Association of Higher Education in Pharmacy, with a number of locally characteristic courses. The curriculum comes under evaluation every five (5) years in a curriculum evaluation workshop. The curriculum of bachelor program in pharmacy shown in table 2.3.

Table 2.4. Curriculum Structure Program Bachelor of Pharmacy

No	Courses code	Courses Name	Credits	ECTS point
SEMESTER 1				
	Compulsory			
1	P10A.1403	Introduction to Pharmaceutical Science and Ethics	2(2-0)	3.02
2	P10A.1404	Physical Chemistry	2(2-0)	3.02
3	P10A.1405	Physical Chemistry Practice	1(0-1)	1.51
4	P10A.1406	Introduction to Medicinal Chemistry	1(1-0)	1.51
5	P10A.1423	Introduction of Medicinal Chemistry Practice	1(0-1)	1.51
6	P10A.1407	Cell and Molecular Biology	2(2-0)	3.02
7	P10A.1421	Introduction of Pharmaceutical Chemistry	2(2-0)	3.02
8	P10A.1411	Introduction to Pharmaceutical Chemistry Practice	1(0-1)	1.51
9	UNX10.1007	English language	2(2-0)	3.02
10	UNX10.1006	Indonesian language	2(2-0)	3.02
11	UNX10.1002	Religion	2(2-0)	3.02
12	UNX10.1009	Civics	2(2-0)	3.02
		Total	20	30.22
SEMESTER 2				
	Compulsory			
1	P10A.2421	Botanical Pharmacy	2(2-0)	3.02
2	P10A.2428	Botanical Pharmacy Practice	1(0-1)	1.51
3	P10A.2422	Pharmaceutics	2(2-0)	3.02
4	P10A.2429	Pharmaceutics Practice	1(0-1)	1.51
5	P10A.2423	Physical pharmacy	2(2-0)	3.02
6	P10A.2430	Physical pharmacy practice	1(0-1)	1.51
7	P10A.2424	Instrumental Analysis	2(2-0)	3.02

8	P10A.2431	Instrumental Analysis practice	1(0-1)	1.51
9	P10A.2425	Biochemistry	2(2-0)	3.02
10	P10A.2432	Biochemistry practice	1(0-1)	1.51
11	P10A.2426	Pharmacology	2(2-0)	3.02
12	P10A.2427	Pharmacology practice	1(0-1)	1.51
13	P10A.2431	Microbiology	2(2-0)	3.02
		Total	20	30.22
SEMESTER 3				
	compulsory			
1	P10A.3401	Microbiology and Immunology	3(3-0)	4.53
2	P10A.3402	Pharmacotherapy of Infectious Disease	2(2-0)	3.02
3	P10A.3403	Pharmacotherapy of Immunology and Oncology	2(2-0)	3.02
4	P10A.3404	Pharmacognosy and Natural Product Pharmacy of Liquid and Semisolid dosage form	2(2-0)	3.02
5	P10A.3405	Introduction to Industrial pharmacy	2 (2-0)	3.02
6	P10A.3406	Preformulation of Liquid and Semisolid dosage forms	1(0-1)	1.51
7	P10A.3407	Formulation and Technology of Liquid and Semisolid dosage forms	1(1-0)	1.51
8	P10A.3408	Pharmaceutical Analysis of Liquid and Semisolid dosage forms	1(1-0)	1.51
9	P10A.3409	Medicinal chemistry	2(2-0)	3.02
10	P10A.3410	Pharmacotherapy of Infectious Diseases, Immunologic disorders and oncology practice	1(0-1)	1.51
11	P10A.3411	Pharmacognosy and Natural Product of Liquid and Semisolid dosage forms practice	1(0-1)	1.51
12	P10A.3412	Formulation and Technology of Liquid and Semisolid dosage forms Practice	1(0-1)	1.51
13	P10A.3413	Pharmacy Analysis of Liquid and Semisolid dosage forms Practice	1(0-1)	1.51
		Total	20	30.22
SEMESTER 4				
	Compulsory			
1	P10A.4401	Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry	2(2-0)	3.02

2	P10A.4402	Pharmacotherapy of Neurological Disorders and Psychiatry	2(2-0)	3.02
3	P10A.4403	Pharmacotherapy of respiratory disorder	2(2-0)	3.02
4	P10A.4404	Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry Practice	1(0-1)	1.51
5	P10A.4405	Pharmacognosy of Natural Pharmaceutical Ingredients	1(1-0)	1.51
6	P10A.4406	Pharmacognosy of Natural pharmaceuticals Practice	1(0-1)	1.51
7	P10A.4407	Preformulation of Solid Dosage Form	1(1-0)	1.51
8	P10A.4408	Formulation and technology of Solid dosage forms	2(2-0)	3.02
9	P10A.4409	Formulation and technology of Solid dosage forms practice	1(0-1)	1.51
10	P10A.4410	Pharmaceutical Analysis of Solid dosage forms and Cosmetic	1(1-0)	1.51
11	P10A.4411	Pharmaceutical Analysis of Solid dosage forms and Cosmetic Practice	1(0-1)	1.51
12	P10A.4412	Theory and Synthesis of Radiopharmaceutics	2(2-0)	3.02
13	P10A.4413	Phytochemistry	1(1-0)	1.51
	Elective 1:			
14	P10A.4414 P10A.4415 P10A.4416 P10A.4417	Toxicology Pharmaceutical excipients Ethnopharmacy Electrochemical Application in the Field of Pharmacy	2(2-0)	3.02
		Total	20	30.22
SEMESTER 5				
	Compulsory			
1	P10A.5401	Pharmacotherapy of Gastrointestinal Disorders and Nutrition	2(2-0)	3.02
2	P10A.5402	Pharmacotherapy of Endocrine Disorders	2(2-0)	3.02
3	P10A.5403	Pharmacotherapy of Gynaecology Disorders	2(2-0)	3.02
4	P10A.5404	Pharmacotherapy of gastrointestinal, nutrition, endocrine and Gynaecology disorders practice	1(0-1)	1.51
5	P10A.5405	Cosmetics and cosmeceuticals	2(2-0)	3.02

6	P10A.5406	Formulation and technology of sterile preparations	2(2-0)	3.02
7	P10A.5407	Formulation and technology of sterile preparations practice	1(0-1)	1.51
8	P10A.5408	Food and contaminant analysis	2(2-0)	3.02
9	P10A.5409	Community service	3(0-3)	4.53
10	P10A.5415	Phytochemistry practice	1(0-1)	1.51
	Elective 2:			
11	P10A.5410 P10A.5411 P10A.5412 P10A.5413	Nutraceuticals and Therapeutic Nutrition Marine pharmacy Pharmaceutical engineering Analysis of chemicals in herbal medicines	2(2-0)	3.02
		Total	20	30.22
SEMESTER 6				
	Compulsory			
1	P10A.6401	Pharmacotherapy of Hematology, Vascular and Cardiovascular disorder	3(3-0)	4.53
2	P10A.6402	Pharmacotherapy of Kidney and Urinary Tract Disorders	2(2-0)	3.02
3	P10A.6403	Biotechnology pharmacy	2(2-0)	3.02
4	P10A.6404	Pharmacotherapy of Hematology, Vascular and Cardiovascular, kidney and urinary disorder and biotechnology Practice	1(0-1)	1.51
5	P10A.6405	Pharmacokinetics	2(2-0)	3.02
6	P10A.6406	Biopharmacy	2(2-0)	3.02
7	P10A.6407	Biopharmacy practice	1(0-1)	1.51
8	P10A.6408	Analysis of biomedics and forensic	2(2-0)	3.02
9	P10A.6409	Analysis of biomedics and forensic practice	1(0-1)	1.51
10	P10A.6410	Research Methodology and Biostatistics	3(3-0)	4.53
	Elective 3:			
11	P10A.6411 P10A.6412	Pharmacoepidemiology and Pharmacovigilance Aromatherapy and hydrotherapy	2(2-0)	3.02

	P10A.6413 P10A.6414	Pharmaceutical Environment Pharmaceutical practice		
		Total	21	31.73
SEMESTER 7				
	Compulsory			
1	P10A.7401	Clinical pharmacy	2(2-0)	3.02
2	P10A.7402	Clinical pharmacy practice	1(0-1)	1.51
3	P10A.7403	Drug stability	2(2-0)	3.02
4	P10A.7404	New drug delivery system	2(2-0)	3.02
5	P10A.7405	Development of analytical method	1(1-0)	1.51
6	P10A.7406	Development of analytical method practice	1(0-1)	1.51
7	P10A.7407	Drug design and development	2(2-0)	3.02
8	P10A.7408	Drug design and development practice	1(0-1)	1.51
9	P10A.7409	Research proposal Seminar	2(0-2)	3.02
10	P10A.7410	Field study	1(0-1)	1.51
11	P10A.7411	Pharmaceutical management, Regulation and entrepreneurship	2(2-0)	3.02
	Elective 4:			
12	P10A.7412 P10A.7413 P10A.7414 P10A.7415	Pharmacoeconomy Herbal Medicine Management of supply chain Fundamental of quality assurance	2(2-0)	3.02
		Total	19	28.71
SEMESTER 8				
1	P10A.8401	Seminar on thesis result	2(2-0)	3.02
2	P10A.8402	Bachelor's defense	2(2-0)	3.02
		Total	4	6.04
Total credit of bachelor programme			144	217.6

2.5. Percentage of Academic Study Load (credits)

The minimum study load of the bachelor program in pharmacy is one hundred forty four (144) credit-hours scheduled for eight (8) semesters, which can be completed in seven (7) semesters and a maximum of fourteen (14) semesters.

Table 2.5. Percentage of Academic Study Load Program Bachelor of Pharmacy

No.	Semester	Expenses Research and Competence		amount
		Main	Support	
1	1st semester	12	8	20
2	2nd semester	17	3	20
3	3rd semester	17	3	20
4	4th semester	18	2	20
5	5th semester	13	7	20
6	6th semester	19	5	21
7	7th semester	16	3	19
8	8th semester	4	0	4
amount		113	31	144 credits
		78.47	21.52	
Requirements		(40-80%)	(20-40%)	

2.6. Percentage of Study Load (credits) in Activities Learning

Table 2.6. Percentage of Academic Study Load in Activities Learning Program Bachelor of Pharmacy

No.	Semester	Burden Study on Learning			Amount
		Lecture	Tutorial	Practice	
1	1st semester	17	0	3	20
2	2nd semester	14	0	6	20

3	3rd semester	10	5	5	20
4	4th semester	10	6	4	20
5	5th semester	9	5	6	20
6	6th semester	13	5	3	21
7	7th semester	15	0	4	19
8	8th semester	0	4	0	4
Amount		88 credits	25 credits	31 credits	144 credits

Chapter 3

CURRICULUM CONTENT (DESCRIPTION COURSES)

Curriculum content or description of any subjects on Study Program Bachelor Pharmacy overall listed in Table 3.1 through Table 3.

Table 3.1. Description Module Introduction to Pharmaceutical Science and Ethics

No	Module Name	Introduction to Pharmaceutical Science and Ethics
1	Code of Subjects	P10A.1403
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this topic, students will be able to explain the basic concepts of pharmaceutical science.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this topic, students will learn about the development of pharmaceutical science, starting

		from history to technology, the role of pharmacy, and current regulations.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Test (40%); Final Exam (40%)
13	Lecturer	Auliya A. Suwantika, Ph.D., Apt. Dr. Med. Sc. Melisa I. Barliana, Apt.
14	References	Howard C. Ansel. Pengantar Bentuk Sediaan Farmasi. Jakarta Universitas Indonesia (UI Press), 2008. Loyd V. Allen Jr. Ilmu & Teknologi Peracikan Sediaan Farmasi Vol 1 Edisi 4. EGC, 2014.

Table 3.2. Description Module Physical Chemistry

No	Module Name	Physical Chemistry
1	Code of Subjects	P10A.1404
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this topic, students will be able to understand the principles of solutions, thermodynamics, surface tension, melting points, adsorption, viscosity, reaction kinetics, buffer and isotonic solutions, equilibrium, colloids, distribution constants and chromatography.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this topic, students will learn about the introduction of physical chemistry, solutions, kinds of solutions, definition and definition of thermodynamics, laws of thermodynamics, laws of surface tension, laws, melting point laws, kinds of adsorption, Newton's law, Non-Newton's Laws,

		Buffer Solutions, Isotonic Solutions, Types of Colloids, Nernst Law, and Definition of equilibrium
9	Attribute Soft Skill	Communications, critical analysis, initiative
10	Learning methods	Lecturer, presentation, assignment, discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Test (40%); Final Exam (40%)
13	Lecturer	Iyan Sopyan, Nasrul Wathoni, Arif Budiman, Patihul Husni
14	References	-

Table 3.3. Description Module Physical Chemistry Practice

No	Module Name	Physical Chemistry Practice
1	Code of Subjects	P10A.1405
2	Study load	1(0-1) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this topic, students will be able to understand and apply the principles of solutions, thermodynamics, surface tension, melting points, adsorption, viscosity, reaction kinetics, buffer and isotonic solutions, equilibrium, colloids, distribution constants and chromatography.
6	Elements of Competency	MKB
7	Type Competency	Main Competence
8	Syllabus	On this topic, students will learn and practice about the introduction of physical chemistry, solutions, kinds of solutions, definition and definition of thermodynamics, laws of thermodynamics, laws of surface tension, laws, melting point laws, kinds of adsorption, Newton's law, Non-Newton's Laws, Buffer Solutions, Isotonic Solutions, Types of Colloids, Nernst Law, and Definition of equilibrium

9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Iyan Sopyan, Nasrul Wathoni, Arif Budiman, Patihul Husni
14	References	

Table 3.4. Description Module Introduction to Medicinal Chemistry

No	Module Name	Introduction to Medicinal Chemistry
1	Code of Subjects	P10A.1406
2	Study load	1(1-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	In this course, students learn the basics of chemistry for medicinal chemistry, where at first students are reminded of high school organic chemistry lessons such as functional groups, chemical reactions of organic compounds, stereochemistry, chemical bonds and forces between molecules. After that, students are given an understanding of practical theory that supports learning Medicinal Chemistry such as the physico-chemical properties of drug molecules, the basics of drug synthesis, the basics of molecular modeling and the search for lead compounds from natural materials.
6	Elements of Competency	MKK
7	Type Competency	Main Competence
8	Syllabus	On this course, students will learn the basics of chemistry for medicinal chemistry, where at first students are reminded of high school organic chemistry lessons such as functional groups,

		chemical reactions of organic compounds, stereochemistry, chemical bonds and forces between molecules. After that, students are given an understanding of practical theory that supports learning Medicinal Chemistry such as the physico-chemical properties of drug molecules, the basics of drug synthesis, the basics of molecular modeling and the search for lead compounds from natural materials.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Muchtaridi, Dr. Ph. D., Sandra Megantara, M Si, and Driyanti Rahayu, MT
14	References	

Table 3.5. Description Module Introduction to Medicinal Chemistry Practice

No	Module Name	Introduction to Medicinal Chemistry Practice
1	Code of Subjects	P10A.1423
2	Study load	1(0-1) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to understand and practice how to determine the distribution coefficient (Kd), the degree of acidity of a drug molecule (pKa), performs several organic reactions, identifies functional groups, synthesizes raw materials for drugs, extracts, isolates, fractionates, and performs computational chemistry practices, namely QSAR and Structure and Ligand-Based Drug Design.
6	Elements of Competency	MKB

7	Type Competency	Main Competence
8	Syllabus	On this course, students will learn and practice how to determine the distribution coefficient (Kd), the degree of acidity of a drug molecule (pKa), performs several organic reactions, identifies functional groups, synthesizes raw materials for drugs, extracts, isolates, fractionates, and performs computational chemistry practices, namely QSAR and Structure and Ligand-Based Drug Design.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Muchtaridi, Ph. D., Driyanti Rahayu, M T, and Sandra Megantara, M Si.
14	References	

Table 3.6. Description Module Cell and Molecular Biology

No	Module Name	Cell and Molecular Biology
1	Code of Subjects	P10A.1407
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to understand about macromolecules: DNA, RNA, and macromolecules (carbohydrates, fats and proteins) chromosomes, plasmids, and the flow of genetic information, regulation of transcription of gene expression in prokaryotes and eukaryotes, mutation and DNA repair, homeostasis and cell death, viruses,

		carbohydrate metabolism, protein and fat metabolism, differences in cell structure of prokaryotes, eukaryotes and archaea, cell growth and division, membrane transport systems in cells and applications of cell and molecular biology in the pharmaceutical field.
6	Elements of Competency	MKK
7	Type Competency	Main Competence
8	Syllabus	In this course, students will learn about macromolecules: DNA, RNA, and macromolecules (carbohydrates, fats and proteins) chromosomes, plasmids, and the flow of genetic information, regulation of transcription of gene expression in prokaryotes and eukaryotes, mutation and DNA repair, homeostasis and cell death, viruses, carbohydrate metabolism, protein and fat metabolism, differences in cell structure of prokaryotes, eukaryotes and archaea, cell growth and division, membrane transport systems in cells and applications of cell and molecular biology in the pharmaceutical field.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Tina Rostinawati, M.Si., Apt., and Arif Satria, M.Si., Apt.
14	References	

Table 3.7. Description Module Introduction to Pharmaceutical Chemistry

No	Module Name	Introduction to Pharmaceutical Chemistry
1	Code of Subjects	P10A.1421
2	Study load	2(2-0) credits
3	Semester	1

4	Precondition	There is no
5	Competence	After completing this course: 1. Students are able to understand and explain about chemical bonds and forces between molecules 2. Students are able to understand and explain about orbitals and their role in covalent bonds 3. Students are able to understand and explain the nomenclature of compounds, isomers and stereochemistry 4. Students are able to understand and explain about nucleophilic substitution reactions and elimination of alkyl halides 5. Students are able to understand and explain reactions to alcohol 6. Students are able to understand and apply the basics of calculations and measurements in the pharmaceutical field 7. Students are able to understand and apply gravimetric analysis methods
6	Elements of Competency	MKK
7	Type Competency	Main Competence
8	Syllabus	This course discusses the basics of pharmaceutical chemistry, including chemical bonds and forces between molecules, orbitals and their role in covalent bonds, functional groups of medicinal compounds, compound nomenclature, isomers and stereochemistry, nucleophilic substitution reactions and elimination reactions in alkyl halide group compounds. , reactions in alcohol group compounds, basics of calculations and measurements in pharmaceutical chemistry and methods of gravimetric analysis
9	Attribute Soft Skill	Communications, critical analysis, initiative
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)

13	Lecturer	Driyanti Rahayu, M.T., Intan Timur Maisyarah, Ph.D., Dr. Sandra Megantara, Apt., and Dr. Nyi Mekar Saptarini, Apt.
14	References	General Chemistry with Qualitative Analysis. Petrucci, H.R., Wismer, K.R.Macmillan Publishing Co.,Inc. Canada. Organic Chemistry. Ralp J. Fessenden & Joan S. Fessenden Fundamentals of Analytical Chemistry, Douglas A. Skoog, Donald M. West, F. James Holler, Stanley R. Crouch Analytical Chemistry. Christian, D.Gary.. John Wiley & Sons Inc. USA. Pharmaceutical Calculation, Howard C. Ansel

Table 3.8. Description Module Introduction to Pharmaceutical Chemistry Practice

No	Module Name	Introduction to Pharmaceutical Chemistry Practice
1	Code of Subjects	P10A.1411
2	Study load	1(0-1) credits
3	Semester	1
4	Precondition	There is no
5	Competence	This course is aimed at achieving one of the competencies of a graduate in pharmacy, namely being able to master the theoretical concepts of a special section in the field of pharmaceutical knowledge and being able to formulate procedural problem solving.
6	Elements of Competency	MKB
7	Type Competency	Main Competence
8	Syllabus	On this course students will learn an introduction to basic chemical laboratory tools and skills as well as how to work well in the laboratory, identification of functional groups, synthesis of iodoform,

		synthesis of acetylene, synthesis of acetylsalicylic acid, and synthesis of methyl benzoate
9	Attribute Soft Skill	Communications, critical analysis, initiative
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Driyanti Rahayu, M.T., and Intan Timur Maisyarah, Ph.D
14	References	General Chemistry with Qualitative Analysis. Petrucci, H.R., Wismer, K.R.Macmillan Publishing Co.,Inc. Canada. Organic Chemistry. Ralp J. Fessenden & Joan S. Fessenden Fundamentals of Analytical Chemistry, Douglas A. Skoog, Donald M. West, F. James Holler, Stanley R. Crouch Analytical Chemistry. Christian, D.Gary.. John Wiley & Sons Inc. USA. Pharmaceutical Calculation, Howard C. Ansel

Table 3.9. Description Module English Language

No	Module Name	English Language
1	Code of Subjects	UNX10.1007
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	The objective of this course is to improve students' language skills focusing on reading and basic writing skills. Grammar is given as a review, assuming that it has been learnt in secondary level. Vocabulary is given in reading activities, related to the selected topics. Students are expected to apply their English skills in discussing

		topics about general knowledge related to Sustainable Development Goals issue (SDGs)
6	Elements of Competency	MM
7	Type Competency	Supporting competence
8	Syllabus	This course encourages students to be able to apply logical, critical, systematic, and innovative thinking in the context of developing or implementing science and technology in the form of good writing and learning skills. This course builds students' abilities to be able to have independent, quality, and measurable performance. Furthermore, it is directed to be able to compile a scientific description of the results of the above study in the form of good writing that meets the basic principles of correct scientific writing.
9	Attribute Soft Skill	Critical analysis, communication, discipline
10	Learning methods	Lecturer, presentation, assignment, discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	TPB Team
14	References	English language material guideline by Unpad TPB Team

Table 3.10. Description Module Indonesian Language

No	Module Name	Indonesian Language
1	Code of Subjects	UNX10.1006
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this course, students are expected to get scientific literacy, read scientific literature and listen to them, write scientific articles,

		academic correspondence, verbal communication, present results related to prepared papers.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course is intended for students to get scientific literacy, read scientific literature and listen to them, write scientific articles, academic correspondence, verbal communication, present results related to prepared papers.
9	Attribute Soft Skill	Critical analysis, communication, discipline
10	Learning methods	Lecturer, presentation, assignment, discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	TPB Team
14	References	- DIKBUD courses material for Indonesian language - indonesian language material guideline made by TPB team

Table 3.11. Description Module Religion

No	Module Name	Religion
1	Code of Subjects	UNX10.1002
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After completing this course: 1. Students can analyze the basic concepts of teachings and their teaching sources and be able to practice them in everyday life. 2. Students are able to analyze the relationship between humans and religion (integrating "religious" values in solving problems in the cases presented 3. Analyzing Islam and its relationship with other religions (integrating the value of tolerance).

		4. Making the sources of religious teachings as a reference in understanding and practicing Islamic teachings. 5. Explain the basic framework of Islamic teachings. 6. Applying religious values in various fields of life (integrating the values of justice "unity" tolerance "equality" and honesty,
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course encourages students to be able to analyze the basic concepts of religious teachings and their teaching sources and be able to practice them in everyday life. At the end of this Religion course, students are able to analyze the relationship between humans and religions, integrate religious values and practices in building positive activities by considering the values of tolerance. Furthermore, students are able to apply religious values in various fields of life (integrate the values of justice "unity" tolerance "equality" and honesty) and make the sources of religious teachings a reference in understanding and practicing their teachings in carrying out various deeds and deeds and real masterpiece.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lecturer, presentation, assignment, discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	TPB Team
14	References	Religion material guideline made by Unpad TPB team

Table 3.12. Description Module Civics

No	Module Name	Civics
1	Code of Subjects	UNX10.1009
2	Study load	2(2-0) credits
3	Semester	1
4	Precondition	There is no
5	Competence	After taking this course students will be able to: 1. Explain the aims and functions of Pancasila education as a component of the general compulsory course in the bachelor program; 2. Understand and analyze the dynamics of Pancasila historically, and reflect its important function and position of Pancasila in the future development of Indonesia; 3. Identify and evaluate laws and regulations and state policies that are idealistic in nature as well as practical-pragmatic in the perspective of Pancasila as the basis of the state; 4. Analyze the great ideologies of the world and the new ideologies that have emerged and explain Pancasila as suitable ideology for Indonesia; 5. Understand and analyze the nature of the Pancasila principles and actualize the values contained in as a paradigm of thinking, behaving and behaving; 6. Mastering knowledge about the meaning of ethics, ethical streams, Pancasila ethics, and Pancasila as a solution of the national morality problems; and 7. Formulating Pancasila as Indonesia's scientific character.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course discusses that Citizenship is a General Compulsory Subject in higher education and discusses National Identity and Integrity, the 1945 Constitution of the Republic of Indonesia and

		Legislation, the harmony of obligations and rights of the State and citizens, the Harmony of Indonesian Democracy, the dynamics of fair law enforcement and urgency. insight into the archipelago as well as national resilience and Pancasila as a General Compulsory Subject in Higher Education, discusses Pancasila as a study of the current history of the Indonesian nation, Pancasila as the basis and state ideology, Pancasila as a philosophical system, Pancasila as an ethical system and Pancasila as the value of scientific development.
9	Attribute Soft Skill	Initiative, communications, ethics
10	Learning methods	Lecturer, presentation, assignment, discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (20%); Final Exam (40%)
13	Lecturer	TPB Team
14	References	Kemenristekdikti. 2016. Modul Pendidikan Pancasila Untuk Perguruan Tinggi. Jakarta: Dirjen Belmawa Kemenristekdikti Ali, As'ad Said. 2009. Negara Pancasila Jalan Kemaslahatan Berbangsa. Jakarta: Pustaka LP3ES Bakry, Noor Ms. 2010. Pendidikan Pancasila. Pustaka Pelajar: Yogyakarta Kaelan,2013, Negara

Table 3.13. Description Module Botanical Pharmacy

No	Module Name	Botanical Pharmacy
1	Code of Subjects	P10A.2421
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no

5	Competence	This course aims to achieve the main competency of the ability to recognize and study various medicinal plants from the group of high-level plants and low-level plants which are sources of medicines and to recognize plant organs used for simplicia as raw materials for drug preparations herbs. Competence supporting the ability to explain every subject given during lectures.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this course, students will learn about the introduction of plants which includes plant cell structure and tissue and its modification, primary and secondary metabolism, morphological characteristics of generative and vegetative organs, classification and identification, chemotaxonomy, manufacture of simplicia and herbarium specimens, diversity of cryptogams as medicinal herbs, gymnosperms and angiosperms which are the source of the medicinal ingredients.
9	Attribute Soft Skill	Critical analysis, communication, discipline
10	Learning methods	Presentation, lecturer, discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Apt. Ade Zuhrotun, M.Si; Apt. R. Bayu Indradi, M.Si.
14	References	1. Cronquist, A. (1981): An Integrated System of Classification of Flowering Plants, Columbia University Press, New York, 651-654. 2. Depkes RI, 1985, Cara Pembuatan Simplisia, Departemen Kesehatan Republik Indonesia, Jakarta. 3. Depkes RI, 1995, Farmakope Indonesia edisi IV, Departemen Kesehatan Republik Indonesia, Jakarta. 4. Dewick, P.M. (2006): Medicinal Natural product: A Biosynthetic Approach, 2 nd Ed., USA, John Wiley & Sons Inc.

		5. Kemenkes RI, 2008. Farmakope herbal Indonesia, Edisi I, Departemen Kesehatan RI, Jakarta. 6. Opik, H. And Rolfe, S.A., (2005): The Physiology of Flowering Plants. 4 th Ed. UK, Cambridge University Press 7. Youngken, H. W. (1921): Pharmaceutical Botany: A Text-book For Students Of Pharmacy And Science. 3 nd Ed. Philadelphia, P. Blakiston & Son & Co.

Table 3.14. Description Module Botanical Pharmacy Practice

No	Module Name	Botanical Pharmacy Practice
1	Code of Subjects	P10A.2428
2	Study load	1(0-1) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After learning this course, students are expected to be able to know the use of microscopes and biological enlargement tools, understand plant cells and tissues, plant organs (seeds, fruit, fruit, leaves, roots, stems), understand how to manufacture simplicia, and be able to identify macroscopic and microscopic characteristics of simplicia.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course discusses microscopy and biological enlargement tools, plant cells and tissues, plant organs (seeds, fruit, fruit, leaves, roots, stems), manufacture of simplicia, and identification of macroscopic and microscopic simplicia.
9	Attribute Soft Skill	Communications, discipline, initiative, awareness
10	Learning methods	Discussion, Assignment, Lab. practice
11	Learning Media	Lab. Equipment and LCD Projector

12	Appraisal	25 % lab report, 25% quiz, 25% mid exam, and 25% final exam
13	Lecturer	Dr. Ade Zuhrotun, Intan Timur M. Ph.D., Bayu Indradi M.Si., Dr. Yasmiwar Susilawati
14	References	Departemen Kesehatan RI. 1989. Materia medika Indonesia Jilid V. Jakarta : Direktorat Jendral Pengawasan Obat dan Makanan

Table 3.15. Description Module Pharmaceutics

No	Module Name	Pharmaceutics
1	Code of Subjects	P10A.2422
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After learning this course, students are expected to be able to understand knowledge of basic concepts in pharmaceutical science, especially in the manufacture of pharmaceutical products / industries, integrate knowledge and concepts in pharmaceutical science, communicate scientific information effectively both orally and in writing to the general public, develop group dynamics skills and teamwork
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course courses contain topics that provide knowledge about the development of drugs from time-to-time, various terms listed in the General Provisions of Indonesian Pharmacopoeia; translating prescriptions, determining the names of medicinal ingredients and additives as well as pharmaceutical dosage forms; understand drug dosage forms, some galenic preparations and how to make them.
9	Attribute Soft Skill	Critical analysis, communication, discipline

10	Learning methods	Lecturer and small group discussion
11	Learning Media	LCD Projector
12	Appraisal	20% Quiz and assignment, 40% mid exam, 40% final exam
13	Lecturer	Dr. Dolih Gozali, MSi., Apt., Dr. Sriwidodo, M.Si., Apt., and Norisca Aliza., S.Farm., M.Farm., Apt.
14	References	1. Farmakope Indonesia VI Tahun 2020 2. CPOB 2018 3. Remington Pharmaceutical Sciences 18th Edition 4. Aulton's Pharmaceutics: The Design and Manufacture of Medicines 5. Handbook of Pharmaceutical Manufacturing Formulations Semisolid Products 6. Handbook of Pharmaceutical Manufacturing Formulations Liquid Products 7. Modul of Pharmaceutical Practice

Table 3.16. Description Module Pharmaceutics Practice

No	Module Name	Pharmaceutics Practice
1	Code of Subjects	P10A.2429
2	Study load	1(0-1) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After learning this course, students are expected to be skilled in carrying out compounding and dispensing pharmaceutical supplies based on standard formulas and prescriptions into pharmaceutical dosage forms (solid, liquid, semisolid) correctly.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	In this practicum, students will learn the matriculation of practicum tools, solid preparations, liquid preparations and semisolid preparations.

9	Attribute Soft Skill	Communications, discipline, initiative, awareness
10	Learning methods	Discussion, Assignment, and Lab. practice
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	20% Quiz and assignment, 40% mid exam, 40% final exam
13	Lecturer	Dr. Dolih Gozali, MSi., Apt., Dr. Sriwidodo, M.Si., Apt., and Norisca Aliza., S.Farm., M.Farm., Apt.
14	References	1. Farmakope Indonesia VI Tahun 2020 2. CPOB 2018 3. Remington Pharmaceutical Sciences 18th Edition 4. Aulton's Pharmaceutics: The Design and Manufacture of Medicines 5. Handbook of Pharmaceutical Manufacturing Formulations Semisolid Products 6. Handbook of Pharmaceutical Manufacturing Formulations Liquid Products 7. Modul of Pharmaceutical Practice

Table 3.17. Description Module Physical Pharmacy

No	Module Name	Physical Pharmacy
1	Code of Subjects	P10A.2423
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After learning this course, students are able to understand the principles of physicochemical properties of drug molecules, solubility, diffusion and dissolution, stability (function and method of determination), interfacial phenomena, dispersion systems (colloids, emulsions, suspensions, solid dispersions), emulsification, rheology and viscosity, micromeritics, powder physical characteristics of the drug.

6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course consist of subject regarding principles of physicochemical properties of drug molecules, solubility, diffusion and dissolution, stability (function and method of determination), interfacial phenomena, dispersion systems (colloids, emulsions, suspensions, solid dispersions), emulsification, rheology and viscosity, micromeritics, powder physical characteristics of the drug.
9	Attribute Soft Skill	Critical analysis, communication, discipline
10	Learning methods	Lecturer and discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Apt. Iyan Sopyan, M. Si., Apt, Patihul Husni, M. Si Apt., and Nasrul Wathoni, M.Si

Table 3.18. Description Module Physical Pharmacy Practice

No	Module Name	Physical Pharmacy Practice
1	Code of Subjects	P10A.2430
2	Study load	1(0-1) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to understand the principles of physicochemical properties of drug molecules, solubility, diffusion and dissolution, stability (function and method of determination), inter-surface phenomena, dispersion systems (colloids, emulsions, suspensions, solid dispersions), emulsification, rheology and viscosity, micromeritic, physical properties of medicinal compounds in the form of powder.
6	Elements of Competency	MKB

7	Type Competency	Main competence
8	Syllabus	This course covers the principles of physicochemical properties of drug molecules, solubility, diffusion and dissolution, stability (function and method of determination), inter-surface phenomena, dispersion systems (colloids, emulsions, suspensions, solid dispersions), emulsification, rheology and viscosity, micromeritic, physical properties of medicinal compounds in the form of powder.
9	Attribute Soft Skill	Communications, discipline, initiative, awareness
10	Learning methods	Discussion, Assignment, and Lab. practice
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Apt. Iyan Sopyan, M. Si., Apt. Dolih Gozali, M. S., Apt. Yoga Windu Wardhana, and Apt. Nasrul Wathoni, M.Si

Table 3.19. Description Module Instrumental Analysis

No	Module Name	Instrumental Analysis
1	Code of Subjects	P10A.2424
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After learning this course, students are expected to be able to understand and explain the basics of choosing analysis methods, atomic spectroscopy methods, molecular spectroscopy methods, separation techniques, and elemental analysis.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses Molecular Spectroscopy, Infrared Spectroscopy, UV - Visible Spectrophotometry, Separation Techniques: Chromatography, Mass Spectroscopy.
9	Attribute Soft Skill	Discipline, hard work, initiative, communication

10	Learning methods	Assignment, quiz, lecturer, discussion
11	Learning Media	LCD Projector
12	Appraisal	Mid exam 40%, final exam 40%, quiz and assignment 20%
13	Lecturer	Mutakin Ph.D, Dr. Nyi Mekar Saptarini
14	References	Instrumental analysis, Willard Instrumental analysis, skoog

Table 3.20. Description Module Instrumental Analysis Practice

No	Module Name	Instrumental Analysis Practice
1	Code of Subjects	P10A.2431
2	Study load	1(0-1) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After learning this course, Students are expected to be able to understand and explain the basics of color reactions based on functional groups (alcohol, phenol, carboxylic acids, alkaloids and nitrogenous bases, antibiotics, sulfonamides, barbiturates), know the concepts and processes that support drug solubility and determine drug solubility parameters, determine the quality of cooking oil samples through functional group analysis with infrared spectrometry
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	On this course, students will learn how to analyze drug compounds based on color reactions of functional groups, determine drug solubility factors, and analyze sample quality through functional group analysis using infrared spectrometry.
9	Attribute Soft Skill	Leadership, creativity, skill, analytical thinking

10	Learning methods	Lab. practice, assignment, quiz
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Mid exam 40%, final exam 40%, quiz and assignment 20%
13	Lecturer	Mutakin Ph.D, Dr. Nyi Mekar Saptarini
14	References	- Indonesian Pharmacope V - research article

Table 3.21. Description Module Biochemistry

No	Module Name	Biochemistry
1	Code of Subjects	P10A.2425
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to understand about the structure and function of macromolecules (protein, carbohydrates, and fats), enzymes (nomenclature, working mechanisms, enzyme kinetics, enzyme inhibition and enzyme regulation), macromolecular metabolism (protein, carbohydrates, and fats), cycles citric acid, as well as oxidative phosphorylation.
6	Elements of Competency	MKK
7	Type Competency	Suppporting competence
8	Syllabus	On this course, students will learn about the structure and function of macromolecules (protein, carbohydrates, and fats), enzymes (nomenclature, working mechanisms, enzyme kinetics, enzyme inhibition and enzyme regulation), macromolecular metabolism (protein, carbohydrates, and fats),

		cycles citric acid, as well as oxidative phosphorylation.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Nyi Mekar Saptarini, M Si., Dra. Wiwiek Indriyati, and Dr. Med. Melisa Intan Barliana.
14	References	1. Nelson, D.L. and Cox, M.M. 2005. Lehninger Principles of Biochemistry, 4th ed. WH Freeman. New York. 2. Berg, J.M., Tymoczko, J.L. and Stryer, L. 2002. Biochemistry, 5th ed. WH Freeman. Toronto. 3. Voet, D. and J.G. Voet.2007. Biochemistry. 3rd ed. Singapore: Wiley and Sons, Inc. Murray, R.K., D.K. Granner, P.A. Mayer, and V.W. Rodwell. 2003. 4. Harper's Illustrated Biochemistry. 26th ed. Singapore: Mc Graw-Hill Comp.

Table 3.22. Description Module Biochemistry Practice

No	Module Name	Biochemistry Practice
1	Code of Subjects	P10A.2432
2	Study load	1(0-1) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After following this practicum course, students will be able to do practicum properly and in accordance with GLP, able to analyze qualitative and quantitative proteins correctly, able to analyze amylase activity correctly, able to analyze qualitative and quantitative carbohydrates correctly and able to analyze qualitatively and quantitatively of fat correctly.

6	Elements of Competency	MKB
7	Type Competency	Supporting competence
8	Syllabus	On this course, students will learn about qualitative and quantitative analysis of macromolecules (protein, carbohydrates, and fats), extraction and isolation of crude enzymes, as well as amylase enzyme activity tests.
9	Attribute Soft Skill	Communications, critical analysis, initiative
10	Learning methods	Discussion, assignment, and lab. practice
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. apt. Nyi Mekar Saptarini, M.Si. and Prof. apt. Resmi Mustarichie, Ph.D.
14	References	1. Nelson, D.L. and Cox, M.M. 2005. Lehninger Principles of Biochemistry, 4th ed. WH Freeman. New York. 2. Berg, J.M., Tymoczko, J.L. and Stryer, L. 2002. Biochemistry, 5th ed. WH Freeman. Toronto. 3. Voet, D. and J.G. Voet.2007. Biochemistry. 3rd ed. Singapore: Wiley and Sons, Inc. Murray, R.K., D.K. Granner, P.A. Mayer, and V.W. Rodwell. 2003. 4. Harper's Illustrated Biochemistry. 26th ed. Singapore: Mc Graw-Hill Comp.

Table 3.23. Description Module Pharmacology

No	Module Name	Pharmacology
1	Code of Subjects	P10A.2426
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to understand about the anatomy of the human body as a unit, an introduction to pathology, an introduction to

		various clinical biochemical parameter tests to assist in the diagnosis of organ pathology, an introduction to drug travel in the body from the biopharmaceutical phase, the pharmacokinetic and pharmacodynamic phases, the concept of drugs in organs- autonomic organs, various drug workplaces (receptors), introduction to drug interactions, introduction to pharmacotherapy as well as introduction to clinical pharmacy.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the anatomy of the human body as a unit, an introduction to pathology, an introduction to various clinical biochemical parameter tests to assist in the diagnosis of organ pathology, an introduction to drug travel in the body from the biopharmaceutical phase, the pharmacokinetic and pharmacodynamic phases, the concept of drugs in organs- autonomic organs, various drug workplaces (receptors), introduction to drug interactions, introduction to pharmacotherapy as well as introduction to clinical pharmacy.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Sri Adi Sumiwi, MS, Apt., Prof. Dr. Ahmad Muhtadi, MS, Apt., Prof. Dr. Jutti Levita, M.Si., Apt., Dr. Eli Halimah, MS, Apt., Dr. med. Riezki Amalia, Dika Pramita, MFarm., Apt.

Table 3.24. Description Module Pharmacology Practice

No	Module Name	Pharmacology Practice
1	Code of Subjects	P10A.2427
2	Study load	1(0-1) credits
3	Semester	2

4	Precondition	There is no
5	Competence	After following this practicum course, students are expected to be able to understand and apply the knowledge about the subject of the body as a unit; how to handle and administer drugs to experimental animals; the relationship between drug dose and response, determination of the therapeutic index, and determination of the LD50; autonomic nervous system drug activity testing; and pharmacological screening.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	The material in this practicum contains the subject of the body as a unit; how to handle and administer drugs to experimental animals; the relationship between drug dose and response, determination of the therapeutic index, and determination of the LD50; autonomic nervous system drug activity testing; and pharmacological screening.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Teaching Team for Basic Pharmacology Practicum

Table 3.25. Description Module Microbiology

No	Module Name	Microbiology
1	Code of Subjects	P10A.2431
2	Study load	2(2-0) credits
3	Semester	2
4	Precondition	There is no

5	Competence	After completing this course, students will be able to explain the types of prokaryotic and eukaryotic microorganisms, especially their ability to cause infection in humans, and be able to explain the prevention of these infections through immunodiagnostics and vaccine production.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the introduction of basic microbiology, prokaryotic protists, eukaryotic protists, viruses, protozoology, helminthology, sterilization and aseptic techniques, introduction of microbial culture media, isolation and identification of microorganisms, metabolism of microorganisms, microorganisms and infectious diseases, control of microorganisms, immunodiagnosis and vaccines.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Sri Agung Fitri Kusuma and Team
14	References	1. Pelczar MJ, Chan ECS, Elements of Microbiology 2. Pelczar MJ, Chan ECS, Krieg NR. Microbiology Concepts and Applications 3. Jawetz E, Melnick JL, Adelberg EA, Review of Medical Microbiology 4. Salyers AA, Whitt DD, Bacterial Pathogenesis : A Molecular Approach

Table 3.26. Description Module Microbiology and Immunology

No	Module Name	Microbiology and Immunology
1	Code of Subjects	P10A.3401
2	Study load	3(3-0) credits

3	Semester	3
4	Precondition	P10A.1407
5	Competence	After learning this course, students are expected to be able to explain the types of prokaryotic microorganisms, viruses and eukaryotes which are normal flora and cause infection in humans, their pathogenicity and distribution methods and be able to explain the immune system, both innate immunity and adaptive immunity to protect the body from microorganisms that cause infection.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this course, students will learn about the introduction of microbiology, prokaryotic protists in the form of bacteria, viruses, eukaryotic protists in the form of protozoa, fungi and worms, normal flora, microbial pathogenicity, pathogen distribution transfer, nosocomial infections, cells, tissue and immune system, innate immunity, adaptive immunity, immunomodulators and cytokines.
9	Attribute Soft Skill	Critical analysis, communication, discipline
10	Learning methods	Active learning in the form of lectures and discussions
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. apt. Tiana Milanda, M.Si., Dr. apt. Tina Rostinawati, M.Si., Dr. Med. Sc. apt. Melisa Intan Barliana, and apt. Yuni Elsa Hadisaputri, M.B.S., Ph.D.
14	References	1. Pelczar MJ, Chan ECS, Elements of Microbiology 2. Pelczar MJ, Chan ECS, Krieg NR. Microbiology Concepts and Applications 3. Jawetz E, Melnick JL, Adelberg EA, Review of Medical Microbiology 4. Salyers AA, Whitt DD, Bacterial Pathogenesis : A Molecular Approach

Table 3.27. Description Module Pharmacotherapy of Infectious Disease

No	Module Name	Pharmacotherapy of Infectious Disease
1	Code of Subjects	P10A.3402
2	Study load	2(2-0) credits
3	Semester	3
4	Precondition	P10A.2426
5	Competence	After learning the course of Pharmacotherapy of Infectious Diseases, students are expected to be able to explain and understand the definition, pathophysiology, clinical presentation, diagnosis of infectious diseases and be able to choose the correct drug regimen used for various infectious diseases based on the guideline.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this course, students will learn about the principle of infection, selection of antimicrobial regimens, classification of antibiotics and working mechanisms, antibiotic combinations, antibiotic potency and resistance, tuberculosis pharmacotherapy, HIV-AIDS infection, sexually transmitted infections, influenza, immunization, sexually transmitted. disease and malaria
9	Attribute Soft Skill	Discipline, hard work, initiative, communication
10	Learning methods	Assignment, quiz, lecturer, group discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Irma Melyani Puspitasari, Ph.D., Apt Ivan Surya Pradipta, Ph.D., Apt Riezki Amalia, Ph.D Iman Adi Wicaksono, M.Si., Apt Dr. Tina Rostinawati, M.Si., Apt
14	References	1. Bertram G. Katzung, Basic & Clinical Pharmacology, 14th Edition, McGraw Hill, 2018, page 795-841 2. Laurence L. Brunton, Randa H, Bjorn C.K, Goodman & Gilmans: The Pharmacological Basis

		of Therapeutics, 13th Edition, McGraw Hill, 2018, page 1011-1046 3. Bertram G. Katzung, Basic & Clinical Pharmacology, 14th Edition, McGraw Hill, 2018, page 795-841 4. Laurence L. Brunton, Randa H, Bjorn C.K, Goodman & Gilmans: The Pharmacological Basis of Therapeutics, 13th Edition, McGraw Hill, 2018, page 1011-1046

Table 3.28. Description Module Pharmacotherapy of Immunology and Oncology

No	Module Name	Pharmacotherapy of Immunology and Oncology
1	Code of Subjects	P10A.3403
2	Study load	2(2-0) credits
3	Semester	3
4	Precondition	P10A.2426
5	Competence	After completing this course, students are expected to be able to understand about the immune system, the anatomy and physiology that plays a role in the immune system, the immune system response to immunogens and cancer, clinical biochemical parameters of the immune system, and pharmacotherapy given to these disorders. Materials provided include cellular injury, cancer cell biology, tumor suppressor gene and gene oncogenes, cell proliferation and cycle, cancer drug mechanisms, allergies and hypersensitivity, immunodeficiencies, immune and autoimmune system tolerance, transplantation and immune system, tumor immunology, clinical biochemical parameters. in immune disorders and cancer, pharmacotherapy in some disorders of immune system function and cancer.
6	Elements of Competency	MKK
7	Type Competency	Main competence

8	Syllabus	This course provides an overview of the understanding of the immune system, the anatomy and physiology that plays a role in the immune system, the immune system response to immunogens and cancer, clinical biochemical parameters of the immune system, and pharmacotherapy given to these disorders. Materials provided include cellular injury, cancer cell biology, tumor suppressor gene and gene oncogenes, cell proliferation and cycle, cancer drug mechanisms, allergies and hypersensitivity, immunodeficiencies, immune and autoimmune system tolerance, transplantation and immune system, tumor immunology, clinical biochemical parameters. in immune disorders and cancer, pharmacotherapy in some disorders of immune system function and cancer.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Prof. Dr. Ajeng Diantini, MS., Apt., Rizky Abdulah, Ph.D., Apt., Dr. Tiana Milanda, M.Si., Apt., and Melisa Intan Barliana, Dr. Med. Sc., Apt.

Table 3.29. Description Module Pharmacognosy and Natural Product Pharmacy of Liquid and Semisolid dosage form

No	Module Name	Pharmacognosy and Natural Product Pharmacy of Liquid and Semisolid dosage form
1	Code of Subjects	P10A.3404
2	Study load	2(2-0) credits
3	Semester	3
4	Precondition	P10A.2421
5	Competence	After completing this course, students are expected to be able to understand about the meaning, function, benefits of Pharmacognosy

		and Pharmacy of Natural Materials in the development of drugs from natural ingredients. The material provided includes simplicia, phytochemical extraction and screening methods, herbal medicine manufacturing process technology, standardization of herbal medicines, secondary metabolites content in simplicia (flavonoids, quinones, tannins and polyphenols, essential oils) which include classification, biosynthesis, systematics, chemical content, related to pharmacology and examples of the use of plants in medicine.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course provides an overview of the meaning, function, benefits of Pharmacognosy and Pharmacy of Natural Materials in the development of drugs from natural ingredients. The material provided includes simplicia, phytochemical extraction and screening methods, herbal medicine manufacturing process technology, standardization of herbal medicines, secondary metabolites content in simplicia (flavonoids, quinones, tannins and polyphenols, essential oils) which include classification, biosynthesis, systematics, chemical content, related to pharmacology and examples of the use of plants in medicine.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Yasmiwar Susilawati, M.Si., Apt., Dr. Yoppi Iskandar, M.Si., Apt., Ami Tjitraresmi, M.Si., Apt., and Ferry Ferdiansyah, M.Si., Apt.

Table 3.30. Description Module Introduction to Industrial pharmacy

No	Module Name	Introduction to Industrial pharmacy
1	Code of Subjects	P10A.3405

2	Study load	2(2-0) credits
3	Semester	3
4	Precondition	There is no
5	Competence	After following this course, students will have a basic knowledge about CPOB, PPIC, Warehousing, Drug Product Registration, Drug Product Distribution Systems, Medicinal Product Development, Production of Medicinal Preparations, Quality control of medicinal preparations, packaging.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course provides an overview of the concepts, policies and technology related to the pharmaceutical industry. The material provided includes CPOB, PPIC, Warehousing, Drug Product Registration, Drug Product Distribution Systems, Medicinal Product Development, Production of Medicinal Preparations, Quality control of medicinal preparations, and packaging.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Patihul Husni., Dr. Dolih Gozali, MS, and Dr. Yoga Windhu W., M Si

Table 3.31. Description Module Preformulation of Liquid and Semisolid Dosage Forms

No	Module Name	Preformulation of Liquid and Semisolid Dosage Forms
1	Code of Subjects	P10A.3406
2	Study load	1(0-1) credits
3	Semester	3
4	Precondition	P10A.1404

5	Competence	After following this course, students will have a knowledge of the design of solid preparations by considering the basic of pharmaceutical formulation and technology so that they are able to produce good liquid and semisolid preparation designs, solubility, crystal structure, hygroscopicity, stability in solution, spectroscopic data, interpretation of preformulation data, and applications in formulation
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course provides an overview of the design of solid preparations by considering the basic of pharmaceutical formulation and technology so that they are able to produce good liquid and semisolid preparation designs, solubility, crystal structure, hygroscopicity, stability in solution, spectroscopic data, interpretation of preformulation data, and applications in formulation
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Dolih Gozali, Dr. Yoga Windhu W., MS, and Patihul Husni., M Si
14	References	1. Farmakope Indonesia VI Tahun 2020 2. CPOB 2018 3. Remington Pharmaceutical Sciences 18th Edition 4. Aulton's Pharmaceutics: The Design and Manufacture of Medicines 5. pharmaceutical excipient

Table 3.32. Description Module Formulation and Technology of Liquid and Semisolid Dosage Forms

No	Module Name	Formulation and Technology of Liquid and Semisolid Dosage Forms
1	Code of Subjects	P10A.3407
2	Study load	1(1-0) credits
3	Semester	3
4	Precondition	P10A.1404
5	Competence	After learning this course, students will be able to understand knowledge about basic concepts in pharmaceutical science, especially in the manufacture of pharmaceutical products/industries
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course contains an explanation of liquid and semisolid preparations related to formulas, formulations, and evaluations. The materials provided includes molecular dispersion systems, coarse dispersion systems (suspensions and emulsions), liquid preparation process technology, semisolid preparation technology, evaluation of liquid preparations, evaluation of semi-solid preparations, formulation and evaluation of cosmetic preparations, packaging technology, aerosol preparations, and extraction technology in industry.
9	Attribute Soft Skill	Discipline, hard work, initiative, communication
10	Learning methods	Tutorial and small group discussion
11	Learning Media	LCD Projector
12	Appraisal	Mid exam 40%, final exam 40%, quiz and assignment 20%
13	Lecturer	Dr. Sriwidodo, M.Si., Apt., Dr. Rer. Nat Anis Yohana Ch, M. Si.,Apt. Dr. Dolih Gozali, MSi., Apt., and Norisca Aliza., S.Farm., M.Farm., Apt.
14	References	1. Farmakope Indonesia VI Tahun 2020 2. CPOB 2018 3. Remington Pharmaceutical Sciences 18th Edition

		4. Aulton's Pharmaceutics: The Design and Manufacture of Medicines 5. Handbook of Pharmaceutical Manufacturing Formulations Semisolid Products 6. Handbook of Pharmaceutical Manufacturing Formulations Liquid Products

Table 3.33. Description Module Pharmaceutical Analysis of Liquid and Semisolid Dosage Forms

No	Module Name	Pharmaceutical Analysis of Liquid and Semisolid Dosage Forms
1	Code of Subjects	P10A.3408
2	Study load	1(1-0) credits
3	Semester	3
4	Precondition	P10A.1421
5	Competence	After completing this course, students are expected to master how to the determination of the purity of the active substance raw material and the determination of the active substance content in liquid and semisolid preparations using the redox titration method, complexometric titration, and UV-vis spectrophotometry; and determining the quality of medicinal raw materials by means of non-instrument and instrument identification.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course is aimed at achieving one of the competencies of a Bachelor of Pharmacy graduate, namely being able to master the theoretical concepts of a special section in the field of knowledge. The material provided includes the determination of the purity of the active substance raw material and the determination of the active substance content in liquid and semisolid preparations using the redox titration method, complexometric titration, and UV-vis spectrophotometry; and determining the quality of

		medicinal raw materials by means of non-instrument and instrument identification.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Aliya Nur Hasanah M.Si., Apt; Driyanti Rahayu MT; Mutakin Ph.D; and Dr. Ida Musfiroh M.Si.
14	References	- Fundamental of analytical chemistry, skoog - Modern analytical chemistry, david harvey - Indonesian Pharmacopeia V - US Pharmacopeia

Table 3.34. Description Module Medicinal Chemistry

No	Module Name	Medicinal Chemistry
1	Code of Subjects	P10A.3409
2	Study load	2(2-0) credits
3	Semester	3
4	Precondition	P10A.1406
5	Competence	After completing this course, students will be able to analyze and formulate problems in the development of new drugs.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	In this course, students will learn about medicinal chemistry materials, especially in rational discovery and design of new drugs, starting from computational studies, molecular modeling, chemical synthesis and characterization.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer, quiz, and assignment
11	Learning Media	LCD Projector

12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Dr. Sandra Megantara, M.Farm., Apt. Mutakin, Ph.D., Apt. Intan Timur Maesyaroh, Ph.D. Driyanti Rahayu, M.T.

Table 3.35. Description Module Pharmacotherapy of Infectious Diseases, Immunologic Disorders and Oncology Practice

No	Module Name	Pharmacotherapy of Infectious Diseases, Immunologic Disorders and Oncology Practice
1	Code of Subjects	P10A.3410
2	Study load	1(0-1) credits
3	Semester	3
4	Precondition	P10A.1426
5	Competence	After completing this course, students are expected to be able to practice simple coloring; gram stain; acid-resistant coloring; spore staining; capsule staining; physiological features of bacteria; determination of the MIC of a test preparation that has potential as an antibiotic; determining the susceptibility of a bacterium to various antibiotic preparations; determination of the inhibitory power of a preparation as an antiseptic or disinfectant against the tested bacteria; and anti-inflammatory activity testing.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	The material in this practicum contains the subject of simple coloring; gram stain; acid-resistant coloring; spore staining; capsule staining; physiological features of bacteria; determination of the MIC of a test preparation that has potential as an antibiotic; determining the susceptibility of a bacterium to various antibiotic preparations; determination of the inhibitory power of a preparation as an antiseptic or disinfectant against the tested bacteria; and anti-inflammatory activity testing.

9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Team Teaching of Pharmacotherapy of Infectious Diseases, Immunologic Disorders and Oncology

Table 3.36. Description Module Pharmacognosy and Natural Product of Liquid and Semisolid Dosage Forms Practice

No	Module Name	Pharmacognosy and Natural Product of Liquid and Semisolid Dosage Forms Practice
1	Code of Subjects	P10A.3411
2	Study load	1(0-1) credits
3	Semester	3
4	Precondition	P10A.1421
5	Competence	After completing this course, students are expected to master about the preformulation of extract suspension preparations, examination of simplicia (organoleptic, macroscopic, microscopic, histochemical, phytochemical screening), extract manufacturing process, extract quality testing according to Indonesian Herbal Pharmacopoeia and Materia. Medika Indonesia, evaluation of preparations (TLC markers in preparations), packaging of preparations, and effectivity test of preparations.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course contains topics on preformulation of extract suspension preparations, examination of simplicia (organoleptic, macroscopic, microscopic, histochemical, phytochemical screening), extract manufacturing process, extract quality testing according to Indonesian Herbal Pharmacopoeia and Materia. Medika Indonesia, evaluation of preparations (TLC markers in preparations),

		packaging of preparations, and effectivity test of preparations.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Yasmiwar Susilawati, M.Si., Apt., Dr. Yoppi Iskandar, M.Si., Apt., Ami Tjitraresmi, M.Si., Apt., and Ferry Ferdiansyah, M.Si., Apt.

Table 3.37. Description Module Formulation and Technology of Liquid and Semisolid Dosage Forms Practice

No	Module Name	Formulation and Technology of Liquid and Semisolid Dosage Forms Practice
1	Code of Subjects	P10A.3412
2	Study load	1(0-1) credits
3	Semester	3
4	Precondition	P10A.1404
5	Competence	After learning this course, students will be able to understand knowledge about basic concepts in pharmaceutical science, especially in the manufacture of pharmaceutical products/industries
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course contains an explanation of liquid and semisolid preparations related to formulas, formulations, and evaluations. The material provided includes molecular dispersion systems, coarse dispersion systems (suspensions and emulsions), liquid preparation process technology, semisolid preparation process technology, evaluation of liquid preparations, evaluation of semi-solid preparations, formulation and evaluation of cosmetic preparations, packaging

		technology, aerosol preparations, and extraction technology in industry.
9	Attribute Soft Skill	Discipline, hard work, initiative, communication
10	Learning methods	Lab. practice, assignment, and quiz
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Mid exam 40%, final exam 40%, quiz and assignment 20%
13	Lecturer	Dr. Sriwidodo, M.Si., Apt., Dr. Rer. Nat Anis Yohana Ch, M.Si., Apt., Dr. Dolih Gozali, M.Si., Apt., and Norisca Aliza., S.Farm., M.Farm., Apt.
14	References	1. Farmakope Indonesia VI Tahun 2020 2. CPOB 2018 3. Remington Pharmaceutical Sciences 18th Edition 4. Aulton's Pharmaceutics: The Design and Manufacture of Medicines 5. Handbook of Pharmaceutical Manufacturing Formulations Semisolid Products 6. Handbook of Pharmaceutical Manufacturing Formulations Liquid Products

Table 3.38. Description Module Pharmacy Analysis of Liquid and Semisolid Dosage Forms Practice

No	Module Name	Pharmacy Analysis of Liquid and Semisolid Dosage Forms Practice
1	Code of Subjects	P10A.3413
2	Study load	1(0-1) credits
3	Semester	3
4	Precondition	P10A.1421
5	Competence	After following this course, students will have knowledge about the examination of the raw material for vitamin C (iodometry); inspection of ZnO raw materials (complexometry); inspection of paracetamol raw materials; examination of paracetamol potio levels; extract quality inspection; inspection of chloramphenicol raw

		materials; determination of chloramphenicol content in cream preparations; and project presentations.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This practicum is aimed at achieving one of the components of a Pharmacy graduate degree, namely being able to master the theoretical concepts of a special section in the field of knowledge. The materials provided included examination of the raw material for vitamin C (iodometry); inspection of ZnO raw materials (complexometry); inspection of paracetamol raw materials; examination of paracetamol potio levels; extract quality inspection; inspection of chloramphenicol raw materials; determination of chloramphenicol content in cream preparations; and project presentations.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Aliya Nur Hasanah M.Si., Apt., Driyanti Rahayu MT., Ida Musfiroh M.Si., and Mutakin Ph.D.
14	References	- research article regarding extract quality inspection - Indonesian Pharmacopeia V

Table 3.39. Description Module Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry

No	Module Name	Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry
1	Code of Subjects	P10A.4401
2	Study load	2(2-0) credits
3	Semester	4

4	Precondition	P10A.2426
5	Competence	This course is given with learning outcomes: • Students are able to explain pharmacotherapy in handling diseases of the eye, nose, ear and throat, bones and joints, and skin, correctly • Students are able to accurately identify drug-related problems including interactions, toxicity, side effects, non-compliance and drug abuse. • Students are able to provide correct solutions to problems related to eye, nose, ear and throat, bone and joint, and skin diseases including interactions, toxicity, side effects, non-compliance and drug abuse. • Students are able to perform self-medicated services including alternative therapies, drug doses and consideration of doctor's referrals correctly
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	The material provided includes the anatomy and physiology of the eyes, nose, ears and throat, bones and joints, and skin; the pathogenesis of diseases that attack these organs; pharmacological and non-pharmacological therapies, and their phytotherapy. Several cases of pharmacotherapy were also given in the tutorial session, which included eye disorders (glaucoma and conjunctivitis), ENT disorders (allergic rhinitis, otitis media, pharyngitis), skin disorders (dermatitis, cutaneous drug reaction, hyperpigmentation, acne vulgaris), bone disorders (osteoporosis), joint disorders (rheumatoid arthritis, osteoarthritis, gout), etc., as well as role-play simulations for drug information related to disorders of these organs.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)

13	Lecturer	Prof. Dr. Jutti Levita, M.Si., Apt., Irma M. Puspitasari, PhD., Apt., Dr. Tina Rostinawati, M.Si., Apt., Sri Agung Fitri Kusuma, M.Si., Apt., and Imam Adi Wicaksono, M.Farm., Apt

Table 3.40. Description Module Pharmacotherapy of Neurological Disorders and Psychiatry

No	Module Name	Pharmacotherapy of Neurological Disorders and Psychiatry
1	Code of Subjects	P10A.4402
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	P10A.2426
5	Competence	After learning this course, students are expected to be able to explain and understand the definition, pathophysiology, clinical presentation, diagnosis and be able to choose the drug regimen used for various neurological and psychiatric disorders correctly based on the guideline.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses about Introduction to Anatomy & physiology of the nervous system, Pharmacotherapy strategy in management of Parkinson's, Pain and fever, Headaches and migraines, Epilepsy, Stroke, Generalized Anxiety disease, insomnia, Psychosis, Schizophrenia, Depression and Bipolar disorders.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer and tutorial
11	Learning Media	LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Prof. Dr. Anas Subarnas, M.Sc., Apt Gofarana Wilar, Ph.D., Apt., and Irma Melyani Puspitasari, Ph.D., Apt

Table 3.41. Description Module Pharmacotherapy of Respiratory Disorders

No	Module Name	Pharmacotherapy of Respiratory Disorders
1	Code of Subjects	P10A.4403
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	P10A.2426
5	Competence	After learning this course, students are expected to be able to explain and understand the definition, pathophysiology, clinical presentation, diagnosis and be able to choose the correct drug regimen used for respiratory disorders based on the guideline.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the Pharmacotherapy of Respiratory Disorders which includes Introduction to Anatomy & physiology of the respiratory system, Asthma Pharmacotherapy, Influenza Viruses and Corona, Laryngitis and Pharyngitis, Pneumonia, Chronic Obstructive Pulmonary Disease (COPD), Asphyxia, Emphysema, Bronchitis and Cough
9	Attribute Soft Skill	Discipline, hard work, initiative, communication
10	Learning methods	Tutorial and small group discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Prof. Dr. apt. Ajeng Diantini, M.Si., Dr. apt. Rini Hendriani, M.Si, Apt., Imam Adi Wicaksono, M.Si, Apt., and Raden Bayu Indradi, M.Si

Table 3.42. Description Module Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry Practice

No	Module Name	Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry Practice
1	Code of Subjects	P10A.4404

2	Study load	1(0-1) credits
3	Semester	4
4	Precondition	P10A.2426
5	Competence	After completing this practicum course, students are expected t master about the five senses; antidepressant activity testing; locomotor activity testing; and analgesic activity testing.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	The material in this practicum contains the subject of the coverage system; the five senses; antidepressant activity testing; locomotor activity testing; and analgesic activity testing.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Team Teaching of Pharmacotherapy Course

Table 3.43. Description Module Pharmacognosy of Natural Pharmaceutical Ingredients

No	Module Name	Pharmacognosy of Natural Pharmaceutical Ingredients
1	Code of Subjects	P10A.4405
2	Study load	1(1-0) credits
3	Semester	4
4	Precondition	P10A.2421
5	Competence	After learning this course, students are expected to be able to understand the position and role and the

		latest developments in natural medicine in Indonesia, in the world and globally, be able to explain the definition, existence, naming, classification, standardization, benefits and properties of carbohydrates, lipids, terpenoids, compounds. steroids, flavonoids, tannins, phenolics, saponins and quinones.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course provides an overview of the meaning, function, benefits of pharmacognosy in the development of drugs from natural ingredients. The material provided includes the standardization of herbal medicines, the content of primary and secondary metabolites in plants which include classification, biosynthesis, systematics, chemical constituents, related to pharmacology and examples of the use of plants in medicine.
9	Attribute Soft Skill	Discipline, hard work, initiative, communication
10	Learning methods	Assignment, quiz, lecturer, discussion
11	Learning Media	LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Dr. Yoppi Iskandar, M.Si., Apt., Prof. Dr. Moelyono MW., M.S., Apt., Dr. Yasmiwar Susilawati, M.Si., Apt., Raden Bayu Indradi, M.Si., Apt

Table 3.44. Description Module Pharmacognosy of Natural Pharmaceutical Practice

No	Module Name	Pharmacognosy of Natural Pharmaceutical Ingredients Practice
1	Code of Subjects	P10A.4406
2	Study load	1(0-1) credits
3	Semester	4
4	Precondition	P10A.2422
5	Competence	After participating in the practicum, students are expected to be able to identify starch, stain starch

		and secondary metabolites, techniques for making extracts from simplicia, standardization, and control the quality of natural ingredients used as medicinal ingredients.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course contains topics on the identification and staining of starch, microscopic staining of secondary metabolites, identification of mixed samples, examination of simplicia (organoleptic, macroscopic, microscopic, histochemical, phytochemical screening), the process of making extracts, testing the quality of extracts according to the Indonesian Herbal Pharmacopoeia and Materia Medika Indonesia.
9	Attribute Soft Skill	Leadership, creativity, skill, analytical thinking
10	Learning methods	Lab. practice, assignment, quiz
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Dr. Yoppi Iskandar, M.Si., Apt., Prof. Dr. Moelyono MW., M.S., Apt., Dr. Yasmiwar Susilawati, M.Si., Apt., Raden Bayu Indradi, M.Si., Apt

Table 3.45. Description Module Preformulation of Solid Dosage Form

No	Module Name	Preformulation of Solid Dosage Form
1	Code of Subjects	P10A.4407
2	Study load	1(1-0) credits
3	Semester	4
4	Precondition	P10A.2422
5	Competence	Ater following this course, students will have a basic knowledge about the meaning of preformulation, preformulation aims and objectives, solid product development (NDDS),

		drug design (drug production challenges), solid preparation design, compatibility and incompatibility, solids characterization, solids properties engineering, powder properties (applicative), pharmaceutical polymers, polymer applications in pharmaceuticals and presentation assignments
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course contains introduction, understanding of preformulation, preformulation aims and objectives, solid product development (NDDS), drug design (drug production challenges), solid preparation design, compatibility and incompatibility, solids characterization, solids properties engineering, powder properties (applicative), pharmaceutical polymers, polymer applications in pharmaceuticals and presentation assignments
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr Dolih Gozali, M.S., Dr. Yoga Windhu Wardhana, M.Si, Apt., and Dr. Iyan Sopyan, M Si

Table 3.46. Description Module Formulation and Technology of Solid Dosage Form

No	Module Name	Formulation and Technology of Solid Dosage Form
1	Code of Subjects	P10A.4408
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	P10A.2422
5	Competence	After completing this topic, students will be able to:

		1. Design formulas for tablet, capsule and granule dosage forms 2. Make and produce tablet, capsule and granule dosage form formulas 3. Design evaluation of tablet, capsule and granule dosage forms 4. Evaluate dosage forms tabets, capsules and granules 5. Interpret the data from the evaluation results of the tabet, capsule and granule dosage forms
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this topic, students will learn about solid pharmaceutical dosage formulations which include tablets, capsules, and granules as well as evaluate the preparations made.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer, quiz, assignment
11	Learning Media	LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Dr. rer. nat. Anis Yohana Chaerunisaa, M Si Dr. Marline Abdassah, M S Taofik Rusdiana, Ph. D Dr. Yoga Windhu Wardhana, M S

Table 3.47. Description Module Formulation and Technology of Solid Dosage Form Practice

No	Module Name	Formulation and Technology of Solid Dosage Form Practice
1	Code of Subjects	P10A.4409
2	Study load	1(0-1) credits
3	Semester	4
4	Precondition	P10A.2422
5	Competence	After completing this course, students will be able to:

		a. Understand about the preformulation study of making solid preparations b. Compile production documents / batch sheets of solid preparation c. Understand and apply CPOB in the manufacture and evaluation of solid preparations
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course is aimed at supporting the achievement of one of the competencies of a graduate in pharmacy, namely being able to apply theoretical concepts from lectures to skills in making Solid Preparations..
9	Attribute Soft Skill	Leadership, creativity, skill, analytical thinking
10	Learning methods	Lab. practice, assignment, quiz
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. rer. nat. apt. Anis Yohana Chaerunisaa, M Si., Dr. apt. Marline Abdassah, M.S., apt. Taofik Rusdiana, Ph.D., Dr. apt. Yoga Windhu Wardhana, M.Si., apt. Yedi Herdiana, M.Si., and apt. Patihul Husni, M Si

Table 3.48. Description Module Pharmaceutical Analysis of Solid dosage forms and Cosmetic

No	Module Name	Pharmaceutical Analysis of Solid dosage forms and Cosmetic
1	Code of Subjects	P10A.4410
2	Study load	1(1-0) credits
3	Semester	4
4	Precondition	P10A.2422

5	Competence	After following this course, students are expected to be able to consider methods of analysis of raw materials and solid and cosmetic products, including raw material analysis, diazotization reactions, high performance liquid chromatography, mixed spectrophotometry, and spectrophotometry with addition standards. The material provided includes the analysis of active substances in solid preparation raw materials; diazotization reactions in analysis; determination of the active substance in solid preparations using HPLC, the internal standard method in HPLC, and UV-vis spectrophotometry for mixed samples; analysis of solid cosmetic preparations; and determination of dye content in solid cosmetic preparations using the standard addition method
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses methods of analysis of raw materials and solid and cosmetic products, including raw material analysis, diazotization reactions, high performance liquid chromatography, mixed spectrophotometry, and spectrophotometry with addition standards. The material provided includes the analysis of active substances in solid preparation raw materials; diazotization reactions in analysis; determination of the active substance in solid preparations using HPLC, the internal standard method in HPLC, and UV-vis spectrophotometry for mixed samples; analysis of solid cosmetic preparations; and determination of dye content in solid cosmetic preparations using the standard addition method.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Rimadani Pratiwi, M Si

14	References	- fundamental method of analytical chemistry, Skoog - instrumental method of analytical chemistry, skood - general chemistry, wilson - modern analytical chemistry, David Harvey - Pharmaceutical analysis

Table 3.49. Description Module Pharmaceutical Analysis of Solid dosage forms and Cosmetic Practice

No	Module Name	Pharmaceutical Analysis of Solid dosage forms and Cosmetic Practice
1	Code of Subjects	P10A.4411
2	Study load	1(0-1) credits
3	Semester	4
4	Precondition	P10A.2422
5	Competence	After completing this course, students are expected to master about the practice of analyzing raw materials and solid and cosmetic products. The material provided includes analysis of active substances and heavy metals in solid raw materials, tablet analysis with high performance liquid chromatography, analysis of mixed tablets with mixed spectrophotometry, and analysis of dyes in cosmetics with spectrophotometry with addition standards.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course discusses the practice of analyzing raw materials and solid and cosmetic products. The material provided includes analysis of active substances and heavy metals in solid raw materials, tablet analysis with high performance liquid chromatography, analysis of mixed tablets with mixed spectrophotometry, and analysis of dyes in cosmetics with spectrophotometry with addition standards.

9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Driyanti Rahayu, MT
14	References	- Indonesian Pharmacopeia V - research article

Table 3.50. Description Module Theory and Synthesis of Radiopharmaceutics

No	Module Name	Theory and Synthesis of Radiopharmaceutics
1	Code of Subjects	P10A.4412
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	There is no
5	Competence	After participating in this course, students are expected to be able to explain how to synthesize radiopharmaceuticals and the underlying theory
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course is aimed at achieving one of the competencies of a Pharmacy graduate who is able to master the theoretical concepts of a special section in the field of knowledge.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer and discussion
11	Learning Media	LCD Projector
12	Appraisal	Mid Exam (40%); Final Exam (60%)
13	Lecturer	Muchtaridi Ph.D., Holis Abd Holik M.Si., Danni Ramdhani M.Si

Table 3.51. Description Module Phytochemistry

No	Module Name	Phytochemistry
1	Code of Subjects	P10A.4413
2	Study load	1(1-0) credits
3	Semester	4
4	Precondition	P10A.2421
5	Competence	After completing this course, students will be able to show the method of separating and analyzing chemical compounds contained in a plant.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the definition, properties, classification, extraction method, separation, identification and analysis of carbohydrate compounds, nitrogen compounds, phenolic compounds, and organic acids, lipids and similar compounds, terpenoids, from plants.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer, quiz, and assignment
11	Learning Media	LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Dr. Yoppi Iskandar, Dr. Yasmiwar Susilawati, Intan Timur Ph.D
14	References	1. Berger, S., Sicker, D. (2009). Classics in Spectroscopy: Isolation and Structure Elucidation of Natural Products. Germany:WILEY-VCH 2. Verlag GmbH & Co. KGaA, Weinheim. 3. Colegate, S.M., Molyneux, R. J. (2008). Bioactive Natural Products: Detection, Isolation, and Structural Determination. New York: Taylor & Fracis Groupe. 4. Cordell, G.A., Introduction to Alkaloids, New York, John Willey, 1981.

		5. Dewick, P.M. (2009). Medicinal Natural Products: A Biosynthetic Approach. 3rd ed. United Kingdom: John Wiley & Sons Ltd. 6. Gritter, Roy J., et al., Pengantar Kromatografi,Alih bahasa : Kosasih Padmawinata, ed.2, Bandung, Penerbit ITB, 1991. 7. Hanson, J. R., Chemistry of Terpens and Terpenoids, New York, Academic Press, 1971. 8. Harborne, J.B. dan T.J. Mabry, The Flavonoids Advance in Research, London, Chapman and Hall, 1982. 9. Harborne, J.B., Metode Fitokimia, Alih bahasa: Kosasih Padmawinata, ed. II, Bandung, Penerbit ITB, 1987.

Table 3.52. Description Module Toxicology

No	Module Name	Toxicology
1	Code of Subjects	P10A.4414
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	There is no
5	Competence	Fulfilling KKNI level 8, namely mastering the theory and theory of application of certain fields of knowledge and skills.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course discusses clinical toxicology, covering the sources, mechanisms, and ways of handling toxic substances that often occur in patients.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)

13	Lecturer	Dr. Sri Adi Sumiwi, M.S., Apt., and dr. Trully D. R. Sitorus, M.Si.
14	References	1. Goldfrank LR, et al (editors). Toxicologic Emergencies 8th ed. Norwalk: Appleton & Lange; 2002. 2. Olson KR, et al (editors). Poisoning & Drug Overdose 5nd ed. Norwalk: Appleton & Lange; 2007. 3. Stine KE & Brown TM. Principles of Toxicology. Florida: CRC Press; 1996. 4. Donatus IA. Toksikologi. Yogyakarta: Bag. Farmakologi & Farmasi Klinik, Fak. Farmasi, UGM ; 2005. 5. Flanagan RJ,Braithwaite RA, Brown SS, Widdop B, de Wolff FA. Basic Analytical Toxicology, WHO, Geneve, alih bahasa oleh Sri Noegrohati dkk. Jakarta: Pusat Informasi Obat Dan Makanan, BPOM; 1995.

Table 3.53. Description Module Pharmaceutical Excipients

No	Module Name	Pharmaceutical Excipients
1	Code of Subjects	P10A.4415
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	There is no
5	Competence	After completing this course, students will have knowledge about solid dosage form excipients, liquid dosage form excipients, semisolid dosage form excipients, and supportive excipients
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course studies about solid dosage form excipients, liquid dosage form excipients, semisolid dosage form excipients, and supportive excipients
9	Attribute Soft Skill	Ethics, awareness, discipline

10	Learning methods	TCL and SCL
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. rer. nat. Anis Y. Chaerunisaa, M.Si., apt. Nasrul Wathoni, Ph.D., dan Dr. Sriwidodo, M.Si
14	References	1. Anwar, E.. 2012. Eksipien dalam Sediaan Farmasi: Karakterisasi dan Aplikasi, Jakarta: Dian Rakyat. 2. Rowe, RC., Sheskey, PJ., and Owen, SC. 2006. Handbook of Pharmaceutical Excipients. Fifth Edition. London: Pharmaceutical Press.

Table 3.54. Description Module Ethnopharmacy

No	Module Name	Ethnopharmacy
1	Code of Subjects	P10A.4416
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	There is no
5	Competence	After participating in this lecture, students are able to understand the process of traditional medicine, medicinal ingredients as well as the use and process of treating a "sick" condition which is the basis for the discovery and development of new drugs rooted in local culture and wisdom. Students are also able to understand and appreciate the meaning of professional ethics.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course contains a discussion of the basic theory of Ethnopharmacy in relation to Medical Anthropology with a specific review of pharmaceutical insights based on local wisdom of certain ethnic communities regarding diseases, drugs, treatment methods, and medicinal substances without being separated from their local cultural dressings.

9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%; Final Exam (40%)
13	Lecturer	Prof. Dr. Moelyono Moektiwardoyo, M,S Dr. Ade Zuhrotin, M.Si

Table 3.55. Description Module Electrochemical Application in the Field of Pharmacy

No	Module Name	Electrochemical Application in the Field of Pharmacy
1	Code of Subjects	P10A.4417
2	Study load	2(2-0) credits
3	Semester	4
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to: a. Understand electrochemical techniques that are appropriate for the specific analysis of various sample types in the pharmaceutical field. b. Explain electrochemical techniques that are appropriate for the specific analysis of various types of samples in the pharmaceutical field. c. Select, identify and develop appropriate electrochemical techniques for specific analysis of various sample types in the pharmaceutical field.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	The Electrochemical application course in the field of pharmacy is aimed at achieving one of the competencies of a Pharmacy graduate who is able to master the theoretical concepts of a special section in the field of in-depth knowledge.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project

11	Learning Media	LCD Projector
12	Appraisal	Tas (20%); Mid Exam (40%; Final Exam (40%)
13	Lecturer	Dr. Aliya Nur Hasanah M.Si., Apt ; Driyanti Rahayu MT
14	References	- Electrochemistry analysis, Wang - Instrumental method of analytical chemistry, skoog - research article application of electrochemistry in pharmacy field

Table 3.56. Description Module Pharmacotherapy of Gastrointestinal Disorders and Nutrition

No	Module Name	Pharmacotherapy of Gastrointestinal Disorders and Nutrition
1	Code of Subjects	P10A.5401
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	P10A.2426
5	Competence	After completing this course: 1. Students are able to explain the anatomy and physiology of the Gastrointestinal system correctly 2. Students are able to explain the pathophysiology of gastrointestinal system disorders 3. Students are able to explain pharmacotherapy (pharmacological therapy and non-pharmacological therapy) in handling diseases of the duct system disorders digest correctly 4. Students are able to identify and provide correct solutions to drug-related problems including interactions, toxicity, side effects, non-compliance and drug abuse 5. Students are able to carry out self-medicated services including alternative therapies, drug doses and consideration of doctor's referrals correctly

6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course is covering the anatomy and physiology of the digestive system and nutrition, pathogenesis of diseases that attack these organs, pharmacological and non-pharmacological therapies.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer and tutorial
11	Learning Media	LCD Projector
12	Appraisal	Quiz and assignment 40%, mid exam 30%, and final exam 30%
13	Lecturer	Prof.Dr Jutti Levita and Prof.Dr. Ajeng Diantini
14	References	1. Pharmacotherapy: A Pathophysiologic Approach, 6th ed. DiPiro JT, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey ML, eds. New York, NY: McGraw-Hill, 2005. 2. Pharmacotherapy Casebook: A Patient-Focused Approach, 7th ed. Schwinghammer TL, Koehler JM, eds. New York, NY: McGraw-Hill, 2009. 3. Pharmacy Case Studies, 1st ed. Dhillon S, Raymond R, eds. London, Pharmaceutical Press, 2009. 4. Essentials of Human Physiology for Pharmacy. Kelly L. Taylor & Francis e-library, 2005.

Table 3.57. Description Module Pharmacotherapy of Endocrine Disorders

No	Module Name	Pharmacotherapy of Endocrine Disorders
1	Code of Subjects	P10A.5402
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	P10A.2426

5	Competence	After following this course, students are expected to be able to understand about the anatomy, physiology, biochemistry related to the endocrine system and epidemiology, pathogenesis, pathophysiology, and management of endocrine disorders, particularly thyroid disorders and diabetes mellitus
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses anatomy, physiology, biochemistry related to the endocrine system and epidemiology, pathogenesis, pathophysiology, and management of endocrine disorders, particularly thyroid disorders and diabetes mellitus. The materials provided cover the anatomy, physiology and biochemistry of the endocrine system; pathophysiology; pharmacology; clinical biochemistry; pharmacotherapy of endocrine disorders drugs; endocrine disorder drug clinic pharmacy service; and case studies.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%; Final Exam (40%)
13	Lecturer	Dr. Keri Lestari, M.Si., Apt., and Ellin Febrina, M.Si., Apt

Table 3.58. Description Module Pharmacotherapy of Gynaecology Disorders

No	Module Name	Pharmacotherapy of Gynaecology Disorders
1	Code of Subjects	P10A.5403
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	P10A.2426

5	Competence	After following this course, students are expected to be able to understand about the anatomy and physiology of the female and male reproductive systems, the pathogenesis of diseases that attack these organs, pharmacological and non-pharmacological therapies, as well as their phytotherapies, identification and interpretation of clinical/laboratory data and patient history/treatment to be able to provide appropriate therapy correctly.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course studies the anatomy and physiology of the female and male reproductive systems, the pathogenesis of diseases that attack these organs, pharmacological and non-pharmacological therapies, as well as their phytotherapies, identification and interpretation of clinical/laboratory data and patient history/treatment to be able to provide appropriate therapy correctly.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%; Final Exam (40%)
13	Lecturer	Prof. Dr. Jutti Levita, M.Si., Apt., Dr. Yasmiwar Susilawati., M.Si., Apt., Dr. Tina Rostinawati., M.Si., Apt., and Rano Kurnia Sinuraya, M.Farm., Apt.

Table 3.59. Description Module Pharmacotherapy of Gastrointestine, Nutrition, Endocrine and Gynaecology Disorders Practice

No	Module Name	Pharmacotherapy of Gastrointestine, Nutrition, Endocrine and Gynaecology Disorders Practice
1	Code of Subjects	P10A.5404
2	Study load	1(0-1) credits
3	Semester	5

4	Precondition	P10A.2426
5	Competence	After completing this course, students are expected to master about how to test antidiarrheal and laxative activity; diabetes testing and antidiabetic activity; antiulcer activity testing; blood glucose check; and liver function tests.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	The material in this practicum contains the subject of testing antidiarrheal and laxative activity; diabetes testing and antidiabetic activity; antiulcer activity testing; blood glucose check; and liver function tests.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Team Teaching of Pharmacotherapy of Gastrointestine, Nutrition, Endocrine and Gynaecology Disorders

Table 3.60. Description Module Cosmetics and Cosmeceuticals

No	Module Name	Cosmetics and Cosmeceuticals
1	Code of Subjects	P10A.5405
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	There is no
5	Competence	After completing this topic, students will be able to: 1. Understand the anatomy and physiology of the skin 2. Design the formula design for cosmetic dosage forms for bath preparations 3. Design the formulas for cosmetic dosage forms for decorative make-up preparations (foundation,

		concealer, powder, face shadow, lips makeup) etc.) 4. Designing cosmetic dosage form formulas for nails 5. Designing cosmetic dosage forms for body care (oral care, deodorant, antiperspirant, waxing, etc.) 6. Designing cosmetic dosage form formulas for hair care (shampoo, creambath, etc.) hair spa, hair mask, hair oil, hair tonic) and hair dye preparations 7. Designing cosmetic dosage form formulas for babies 8. Designing cosmetics dosage form formulas for skin care 9. Designing cosmetic dosage form formulas for the eyes 10. Understanding cosmetic and cosmeceutical differences
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this topic, students will learn about bath preparations, decorative make-up, nail preparations, body care preparations, hair and hair dye preparations, baby preparations, skin care preparations, eye preparations, perfumes, cosmetic preparations and delivery.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lecturer, quiz, and assignment
11	Learning Media	LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, final exam 35%
13	Lecturer	Dr. rer. nat. Anis Yohana Chaerunisaa, M Si., Soraya Ratnawulan Mita, M Si., and Norisca Aliza Putri, M Pharm.
14	References	1. United States Pharmacopeial Convention, Inc. The United States Pharmacopeia (USP 26). Rockville, Maryland, USA, 2003.

		2. Martin A. Physical Pharmacy. 4th ed. Baltimore: Williams & Wilkins, 1993, pp. 212–251 3. Chulia D, Deleuil M, Pourelot Y. Powder Technology and pharmaceutical process

Table 3.61. Description Module Formulation and Technology of Sterile Preparations

No	Module Name	Formulation and Technology of Sterile Preparations
1	Code of Subjects	P10A.5406
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	P10A.1404
5	Competence	Fulfilling KKNI level 6, namely mastering the theory and theory of application of certain fields of knowledge and skills
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course contains the following subjects: Introduction, Design of Sterile Pharmaceutical Production Room Facilities, Sanitation and Hygiene, Sterilization of Room Facilities, End-Product Sterilization, Tonicity, Parenteral Dosage Forms, Sterile Eye Preparation, Special Sterile Preparation, Evaluation (Sterility, Tonicity, pH, irritation).
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Project based learning
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Prof. Dr. apt. Marline Abdassah, M.Si., Dr. apt. Yoga Windhu Wardhana, M.Si., and apt. Insan Sunan Kurniawansyah, M.KM

14	References	1. United States Pharmacopeial Convention, Inc. The United States Pharmacopeia (USP 26). Rockville, Maryland, USA, 2003. 2. Martin A. PhysicalPharmacy. 4th ed. Baltimore: Williams & Wilkins, 1993, pp. 12–251 3. Chulia D, Deleuil M, Pourelot Y. Powder Technology and Pharmaceutical Processes.Amsterdam: Elsevier Science, 1994.

Table 3.62. Description Module Formulation and Technology of Sterile Preparations Practice

No	Module Name	Formulation and Technology of Sterile Preparations Practice
1	Code of Subjects	P10A.5407
2	Study load	1(0-1) credits
3	Semester	5
4	Precondition	P10A.1404
5	Competence	After completing lectures and undergoing this practicum, students are expected to have the knowledge and ability to design, manufacture and evaluate various safe, nutritious, and high quality sterile dosage forms.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	The Technology Practicum and Sterile Preparation Formulations contains the main skills: Introduction of tools, Introduction to sterilization methods, preparation of parenteral preparations, preparation of sterile eye solutions, preparation of sterile eye ointments, and Pyrogen testing.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Attendance (10%), Task (10%), Quiz (10%), Mid Exam (30%), and Final Exam (40%)

13	Lecturer	Prof. Dr. apt. Marline Abdassah, M.Si., Dr. apt. Yoga Windhu Wardhana, M.Si., and apt. Insan Sunan Kurniawansyah, M.KM
14	References	1. Avis, et al. 1986. Pharmaceutical Dosage forms: Parenteral Medication. Vol 1 dan 2. Marcell Dekker Inc. New York. 2. Depkes RI. 1995. Farmakope Indonesia. Edisi IV. Depkes RI. Jakarta 3. Depkes RI. 1979. Formularium Nasional. Depkes RI. Jakarta. 4. Depkes RI. 2012. Petunjuk Cara Pembuatan Obat yang Baik. Depkes RI. Jakarta. 5. Depkes RI. 2018. Petunjuk Cara Pembuatan Obat yang Baik. Depkes RI. Jakarta. 6. Osol, et al. 1990. Remington Pharmaceutical Science. 15 th Edition. Mack Publishing Company. Easton Pennylvania 7. The Merck Index. 2001. 13 th Edition. Merck Co. Inc. White House Station. NJ. 8. American Pharmaceutical Association. 1994. Handbook of Pharmaceutical Excipients. Editor: Ainley Wade and Paul J. Weller. London: The Pharmaceutical Press. 9. Halls, A. N. 1994. Achieving Sterility in Medical and Pharmaceutical Products. New York: Marcel Dekker Inc. 10. Lukas, S. 2006. Formulasi Steril. Yogyakarta: Penerbit Andi 11. Rowe, Raymond C. 2003. Handbook of Pharmaceutical Excipients. 4 th ed. Pharmaceutical & American Pharmaceutical Assoctiation 12. Torco, S. et al. 1980. Sterile Dosage Forms Design. Churchill Livingstone. Edinburg 13. Trissel, Lawrence A. 2005. Handbook of Injectable Drug, 11 th ed. American Society of Health system Pharmacist Inc..

Table 3.63. Description Module Food and Contaminant Analysis

No	Module Name	Food and Contaminant Analysis
1	Code of Subjects	P10A.5408
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	P10A.2424
5	Competence	After completing this course, students are expected to be able to connect food samples with analytical methods and develop them appropriately.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course is aimed at achieving one of the competencies of a Pharmacy graduate who is able to master the theoretical concepts of a special section in the field of in-depth knowledge.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lecture and discussion
11	Learning Media	LCD Projector
12	Appraisal	Mid Exam (40%) and Final Exam (60%)
13	Lecturer	Dra Wiwiek Indriyati MS., Ida Musfiroh M.Si.,Apt., Muchtaridi Ph.D., Apt., Aliya Nur Hasanah M.Si., Apt
14	References	- food analysis - analisis bahan tambahan makanan, BPOM

Table 3.64. Description Module Community Service

No	Module Name	Community Service
1	Code of Subjects	P10A.5409
2	Study load	3(0-3) credits
3	Semester	5
4	Precondition	There is no

5	Competence	after completing this courses student are expected to be able to implement their knowledge to increase community knowledge and prosperity on their area of study program
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	students were done 1 months community services with guidance from lecturer and made their own schedule after seeing community activity in the area of their village, students also arrange big project with their lecture to increase community dependency
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Involvement in community services of lecturer (30%) ; community service activity (45%) includes attendance, cooperation with other members, creativity in daily activity ; final report (25%)
13	Lecturer	lecturer appointed by UNPAD
14	References	Unpad guideline on community services

Table 3.65. Description Module Nutraceutical and Therapeutic Nutrition

No	Module Name	Nutraceutical and Therapeutic Nutrition
1	Code of Subjects	P10A.5410
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	There is no
5	Competence	After completing this courses students are expected to be able to pick and design nutraceutical and its use as therapy
6	Elements of Competency	MKK

7	Type Competency	Supporting competence
8	Attribute Soft Skill	Ethics, awareness, discipline
9	Learning methods	Presentation, lecturer, discussion, project
10	Learning Media	LCD Projector
11	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)

Table 3.66. Description Module Marine Pharmacy

No	Module Name	Marine Pharmacy
1	Code of Subjects	P10A.5411
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	There is no
5	Competence	After participating in this lecture, students are able to understand the potential of Indonesia's marine natural ingredients including their use as medicine, medicinal ingredients, food, cosmetics, and other economic potentials.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course contains a discussion of natural ingredients from marine origin with a specific review of pharmaceutical insights based on the use of marine natural ingredients for medicine, food, cosmetics, and other uses.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lecture and discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Prof. Dr. Moelyono Moektiwardoyo, M,S Dr, Yasmiwar Susilawati, M.Si Yuni Elsa Hadisaputri, Ph.D

Table 3.67. Description Module Pharmaceutical Engineering

No	Module Name	Pharmaceutical Engineering
1	Code of Subjects	P10A.5412
2	Study load	2(2-0) credits
3	Semester	5
4	Precondition	There is no
5	Competence	After completing this course, students are able to apply a comprehensive quality assurance concept (Total Quality Management / TQM) related to the processing of pharmaceutical products when increasing their product capacity (Scale Up)
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course contains the following subjects: Introduction to Pharmaceutical Engineering, Relationship between CPP and QTPP, Introduction to Transfer Technology, Mass Transfer, Heat and Momentum, Crystallization, Powder Handling, Scale Up, Scale Up for Pharmaceutical Raw Material products, Solids Preparations, Liquid Preparations - Semisolides, and Biotechnology Preparations, Quality Risk Management.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lecture and discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Yoga Windhu Wardhana, M.Si., and Apt. Dr. Dolih Ghozali, M.S., Apt.

Table 3.68. Description Module Analysis of Chemicals in Herbal Medicines

No	Module Name	Analysis of Chemicals in Herbal Medicines
1	Code of Subjects	P10A.5413
2	Study load	2(2-0) credits

3	Semester	5
4	Precondition	There is no
5	Competence	After completing this lecture, students were able to design a development of a method of BKO identification for the analgesic, anti-inflammatory NSAID, antibiotic, antihistamine in herbal medicine and BKO in slimming herbal medicine in the form of a test strip or other test kit form.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course studies methods for detecting medicinal chemicals in herbal medicine which include: regulation of traditional medicines, medicinal chemicals in herbal medicine, identification of medicinal chemicals for analgesic drugs, anti-inflammatory NSAIDs, steroid classes, antibiotics, antihistamines; as well as quantitative analysis of medicinal chemicals, and designing and developing test kits/test strips for detecting medicinal chemicals in herbal medicine.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Active learning: lecture and discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	apt. Rimadani Pratiwi, Danni, Ramdani, apt. Holis Abd. Kholik, Ph.D
14	References	1. Ole Pederson, Pharmaceutical Chemical Analysis : Methods for Indentification and Limit Test, Taylor Francis Group, 2006. 2. Herman J. Roth, Gottfried Blaschake, Analisis Farmasi, , penerjemah : Sarjono Kisman dan Slamet Ibrahim, Gadjah Mada University Press, 1998. 3. UU No 23/2009 tentang kesehatan 4. Permenkes NO. 6/ 2012 tentang industri dan usaha obat tradisional

		5. Permenkes No. 7/2012 tentang registrasi obat tradisional

Table 3.69. Phytochemistry practice

No	Module Name	Phytochemistry practice
1	Code of Subjects	P10A.5415
2	Study load	1(0-1) credits
3	Semester	5
4	Precondition	P10A.4413
5	Competence	After completing this course, students will be able to show the method of separating and analyzing chemical compounds contained in a plant.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the definition, properties, classification, extraction method, separation, identification and analysis of carbohydrate compounds, nitrogen compounds, phenolic compounds, and organic acids, lipids and similar compounds, terpenoids, from plants.
9	Attribute Soft Skill	Creativity, discipline, communication skill
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Quiz and assignment 30%, mid exam 35%, and final exam 35%
13	Lecturer	Dr. Yoppi Iskandar, Dr. Yasmiwar Susilawati, Intan Timur Ph.D
14	References	1. Berger, S., Sicker, D. (2009). Classics in Spectroscopy: Isolation and Structure Elucidation of Natural Products. Germany:WILEY-VCH 2. Verlag GmbH & Co. KGaA, Weinheim. 3. Colegate, S.M., Molyneux, R. J. (2008). Bioactive Natural Products: Detection, Isolation,

		and Structural Determination. New York: Taylor & Fracis Groupe. 4. Cordell, G.A., Introduction to Alkaloids, New York, John Willey, 1981. 5. Dewick, P.M. (2009). Medicinal Natural Products: A Biosynthetic Approach. 3rd ed. United Kingdom: John Wiley & Sons Ltd. 6. Gritter, Roy J., et al., Pengantar Kromatografi,Alih bahasa : Kosasih Padmawinata, ed.2, Bandung, Penerbit ITB, 1991. 7. Hanson, J. R., Chemistry of Terpens and Terpenoids, New York, Academic Press, 1971. 8. Harborne, J.B. dan T.J. Mabry, The Flavonoids Advance in Research, London, Chapman and Hall, 1982. 9. Harborne, J.B., Metode Fitokimia, Alih bahasa: Kosasih Padmawinata, ed. II, Bandung, Penerbit ITB, 1987.

Table 3.70. Description Module Pharmacotherapy of Hematology, Vascular and Cardiovascular disorder

No	Module Name	Pharmacotherapy of Hematology, Vascular and Cardiovascular disorder
1	Code of Subjects	P10A.6401
2	Study load	3(3-0) credits
3	Semester	6
4	Precondition	P10A.2426
5	Competence	After following this course, students will have a knowledge about the options of using drugs for sisted hematology disorders (antianemia, anticoagulants, essential antihypertensives), and cardiovascular (angina, stroke) and monitors their use in these diseases based on scientific considerations, guidelines and evidence-based and is able to communicate them well and right. The materials provided include the anatomy and

		physiology of the cardiovascular and hematological systems; hematological system disorders; cardiovascular system disorders; infectious diseases of the blood and cardiovascular system; biochemical parameters of hematological and cardiovascular disorders; pharmacotherapy of hematological and cardiovascular disorders; antiparasitic for hematological and cardiovascular disorders; drug interactions; and clinical pharmacy services for hematological and cardiovascular system disorders.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course studies the options of using drugs for sisted hematology disorders (antianemia, anticoagulants, essential antihypertensives), and cardiovascular (angina, stroke) and monitors their use in these diseases based on scientific considerations, guidelines and evidence-based and is able to communicate them well and right. The materials provided include the anatomy and physiology of the cardiovascular and hematological systems; hematological system disorders; cardiovascular system disorders; infectious diseases of the blood and cardiovascular system; biochemical parameters of hematological and cardiovascular disorders; pharmacotherapy of hematological and cardiovascular disorders; antiparasitic for hematological and cardiovascular disorders; drug interactions; and clinical pharmacy services for hematological and cardiovascular system disorders.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Ahmad Muhtadi, dr. Budhi Prihartanto, and Auliya A. Suwantika, Ph.D.

Table 3.71. Description Module Pharmacotherapy of Kidney and Urinary Tract Disorders

No	Module Name	Pharmacotherapy of Kidney and Urinary Tract Disorders
1	Code of Subjects	P10A.6402
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	P10A.2426
5	Competence	After completing this course, students are expected to be able to understand about the concept of kidney disease, interpretation of clinical data, pharmacology of kidney disorders, electrolyte and urinary tract disorders, kidney therapy options, electrolyte disorders and urinary tract disorders and monitoring of drug use. The materials provided include the Excretory System (Kidney and urinary tract); Pathophysiology Kidney disorders, electrolyte disorders and urinary tract disorders; Classification of kidney drugs and urinary tract disorders; Classification of electrolyte disorder drugs; Classification of urinary tract disorders; Side effects and drug toxicity for kidney, electrolytes and urinary tract disorders; Use of kidney drugs, electrolyte disorders and urinary tract disorders; Etiology, pathophysiology, prognosis, pharmacotherapy, and monitoring for kidney disease, electrolyte disorders, and urinary tract disorders; and infectious phytotherapy
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course studies the concept of kidney disease, interpretation of clinical data, pharmacology of kidney disorders, electrolyte and urinary tract disorders, kidney therapy options, electrolyte disorders and urinary tract disorders and monitoring of drug use. The materials provided include the Excretory System (Kidney and urinary tract); Pathophysiology Kidney disorders,

		electrolyte disorders and urinary tract disorders; Classification of kidney drugs and urinary tract disorders; Classification of electrolyte disorder drugs; Classification of urinary tract disorders; Side effects and drug toxicity for kidney, electrolytes and urinary tract disorders; Use of kidney drugs, electrolyte disorders and urinary tract disorders; Etiology, pathophysiology, prognosis, pharmacotherapy, and monitoring for kidney disease, electrolyte disorders, and urinary tract disorders; and infectious phytotherapy
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr. Eli Halimah,MS, Ivan Surya Pradipta, M Si., Sri Agung FK, M. Si., Dika Pramita Destiani, M Pharm. Apt., and Maya Febrianti, M Si

Table 3.72. Description Module Biotechnology Pharmacy

No	Module Name	Biotechnology Pharmacy
1	Code of Subjects	P10A.6403
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	P10A.1407
5	Competence	After completing this course, students are expected to be able to understand about the introduction of pharmaceutical biotechnology, recombinant DNA technology, DNA replication and Polymerase Chain Reaction (PCR) applications, protein technology, microbial technology, biotechnology in plants, biotechnology in animals, detection and diagnosis of diseases in humans: types of disease in humans and detection. genetic diseases, medical products: search for new drugs, vaccines and monoclonal antibodies, gene therapy, regenerative medicine: cell and tissue

		transplantation, tissue engineering, stem cell technology, and cloning.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course provides an overview of the meaning, function, and benefits of biotechnology in drug development. The material provided includes the introduction of pharmaceutical biotechnology, recombinant DNA technology, DNA replication and Polymerase Chain Reaction (PCR) applications, protein technology, microbial technology, biotechnology in plants, biotechnology in animals, detection and diagnosis of diseases in humans: types of disease in humans and detection. genetic diseases, medical products: search for new drugs, vaccines and monoclonal antibodies, gene therapy, regenerative medicine: cell and tissue transplantation, tissue engineering, stem cell technology, and cloning.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Dr.med. Melisa I.B., Apt.; Dr. Tiana Milanda, M.Si., Apt.; Dr. Tina Rostinawati, M.Si., Apt; Sri Agung F.K., M.Si., Apt.; Dra. Sulistiyaningsih, M.Kes., Apt.; and Arif Satria W.K., M.Si., Apt.

Table 3.73. Description Module Pharmacotherapy of Hematology, Vascular and Cardiovascular, Kidney and Urinary Disorder and Biotechnology Practice

No	Module Name	Pharmacotherapy of Hematology, Vascular and Cardiovascular, Kidney and Urinary Disorder and Biotechnology Practice
1	Code of Subjects	P10A.6404
2	Study load	1(0-1) credits
3	Semester	6
4	Precondition	P10A.2426

5	Competence	After completing this course, students are expected to master how to test triglycerides and cholesterol; kidney function tests; and urine analysis.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	The material in this practicum contains the subject of testing triglycerides and cholesterol; kidney function tests; and urine analysis.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%; Final Exam (40%)
13	Lecturer	Team Teaching of Pharmacotherapy of Hematology, Vascular and Cardiovascular, Kidney and Urinary Disorder and Biotechnology

Table 3.74. Description Module Pharmacokinetics

No	Module Name	Pharmacokinetics
1	Code of Subjects	P10A.6405
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	P10A.4408 P10A.5406
5	Competence	After attending this lecture, students understand the basic concepts of pharmacokinetics and basic theories of pharmacokinetic principles, reaction order, ADME mechanism (absorption, distribution, metabolism and elimination), mathematical models, compartment models, how to calculate the parameters of the pharmacokinetic model of administration intra vascular and intravascular 1 compartment through blood data and urine data, exercise questions, 2 compartment concept, intravenous infusion concept, multiple dose

		calculation concept, and non-linear pharmacokinetic concept.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the basic concepts of pharmacokinetics and basic theories of pharmacokinetic principles, ADME mechanisms (absorption, distribution, metabolism and elimination), mathematical models, compartment models, how to calculate parameters for pharmacokinetic models of intra-vascular and intravascular administration compartments through blood data and urine data, exercise questions, the concept of 2 compartments, the concept of intravenous infusion, the concept of multiple dose calculations, and the concept of non-linear pharmacokinetics.
9	Attribute Soft Skill	Creativity, discipline, activity
10	Learning methods	Lecture and discussion
11	Learning Media	LCD Projector
12	Appraisal	Understanding 80% (Task 20%, Mid Exam 30%, Final Exam 30%) dan Soft Skill 20%
13	Lecturer	Prof. Dr. apt. Sri Adi Sumiwi, M.S., Apt. Taofik Rusdiana, PhD., MSi., Apt. Sofa Dewi Alfian, PhD., MSi.
14	References	1. Aiache, J. M., 1993. Biofarmasi, ed 2. Airlangga Univ. Press. 2. Gibaldi, M., 1975. Pharmacokinetics, Marcel Dekker Inc. 3. Ladu, M.D. et al., 1979. Fundamentals of Drug Metabolism and Drug Disposition, RE. Krieger Pub.Co. New York. 4. Ritschel, W. A., 1980. Handbook of Pharmacokinetics, 2nd, Hamilton Press. Inc., USA. 5. Shargel, L., 1988, Biofarmasetika dan Farmakokinetika Terapan, Airlangga Univ. Press.

Table 3.75. Description Module Biopharmacy

No	Module Name	Biopharmacy
1	Code of Subjects	P10A.6406
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	P10A.4408 P10A.5406
5	Competence	After completing this course, students are able to assess the factors that affect bioavailability and drug bioequivalence (bioequivalency).
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course contains the basic concepts of the journey and stages of drug release from its dosage form to the absorption process into the body, biological membranes and the mechanism of drug transport and absorption; various factors affecting drug absorption and bioavailability, bioavailability parameters; The biopharmaceutical aspects of the drug with oral, rectal, skin, eye, lung and parenteral routes of administration; and evaluation of bioavailability of pharmaceutical preparations.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Mid Exam (40%) and Final Exam (40%)
13	Lecturer	Taofik Rusdiana, PhD. Norisca Aliza Putriana Patihul Husni
14	References	1. Aiache, J.M., Devissaguet, J.Ph., Guyot-Herman, A.M., 1993, Galenica 2-Biopharmacie, Terjemahan Widji Soeratri dan Nanizar Zaman-Joenoes, Airlangga University Press, Surabaya,. 2. Bennet, L.Z., 1973, Biopharmaceutics as a Basis for the Design of Drug Products in Drug Design, Ed. J. Ariens, Academic Press, New York & London.

		3. Abdou, H.M., Dissolution, Bioavailability & Bioequivalence, Mack Publ. Co., Pennsylvania, 1989. 4.Shargel, L. and Yu, A., Applied Biopharmaceutics & Pharmacokinetics, 7th ed., Appleton & Lange, New York, 2017.

Table 3.76. Description Module Biopharmacy Practice

No	Module Name	Biopharmacy Practice
1	Code of Subjects	P10A.6407
2	Study load	1(0-1) credits
3	Semester	6
4	Precondition	P10A.4408 P10A.5406
5	Competence	After completing this course, students are able to assess the factors that affect bioavailability and drug bioequivalence (bioequivalency).
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course is given to the students with the aim of not only instilling a deep understanding of the course material but also containing practicum materials which intend to provide lab skills on how to determine and evaluate the bioavailability and bioequivalence of a medicinal product. contains basic concepts of the journey and stages of drug release from its dosage form to the absorption process into the body, biological membranes and the mechanism of drug transport and absorption; various factors affecting drug absorption and bioavailability, bioavailability parameters; The biopharmaceutical aspects of the drug with oral, rectal, skin, eye, lung and parenteral routes of administration; and evaluation of bioavailability of pharmaceutical preparations.
9	Attribute Soft Skill	Ethics, awareness, discipline

10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Mid Exam (40%) and Final Exam (60%)
13	Lecturer	Taofik Rusdiana, PhD. Norisca Aliza Putriana Patihul Husni
14	References	1. Aiache, J.M., Devissaguet, J.Ph., Guyot-Herman, A.M., 1993, Galenica 2-Biopharmacie, Terjemahan Widji Soeratri dan Nanizar Zaman-Joenoes, Airlangga University Press, Surabaya,. 2. Abdou, H.M., Dissolution, Bioavailability & Bioequivalence, Mack Publ. Co., Pennsylvania, 1989. 3. Shargel, L. and Yu, A., Applied Biopharmaceutics & Pharmacokinetics, 7th ed., Appleton & Lange, New York, 2017.

Table 3.77. Description Module Analysis of Biomedics and Forensic

No	Module Name	Analysis of Biomedics and Forensic
1	Code of Subjects	P10A.6408
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	P10A.4412
5	Competence	After attending this lecture 1. Students are able to understand correctly how to handle biological samples 2. Students are able to understand and correctly apply biological sample testing by immunoassay 3. Students are able to understand and correctly apply electrophoresis techniques for biological sample analysis 4. Students are able to understand correctly the legislation related to forensics and forensic toxicology 5. Students are able to correctly understand forensic toxicology analysis

		6. Students are able to select and apply appropriate analysis methods for various biological samples through case studies of forensic analysis and forensic tocysicology
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course discusses the general principles of biomedical and forensic analysis, immunoassay techniques, electrophoresis, forensic-related law, as well as case studies of forensic and toxicological analysis.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Mid Exam (50%) and Final Exam (50%)
13	Lecturer	Mutakin Ph.D., Dr. Aliya Nur Hasanah M.Si., Dr. Rimadani Pratiwi, Dr. Tiana Milanda
14	References	- Clarkes, analysis of drug and poison - Clarkes, analytical forensic toxicology - Drugs and Poison in Human - Susan Mickelsen, Bioanalytical Chemistry

Table 3.78. Description Module Analysis of Biomedics and Forensic Practice

No	Module Name	Analysis of Biomedics and Forensic Practice
1	Code of Subjects	P10A.6409
2	Study load	1(0-1) credits
3	Semester	6
4	Precondition	P10A.4412
5	Competence	After completing this course, students can connect biological samples with analytical methods and develop them appropriately. Then, students can also apply the technique of determining the levels of a substance for forensic purposes and drug abuse
6	Elements of Competency	MKB

7	Type Competency	Supporting competence
8	Syllabus	This course is aimed at achieving one of the competencies of Bachelor of Pharmacy graduates, namely being able to master the theoretical concepts of a special section in the field of in-depth knowledge related to bioanalysis.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. Equipment and LCD Projector
12	Appraisal	Mid Exam 40% and Final Exam 60%
13	Lecturer	Mutakin Ph.D., Dr. Aliya Nur Hasanah M.Si.
14	References	- Simple Microplate Method for Determination of Urinary Iodine, Toshinori Ohashi - A Modified Molybdenum Blue Method for Orthophosphate Determination Suitable for Investigating Enzymatic Hydrolysis of Organic Phosphates, Zhongqi He - D. A. Skoog, D. M. West, F. J. Holler, and S. R. Crouch, Analytical Chemistry: An Introduction, 7th ed., Chapter 23, pp. 594-631.

Table 3.79. Description Module Research Methodology and Biostatistics

No	Module Name	Research Methodology and Biostatistics
1	Code of Subjects	P10A.6410
2	Study load	3(3-0) credits
3	Semester	6
4	Precondition	There is no
5	Competence	Fulfilling KKNI level 6, namely mastering the theory and theory of application of certain fields of knowledge and skills.
6	Elements of Competency	MKK

7	Type Competency	Main competence
8	Syllabus	This course discusses various aspects related to the research process which includes research problems, literature searches, hypotheses, research frameworks, data collection, data processing and analysis, interpretation of analysis results, and conclusions. In addition, this topic discusses how to write research proposals, research reports and scientific articles for publication in scientific journals.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Prof. Anas Subarnas, M.Sc., Apt., Rizky Abdulah, Ph.D., Apt., and Muchtaridi, Ph.D., Apt.

Table 3.80. Description Module Pharmacoepidemiology and Pharmacovigilance

No	Module Name	Pharmacoepidemiology and Pharmacovigilance
1	Code of Subjects	P10A.6411
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	There is no
5	Competence	After completing this course, students will have knowledge about a cross sectional study, a cohort study, a case control study and a randomized control trial study; cost of illness, cost minimization analysis, cost-effectiveness analysis, cost utility analysis and cost benefit analysis; Introduction to pharmacovigilance; Preclinical safety assessment; Adverse Drug Reaction; and Drug safety monitoring.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence

8	Syllabus	This course discusses pharmacoepidemiology, pharmacoeconomics, and pharmacovigilance. The material provided includes a cross sectional study, a cohort study, a case control study and a randomized control trial study; cost of illness, cost minimization analysis, cost-effectiveness analysis, cost utility analysis and cost benefit analysis; Introduction to pharmacovigilance; Preclinical safety assessment; Adverse Drug Reaction; and Drug safety monitoring.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Auliya A. Suwantika, Ph.D., Apt., and Neily Zakiyah, Ph.D., Apt

Table 3.81. Description Module Aromatherapy and Hydrotherapy

No	Module Name	Aromatherapy and Hydrotherapy
1	Code of Subjects	P10A.6412
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	There is no
5	Competence	After taking this course, students are expected t achieve the main competencies in mastering aromatherapy and hydrotherapy materials and their application in the pharmaceutical field.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course is given to achieve the main competencies in mastering aromatherapy and hydrotherapy materials and their application in the pharmaceutical field.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project

11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Dr. Yasmiwar Susilawati, M.Si., Apt., Ferry Ferdiansyah, M.Si., Apt., and Zelika Mega R., M.Si., Apt.

Table 3.82. Description Module Pharmaceutical Environment

No	Module Name	Pharmaceutical Environment
1	Code of Subjects	P10A.6413
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to explain, analyze and express opinions about environmental phenomena, compare various methods of pharmaceutical waste management, and plan well alternative activities that are environmentally friendly.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course covers the discussion of human and environmental relations, environmental phenomena, management of various pharmaceutical wastes, and alternatives to environmentally friendly activities
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Interactive learning, SGD, Project based learning, and FGD.
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Driyanti Rahayu, MT., Prof. Dr. Resmi Mustarichie, M.Si., Apt., and Dr. Ida Musfiroh, M.Si., Apt

14	References	1. Manahan, Stanley E. Environmental Chemistry, CRC Press LLC, Boca Raton: 2000; 2. Setiadi, Tjandra, Retnogumilang, Pengelolaan Limbah Industri, ITB:2002; 3. Suhardi, Sri Harjati, Koesnandar, Dwi Kusuma Indriani, Hans Arnaldo, Biosafety: Pedoman Keselamatan Kerja di Laboratorium 4. Mikrobiologi dan Rumah Sakit, PT. Multazam Mitra Prima, Jakarta, 2008; 5. www.menlh.go.id 6. www.epa.gov

Table 3.83. Description Module Pharmaceutical Practice

No	Module Name	Pharmaceutical Practice
1	Code of Subjects	P10A.6414
2	Study load	2(2-0) credits
3	Semester	6
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to explain, analyze and express opinions about environmental phenomena, compare various methods of pharmaceutical waste management, and plan well alternative activities that are environmentally friendly.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	Pharmacy practice is one of the studies regarding the pharmacist/pharmacist profession, the type of field of work, the place of practice and of course the new paradigm of pharmaceutical care. Pharmacists in the past were known as drug compounders/formulators, whereas nowadays pharmacists must also be responsible for the use of drugs for individual patients as well as in the community/society.
9	Attribute Soft Skill	Ethics, awareness, and discipline

10	Learning methods	TCL, SCL, Blended (SCL-e-learning), and Assignment
11	Learning Media	LCD Projector
12	Appraisal	Quiz (20%); Task (20%); Mid Exam (30%); and Final Exam (30%)
13	Lecturer	Dr. Sriwidodo, MSi., Apt., Dr. Dolih Gozali, MSi., Apt., and Norisca A. Putriana, M.Farm., Apt
14	References	1. Anonim. 2008. MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR : 129/Menkes/SK/II/2008 TENTANG STANDAR PELAYANAN MINIMAL RUMAH SAKIT 2. Anonim. 2014. MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR : 35/Menkes/SK/II/2014 TENTANG STANDAR PELAYANAN KEFARMASIAN APOTEK 3. Anonim. 2014. MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR : 30/Menkes/SK/II/2014 TENTANG STANDAR PELAYANAN KEFARMASIAN di PUSKESMAS 4. Anonim. 2014. MENTERI KESEHATAN REPUBLIK INDONESIA NOMOR : 58/Menkes/SK/II/2014 TENTANG STANDAR PELAYANAN KEFARMASIAN RUMAH SAKIT 5. Desselle, SP, Zgarrick DP. 2009. Pharmacy Managements: Essentials for All Practice Settings, 2nd ed. USA: McGraw Hill. 6. Siregar, C. 2004. Farmasi Rumah Sakit Teori dan Penerapan. Jakarta: EGC. 7. Troy, D. 2005. Remington: The Science and Practice Pharmacist, 21st ed. Philadelphia: Lippincot Williams and Wilkins. 8. Whalley, B.J., Fletcher, K.E., Weston, S.E., Howard, R.L. and Rawlinson, C.F., 2008. Foundation in pharmacy practice. Pharmaceutical. 9. Winfield, AJ, Rees, JA, Smith, I. 2009. Pharmaceutical Practice, 4th ed. China: Churchill Livingstone Elsevier.

		10. Wiedenmayer, K., Summers, R.S., Mackie, C.A., Gous, A.G., Everard, M. and Tromp, D., 2006. Developing pharmacy practice: a focus on patient care: handbook. In Developing pharmacy practice: a focus on patient care: handbook (pp. x-87). 11. WHO. 2012. Hospital Pharmacy Management. http://apps.who.int/medicinedocs/documents/s19622en/s19622en.pdf. 12. WHO. 1997. Managing drug supply : the selection, procurement, distribution, and use of pharmaceuticals. 2nd edition. West Hartford, Connecticut : Kumarian Press

Table 3.84. Description Module Clinical Pharmacy

No	Module Name	Clinical Pharmacy
1	Code of Subjects	P10A.7401
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	P10A.5401 P10A.5402 P10A.5403 P10A.5404
5	Competence	After completing this lecture, students are expected to: 1. Knowing the development of clinical pharmacy in Indonesia and the world 2. Understand the kinds of clinical pharmacy service activities
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course studies the history and development of clinical pharmacy, clinical pharmacy activities include: medical history interviews, therapy monitoring, TDM, drug interaction management, drug information services, counseling, clinical

		pharmacy case approaches using the SOAP, FARM, and PAM methods.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lecture, discussion, case study, discovery learning trough role play simulation
11	Learning Media	LCD Projector, laptop, and whiteboard
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Prof. Dr. apr. Ajeng Diantini, M..Si., Apt. Ivan Surya Pradipta, M.Sc. PhD., Apt. Dika Pramita Destiani, M.Farm., Prof. Dr. apt. Keri Lestari., M.Si.

Table 3.85. Description Module Clinical Pharmacy Practice

No	Module Name	Clinical Pharmacy Practice
1	Code of Subjects	P10A.7402
2	Study load	1(0-1) credits
3	Semester	7
4	Precondition	P10A.5401 P10A.5402 P10A.5403 P10A.5404
5	Competence	After completing this course, students are expected to be able to understand, master and can do good clinical pharmacy work. For students with an interest in Clinical and Community Pharmacy, this course is one of the main sciences that will later be applied in providing pharmaceutical services. This practice is a simple simulation in doing clinical pharmacy assignments through getting to know and direct practice in the field (Pharmacy Education) under the supervision of lecturers and practitioners. Students are also expected to be able to integrate various related sciences that have been obtained in the previous semester. This practice can also introduce and

		train students to prepare for the OSCE competency exam.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This course discusses cases related to Drug Related Problems (DRP), Drug Induced Disease, and communication (PIO and counseling).
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Practice, discussion, and discovery learning trough role play simulation
11	Learning Media	LCD Projector, laptop, and whiteboard
12	Appraisal	Understanding and CBT (60%); and OSCE (40%)
13	Lecturer	Prof. Dr. apr. Ajeng Diantini, M..Si., Apt. Ivan Surya Pradipta, M.Sc. PhD., Apt. Dika Pramita Destiani, M.Farm., Prof. Dr. apt. Keri Lestari., M.Si.
14	References	1. McPhee, S., Lingappa, V.R., Ganong, W.F., Lange, J.D., 2000, Pathophysiology of disease: An introduction to Clinical Medicine, 3rd ed, The McGraw-Hill Companies Inc, New York. 2. Herfindal, E.T., Gourley, D.R (Eds), 2001, Textbook of Therapeutics Drug and Disease Management, 7th Ed, Lippincot Williams and Wilkins, Philadelphia 3. DiPiro, J.T., Talbert, R.L., Yee, G.C., Matzke, G.R., Wells, A.G., Posey, L.M. (Eds), 2005, Pharmacotherapy a Pathophysiological Approach, 4rd ed, Appleton & Lange, Stamford. 4. Anonim, 2000, Informatorium Obat Nasional Indonesia (IONI), Dep Kesehatan RI, Jakarta

Table 3.86. Description Module Drug Stability

No	Module Name	Drug Stability
1	Code of Subjects	P10A.7403
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	P10A.4408 P10A.5406
5	Competence	Fulfilling KKNI level 8, namely mastering the theory and theory of application of certain fields of knowledge and skills
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course discusses the concept of drug degradation events including the mechanisms that occur, namely chemistry, physics or microbiology; drug degradation routes; the reaction kinetics of drug degradation include half-life and Q10; drug stability in solid state as well as drug stability testing methods and data interpretation.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lecture, discussion, and project-based learning
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Nasrul Wathoni, Ph.D., M.Si., Apt. Muchtaridi, Ph. D. Arif Budiman,M Si.
14	References	1. Jens T. Carstensen, C.T. Rhodes. 2000. Drug stability: principles And practices. 2. Sumie Yoshioka and Valentino J. Stell. 2002. Stability of drugs and Dosage forms

Table 3.87. Description Module New Drug Delivery System

No	Module Name	New Drug Delivery System
1	Code of Subjects	P10A.7404

2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	P10A.4408 P10A.5406
5	Competence	Fulfilling KKNI level 8, namely mastering the theory and theory of application of certain fields of knowledge and skills
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	On this topic, students will learn about controlled release drug delivery systems, types of polymers, microencapsulation, colonic drug delivery, implants, transdermal preparations, gastroretentive delivery systems, nasopulmonary systems, ocular drug delivery, and intra uterine device delivery.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lecture
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Prof. Dr. Marline Abdassah, M S., Dr. rer. nat. Anis Yohana Chaerunisaa, M Si., Dr. Sriwidodo, M Si., and Soraya Ratnawulan Mita, M Si
14	References	United States Pharmacopeial Convention, Inc. The United States Pharmacopeia (USP 26). Rockville, Maryland, USA, 2003.

Table 3.88. Description Module Development of Analytical Method

No	Module Name	Development of Analytical Method
1	Code of Subjects	P10A.7405
2	Study load	1(1-0) credits
3	Semester	7

4	Precondition	P10A.6408
5	Competence	After following this course, students will have knowledge about the importance of error measurement, standardization of analytical methods (external standards, internal standards, standard addition), optimization of analytical methods, validation of analytical methods and the development of analytical methods in bioanalysis, BABE, HPLC, and spectrophotometry.
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course studies aspects of the development of analytical methods. The material provided includes the importance of error measurement, standardization of analytical methods (external standards, internal standards, standard addition), optimization of analytical methods, validation of analytical methods and the development of analytical methods in bioanalysis, BABE, HPLC, and spectrophotometry.
9	Attribute Soft Skill	Ethics, awareness, discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Mutakin, Ph.D., Dr. Ida Musfiroh, M.Si., Apt., Dr. Aliya Nurhasanah, M.Si., Apt.
14	References	1. J.C Miller & J.N Miller, Statistika untuk Kimia Analitik, edisi kedua, penerbit ITB. 2. W.F. Pickering, Modern Analytical Chemistry. 3. Chung Chow Chan et al (editor), Analytical Method Validation and Instrument Performance Verification. 4. Susan R. Mikkelsen, et al, Bioanalytical Chemistry. 5. FDA, bioanalytical method validation 6. EMEA, guidance on bioanalytical method validation

		7. FDA, Analytical Method Validation, Guidance for industry

Table 3.89. Description Module Development of Analytical Method Practice

No	Module Name	Development of Analytical Method Practice
1	Code of Subjects	P10A.7406
2	Study load	1(0-1) credits
3	Semester	7
4	Precondition	P10A.6408
5	Competence	After completing this course, students are expected to applies the development of analytical methods which include standardization of analytical methods (external standards, internal standards, standard addition), optimization of analytical methods, validation of analytical methods and development of analytical methods using HPLC, and spectrophotometry. The material provided includes standardization of analysis methods with external standard techniques, internal standards, and additions; system suitability; validation of analytical methods (linearity, LOD, LOQ, precision, and accuracy); HPLC method development; and the development of spectrophotometric methods
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This practicum applies the development of analytical methods which include standardization of analytical methods (external standards, internal standards, standard addition), optimization of analytical methods, validation of analytical methods and development of analytical methods using HPLC, and spectrophotometry. The material provided includes standardization of analysis methods with external standard techniques, internal standards, and additions; system suitability; validation of analytical methods

		(linearity, LOD, LOQ, precision, and accuracy); HPLC method development; and the development of spectrophotometric methods
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); Final Exam (40%)
13	Lecturer	Mutakin, Ph.D., Dr. Ida Musfiroh, M.Si., Apt., and Dr. Aliya Nurhasanah, M.Si., Apt.
14	References	- Research journal analytical method validation of Rutin, Quercetine and galic acid in herbal preparation using UV spectrophotometry - research journal analytical method validation of glibenclamide and metformine in tablet using HPLC - research journal analytical method validation of salmeterol and fluticasone in aerosol using HPLC - research journal analytical method validation of salbutamol and theofiline in tablet using HPLC

Table 3.90. Description Module Drug Design and Development

No	Module Name	Drug Design and Development
1	Code of Subjects	P10A.7407
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	P10A.4408 P10A.5406
5	Competence	At the end of this unit students will have an understanding of: 1. The major approaches to drug discovery; 2. The process of identifying a drug target and the steps required to validate that target;

		3. Drugs that treat infectious diseases and approaches to developing those drugs; 4. The importance of pharmaceutics in drug development; 5. Pharmacokinetics in drug development; 6. The clinical trial process; 7. Legal documentation of pharmaceutical product invention
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	This course is aimed at explaining the process by which new drugs are discovered and developed, from initial idea to full clinical use in humans, and to describe the interface between the biosciences and the pharmaceutical business.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Examination (60%), Task (25%), and Project-Based Task (15%)
13	Lecturer	Prof. apt. Muchtaridi, Ph.D, Apt, Dr. apt. Sandra Megantara, M.Far, apt. Nasrul Wathoni, Ph.D., and Dr. apt. Ade Zuhrotun, M.Si

Table 3.91. Description Module Drug Design and Development Practice

No	Module Name	Drug Design and Development
1	Code of Subjects	P10A.7408
2	Study load	1(0-1) credits
3	Semester	7
4	Precondition	P10A.4408 P10A.5406
5	Competence	After completing this course, students are expected to be able to apply a process of discovery

		and development, from the idea of awa to full clinical use in humans. The materials provided include selecting and downloading drug targets in GDP; activity prediction with QSAR; pharmacophore and molecular docking; bioguided assay isolation on guava leaves or mangosteen rind; modification of isolated chalcone or alpha mangostin compounds; structure elucidation; bioassay; and the formulation of the previous practicum results.
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	This practicum applies a process of discovery and development, from the idea of awa to full clinical use in humans. The materials provided include selecting and downloading drug targets in GDP; activity prediction with QSAR; pharmacophore and molecular docking; bioguided assay isolation on guava leaves or mangosteen rind; modification of isolated chalcone or alpha mangostin compounds; structure elucidation; bioassay; and the formulation of the previous practicum results.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lab. practice, presentation, lecturer, discussion, project
11	Learning Media	Lab. equipment and LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Muchtaridi, Ph. D., Sandra Megantara, M Si., Dr. Nyi Mekar, Driyanti Rahayu, MT Febrina Putri, M Pharm., and Danni Ramdani, M Si

Table 3.92. Description Module Research Proposal Seminar

No	Module Name	Research Proposal Seminar
1	Code of Subjects	P10A.7409
2	Study load	2(0-2) credits
3	Semester	7

4	Precondition	Completing 110 credits
5	Competence	after completing the research proposal seminar students are expected to be able to write their proposal with scientific reason and present it in front of reviewer
6	Elements of Competency	MKB
7	Type Competency	Main competence
8	Syllabus	The research proposal seminar is a student work plan that is structured into a bachelor final project framework based on empirical data
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Appraisal contained three aspects : systematic presentation, understanding of research, research design, with the same percentages.
13	Lecturer	Reviewer assigned by the Dean of the Faculty

Table 3.93. Description Module Field Study

No	Module Name	Field Study
1	Code of Subjects	P10A.7410
2	Study load	1(0-1) credits
3	Semester	7
4	Precondition	There is no
5	Competence	after completing the courses students are expected to have knowledge on their real profession after graduated
6	Elements of Competency	MKB
7	Type Competency	Supporting competence
8	Syllabus	the field study is a students activity to visit their area of profession after graduated such as industrial pharmacy visit, cosmetics and food

		beverages industry visit, Hospitals. After each group of students visit different places, they have to present their visit in front of all students and lecturer and made final report
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Pre-test (20%), Post test (30%), final report (10%), daily report (20%), activeness during field study (20%)
13	Lecturer	Field study lecturer assigned by the Dean of The Faculty
14	References	Guideline on Field Study, Faculty of Pharmacy

Table 3.94. Description Module Pharmaceutical Management, Regulation and Entrepreneurship

No	Module Name	Pharmaceutical management, Regulation and entrepreneurship
1	Code of Subjects	P10A.7411
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	There is no
5	Competence	Students able to made a simple business planning and feasibility studies.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	On this topic, students will learn about entrepreneurial resources, feasibility studies, business planning, marketing methods, regulations, tax management and human resources
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project, discovery learning

11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Auliya A. Suwantika, Ph.D., Apt., Irma M. Puspitasari, Ph.D., Apt., and Riezki Amalia, Ph.D.
14	References	1. Shane P. Desselle. Manajemen Farmasi Edisi 2. EGC, 2002 2. PP No. 51 tahun 2009 tentang Pekerjaan Kefarmasian 3. PP No. 72 tahun 1998 tentang Penggunaan Sediaan Farmasi dan Alat Kesehatan

Table 3.95. Description Module Pharmacoeconomy

No	Module Name	Pharmacoeconomy
1	Code of Subjects	P10A.7412
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	There is no
5	Competence	Fulfilling KKNI level 8, namely mastering the theory and theory of application of certain fields of knowledge and skills
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	On this topic, students will learn about health economic analyzes (Hospital Cost Analysis, Cost Minimization, Cost Effectiveness, Cost Utilities, Cost Benefits), as well as the models used in pharmaceconomic studies.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lecture, discussion, and case study
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)

13	Lecturer	Auliya A. Suwantika, Ph.D., Apt., Rano Kurnia Sinuraya, MKM., Apt., and Neily Zakiyah, Ph.D., Apt.
14	References	Michael F. Drummond. Methods for the Economic Evaluation of Health Care Programmes 3rd Edition. Oxford University Press, 2005.

Table 3.96. Description Module Herbal Medicine

No	Module Name	Herbal Medicine
1	Code of Subjects	P10A.7413
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	There is no
5	Competence	After completing this course, students are expected to be able to understand the meaning and scope of herbal medicine in all its aspects, especially in terms of botany, pharmacognomy, phytochemistry, and pharmacology in health care and medicine; and applying it in a botanical-based medical system in CAM (Complementary and Alternative Medicine). In addition, it also trains skilled and critical students in searching for information from the internet on everything related to herbal medicine.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	The Herbal Medicine course studies things related to medicinal plants and herbal medicines in all its aspects, especially in terms of botany, pharmacognomy, phytochemistry, and pharmacology in health maintenance and medicine.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Lecture and discussion
11	Learning Media	LCD Projector

12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Dr. Yoppi Iskandar, M.Si., Apt.
14	References	1. Ebadi, M., 2002, Pharmacodynamic Basis of Herbal Medicine, CRC Press, Boca Raton, London, New York. 2. Mill,S. & Bone,K., 2000, Principles and Practice in Phytotherapy – Modern Herbal Medicine, Churchil Livingstone , Edinburg, Toronto. 3. Newall,C.A., Anderson,L.A., Phillipson,J.D., 1996, Herbal Medicines – A Guide for Health-care Professionals, The Pharmaceutical Press, London. 4. Phillip,R.B., 2004, Herbal-Drug Interactions and Adverse Effects – An Evidense Based Quick Reference Guide, McGraw-Hill Medical Publishing Division, New York, Toronto. 5. Ross,I.A, 1999, Medicinal Plants of The World, Humana Press, Ottawa, New Jersey. 6. Schule,V., Hansel, R., Tyler,V.E., 1997, Rational Phytotherapy, Springer, Berlin. 7. Smith,J.E., Rowan,N.J., Sullivan,R.,2002, Medicinal Mushrooms: Their therapeutic properties and current medical usage with special emphasis on cancer treatments, University of Strathclyde, Cacer Research, Glasgow.

Table 3.97. Description Module Management of Supply Chain

No	Module Name	Management of Supply Chain
1	Code of Subjects	P10A.7414
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	There is no
5	Competence	After completing this topic, students will be able to explain the concept of CDOB and supply

		management of pharmaceutical products in industries, hospitals, pharmacies, and PBF.
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	On this topic, students will learn about the supply management of pharmaceutical products in industry, hospitals, pharmacies, and PBF in accordance with the applicable Drug Distribution Method guidelines.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecture and discussion
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Auliya A. Suwantika, Ph.D., Apt., Rano Kurnia Sinuraya, MKM., Apt., Neily Zakiyah, Ph.D., Apt., and Nasrul Wathoni, Ph.D., Apt.
14	References	1. UU No. 40 tahun 2004 tentang Sistem Jaminan Sosial Nasional 2. UU No. 24 tahun 2011 tentang Badan Penyelenggara Jaminan Sosial

Table 3.98. Description Module Fundamental of Quality Assurance

No	Module Name	Fundamental of Quality Assurance
1	Code of Subjects	P10A.7415
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	There is no
5	Competence	After following this course, students will have knowledge of the concept of quality, determines the quality characteristics of a product, determines the quality control techniques needed to control the quality of a product, and is able to formulate the required quality assurance program. The material provided includes an introduction; quality control

		analysis system; statistical quality control; acceptance sampling plan; standardized admission sampling plan; quality assurance standards; and case studies of pharmaceutical product quality control processes
6	Elements of Competency	MKK
7	Type Competency	Supporting competence
8	Syllabus	This course studies the concept of quality, determines the quality characteristics of a product, determines the quality control techniques needed to control the quality of a product, and is able to formulate the required quality assurance program. The material provided includes an introduction; quality control analysis system; statistical quality control; acceptance sampling plan; standardized admission sampling plan; quality assurance standards; and case studies of pharmaceutical product quality control processes.
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, lecturer, discussion, project
11	Learning Media	LCD Projector
12	Appraisal	Task (20%); Mid Exam (40%); and Final Exam (40%)
13	Lecturer	Muchtaridi, Ph. D

Table 3.99. Description Module Seminar on Thesis Result

No	Module Name	Seminar on Thesis Result
1	Code of Subjects	P10A.8401
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	Passed 140 credits and other requirement for seminar of thesis result made by study programme
5	Competence	after completing the courses students will be able to review scientific literature, evaluate the research

		findings and write the findings into thesis books and defend it on the seminar
6	Elements of Competency	MKK
7	Type Competency	Main competence
8	Syllabus	it is a seminar that is held after students carry out all of planned research in the context preparing thesis manuscript
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Presentation, discussion (QnA)
11	Learning Media	LCD Projector
12	Appraisal	This is an oral test with the appraisal contained three aspects : systematic presentation, understanding of knowledge related to research, communication ability to present research result, with the same percentages.
13	Lecturer	a reviewer assigned by the Dean of the Faculty

Table 3.100. Description Module Bachelor's Defense

No	Module Name	Bachelor's Defense
1	Code of Subjects	P10A.8402
2	Study load	2(2-0) credits
3	Semester	7
4	Precondition	Passed 142 credits and other requirement for bachelor's defense made by study programme
5	Competence	after completing the courses students are expected to have minimal competence as bachelor of pharmacy as planned by study program
6	Elements of Competency	MKK
7	Type Competency	Main competence

8	Syllabus	This is an oral test type. Reviewer are divided into four department (pharmaceutical analysis and medicinal chemistry, pharmaceutical biology, pharmaceutics and pharmaceutical technology, pharmacology and clinical pharmacy) and students were having oral test with the lecturer assigned by dean for each department
9	Attribute Soft Skill	Ethics, awareness, and discipline
10	Learning methods	Oral test
11	Learning Media	LCD Projector
12	Appraisal	Knowledge on pharmaceutical science for bachelor
13	Lecturer	a reviewer assigned by the Dean of the Faculty

Chapter 4

LEARNING STRATEGIES

4.1. Learning System

The Universitas Padjadjaran Faculty of Pharmacy employs the Semester Credit System in providing educational services. This system provides the opportunity for:

1. Excellent students to complete the program in a shorter period of time;
2. Students to take courses based on their individual competences, aptitudes, and interests;
3. The implementation of effective student evaluation.

4.1.1. Basic Definitions

Semester Credit Units (*Satuan Kredit Semester* (SKS) is a measure of workloads towards the learning experience taken for one semester through scheduled activities per week.
Workload per Semester is the number of credits taken by a student in a semester, while the **Cumulative Workload** is the minimum number of credits which has to be taken by a student for completing the learning process in a particular study program.
Cumulative Study Time is the maximum time which has to be taken by a student to complete his/her studies in a study program. For the Bachelor program in Pharmacy, a minimum of 144 credits for an eight-semester study period and a maximum of 14 semesters. Academic leave is not counted as a student's study period.

One credit unit (SKS) for college activities is set to be equivalent to the workload of each week for one semester, which consists of the following three activities:

1. 1 hour (50 minutes) of scheduled lectures.
2. 1 hour (60 minutes) of structured activities outside the classroom.
3. 1 hour (60 minutes) of independent activities.

One credit unit for seminar activity is set to be equivalent with 100 minutes scheduled lecturer and 70 minutes independent studies. The minimum number of literature which is used as a reference and summarized for presentation in front of the forum is 3 (three) titles, depending on the weight of the literature.

One credit unit for laboratory activity in the laboratory is set to be equivalent with 170 minutes of scheduled laboratory work, accompanied by structured activities outside the laboratory, but planned by the related teaching staff, including discussion and writing reports every week for one semester and independent activities, including reading reference books, get better understanding of the material and completing assignments.

One credit unit for fieldwork, clinical work and similar activities is set to be equivalent to a workload of 170 minutes scheduled activities per week for one semester. One credit unit for thesis/dissertation writing, research activities, and similar activities basically refers to fieldwork.

The learning process is carried out using the student-centered learning (SCL) method. The implementation of this method is adjusted with the policies of each study program, including problem-based learning, role playing, simulations, case studies, presentations, mini lectures and group discussions.

4.1.2.Student Registration

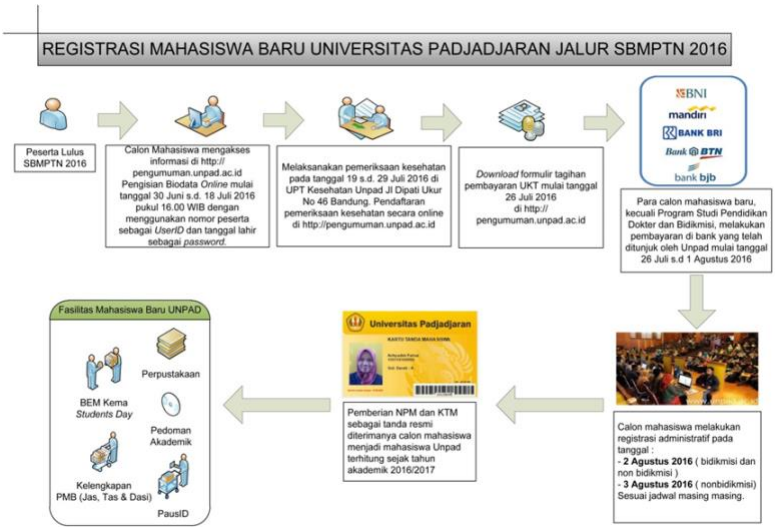
In the beginning of each semester students must perform two kinds of registration, namely administrative and academic.

Administrative Registration

1. Administrative registration is done online, namely registration and re-registration in the beginning of each semester.
2. Administrative registration is done by both new and current students to determine their administrative status.
3. The requirements for administrative registration for new and current students are stipulated in the Universitas Padjadjaran Handbook.
4. Students who fail to carry out administrative registration shall not receive academic services.
5. Academic registration is carried out by completing the Study Plan Card to register for courses and receive academic services.
6. The registration for courses are done online through the Unpad Integrated Administrative Information System (SIAT) to be accessed via http://students.unpad.ac.id.
7. The registration for courses is verified by the academic adviser. When deemed necessary, the student may consult the academic adviser.

Academic Registration

Procedure for new students:
Student candidates who have been accepted must register online, make payments through selected banks, obtain student cards, student handbooks, and almamater jackets.



4.1.3. Cards and Lists

In the implementation if academic administration there are a number of cards and lists as follows.

Study Plan Card (SPC/KRS)

1. The SPC contains the list of courses taken in a particular semester;
2. The SPC is completed online by the student in his/her SIAT account and approved by the academic adviser.
3. The SPC is then submitted to the Academic Office

Change in Study Plan Card (CSPC/PKRS)

With the approval of the academic adviser a student may make changes to their SPC (change, add, or delete courses) up to ten (10) work days following the first day of classes or two (2) weeks, after which changes to the SPC cannot be made.
The revised SPC must be completed online by the student on his/her SIAT account and approved by the academic adviser, and subsequently submitted to the Academic Office no later than the second week of classes.

Attendance List of Students and Instructors (ALSI/DHMD)

1. The ALSI contains the names of students and their respective student numbers taking a particular course.

2. The ALSI is signed by the student and instructor (or his/her teaching assistant) at the end of each class meeting.
3. The ALSI is kept in the Academic Office
4. The ALSI kept by the instructor must be submitted to the Academic Office at the end of the semester as reference to generate the Final Grade Participants List (PGPL).

Academic Progress Card (APC/KKS)

1. The APC contains the grades for all the courses taken by a student in a particular semester and provides the maximum number of credit-hours eligible to be taken in the following semester.
2. The APC is issued by the Academic Office of the Faculty of Pharmacy
3. The APC is used as reference in completing the SPC for the following semester.

Student Achievement List (SAL/DPM)

1. The SAL contains the Grade Point Average (GPA) of all students in a particular class in a particular program, the number of semesters, and the study load already taken, as well as the name and the code of the academic adviser.
2. The SAL is validated and signed by the Dean.
3. The SAL is issued to the students at the end of each semester.

Academic Achievement Card (AAC/KPA)

The Academic Achievement Card (AAS) contains all of the courses and the grades thereof that a student has taken. It may serve as a provisional academic transcript or the compilation of APCs. The issuance of the APC depends on the needs of the Faculty of Pharmacy.

4.1.4. Academic Activities

1. A student is allowed to participate in academic activities provided that he/she:
   a. Holds a valid Students Card.
   b. Have competed the SPC for the semester approved online by the academic adviser and the Academic Office
   c. Listed in the ALSI for the semester.
2. When attending classes, a student must sign the LASI and be verified by the instructor of the course.

Guidance and Counseling

Guidance and counseling are provided to students of Universitas Padjadjaran experiencing academic and non-academic problems so that they are able to overcome those problems and so that they can develop and recognize their potentials for the purposes of completing their studies.

The procedure for guidance and counseling services are as follows.

1. A student may come to the guidance and counseling team of the Faculty of Pharmacy by his/her own initiative or by the advice of the academic adviser. The academic adviser shall provide a letter to the team.
2. Services to students are only provided by the University guidance and counseling team with the reference from the Dean unless there are pressing circumstances.
3. For services for students who are advised to change program, the following procedure applies.
   1) A request is filed by the student, parent or guardian to receive guidance and counseling.
   2) The academic transcript of the student is provided.
   3) A request to take a Psychological Test is submitted on behalf of the student by the Faculty administrators (the Dean or a Vice-Dean) or University administrators (the Rector or a Vice-Rector) to the team.
   4) The findings and results of the Psychological Test are issued by the University Guidance and Counseling Team.

Academic Consultations

To facilitate the learning process of students the Faculty of Pharmacy appoints an academic adviser to a student for as long the student studies at the Undergraduate Program in Pharmacy. The number of students assigned to an academic adviser is based on the capacity of the Faculty of Pharmacy

The following stipulations apply.

1. Basically, any faculty member can be an academic adviser for a student of any program.
2. The academic adviser is obligated to maintain contact with the student to whom he/she is assigned periodically to monitor the development of the student's studies, at least in the beginning, in the middle of and in the end of each semester.
3. The academic adviser must have, completely, kept the Student Information Files, for the purposes of academic or personal guidance when needed.
4. The tasks of the academic adviser are:
   a. To assist the student in planning his/her studies in each semester according to the student's needs.
   b. To provide considerations to the student in determining study load and the courses taken based on the students GPA in the previous semesters.
   c. To monitor the progress of the student's academic activities.
5. In the beginning of the semester the academic adviser holds a meeting with the student to discuss the study plans or the semester. The discussions include the following topics:
   a. Estimation of the number of credit-hours for the student to complete the whole program.
   b. Direction of the student's studies, in determining the field, interests, or concentration to take.
   c. The issues to be considered in determining courses to be taken are
      1) Courses which are prerequisites for other courses.
      2) Courses offered in every semester or only in one semester in an academic year.

3) The credit load of a course, with the understanding that the more the credit-hours the heavier the study load.
4) The type of course (lectures, laboratory practicum, seminar, clinical practicum, etc.) whose hours are different for each type.
5) The required 100% attendance for laboratory practicum and 80% for lectures. The 20% absence must be supported by reasonable grounds.
6) Study load per semester as low grades in a semester will affect the GPA and determine the number of credit-hours available to be taken in the following semester.
7) The optional courses available in the program.

6. The academic adviser provides considerations and advice in determining the study load for a semester based on the GPA of the previous semester as reference in completing the SPC online.
7. The academic adviser provides approval or the SPC each semester.
8. The study load taken in a semester does not have to be the maximum study load based on the GPA of the previous semester.
9. The academic adviser must take into consideration the number of D grades so as the students do not exceed the allowed number of D's to graduate, namely 20% of the total number of credit-hours
10. In special cases, personal difficulties can be consulted with the academic adviser, but if the academic adviser cannot provide a solution, the matter should be referred to the faculty member assigned as a counselor or the guidance and counseling team.
11. In the case that the academic adviser is hindered from carrying out his duties for a substantial period of time (due to illness, study leave, or absence without leave) the Faculty administration shall provide a replacement.

4.2. Learning Methods

Education in Bachelor Pharmacyl program oriented ability of 4 fields i.e : Pharmaceutics and Pharmaceutical Technology, Analytical Pharmacy and Medicinal Chemistry, Biology Pharmacy, and Pharmacology and Clinical Pharmacy.

The learning methods that can be used :

1. Case study

The case study method is a learning technique in which the student is faced a particular problem, the case. The case study facilitates the exploration of a real issue within a defined context, using a variety of data sources. For example in Compounding and Dispensing Course give case study to calculate the need for medicine on prescription obtained from pediatrician, analyze maximum dose on prescription, calculate the Beyond Use date.

2. Lecturing

The lecturing is an orally lighting on the learning material in class group of learners to achieve specific learning objectives in a relatively large amount. This method is widely used at the introduction each course and which is largely a tutorial academic packages

3. Cooperative learning

Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other`s learning.

4. Self directed learning

Self directed learning is a process in whixh individuals take the initiative, with or without the help of others, ini diagnosing their learning needs, formulating learning goals, identifying human and material resourses for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.

5. Discovery learn

Discovery Learning Educational method are highly experiential and interactive. The method use stories, games, simulations, visual maps, and other techniques to get attention, build interest and lead learners on a journey of discovery toward new thinking, actions and behaviors. This is usually done at clinical pharmacy practice and

The discovery learning approach incorporates three key ideas:

1. Problem Solving:
   The learning design must guide and motivate learners to participate in problem solving as they pull together information and generalize knowledge.
2. Learner Management:
   Leaning must be learner driven so that participants, working alone or in small teams, can learn in their own ways and at their own pace.
3. Integrating and Connecting:
   Learning must encourage the integration of new knowledge into the learner's existing knowledge base and clearly connect to the real world.
4. Role play simulation
   Roleplay simulation is an experiental learning method in which either amateur or professional roleplayers (also called interactors) improvise with learners as part of a simulated scenario. Roleplay is designed primarily to build first-person experience in a safe and supportive environment. Roleplay is widely acknowledged as a powerful technique across multiple avenues of training and education.

4.3. Learning Media

No	Media Group	Examples in Learning
1	Audio visual	LCD
2	Print	Books,Module
3	Actrees Standard	Patient, supervisor

Chapter 5

EVALUATION SYSTEM

5.1. How to Evaluate

Learning Outcome Evaluation

The Final Grade for a course to be awarded to a student is stated in two ways, namely in a letter grade and a grade point as per Unpad regulations, ranked as follows

Final Grade	Letter Grade (LG)	Grade Point (GP)
80 ≤ FG ≤ 100	A	4
68 ≤ FG ≤ 80	B	3
56 ≤ FG ≤ 68	C	2
45 ≤ FG ≤ 68	D	1
FG ≤ 45	E	0

Incomplete (T) Grade

A student receives a T (Incomplete) grade in the case that he/she fulfills the following requirements:

1. The student has not completed a grade component.
2. The student must complete the grade component within two (2) weeks after the T grade is issued, and consequently the student receives the grade as set by the scores received in the scale of 1-100.
3. If the student fails to complete the missing grade component within two (2) weeks, the T becomes an E (grade point 0), or the instructor may award a grade taking into account the available scores from existing grade components.
4. A T grade cannot be made into a Withdrawn (K), unless the students tales a remedial examination based on acceptable and reasonable grounds (illness, accident, or other misfortunes which requires a substantial period of recovery and treatment).
5. T and K grades cannot be counted towards the GPA. Therefore, T grades must be changed into other grades with grade point equivalents within two weeks of issuance of the grade.

Withdrawn (K) Grade

A student may receive a Withdrawn (K) grade when one of the following conditions is met.

a. A student withdraws from a course after the first two weeks of classes when change in the Study Plan can no longer be made with reasonable and acceptable grounds verified and certified by a letter from the Dean.

b. A student is not able to take the final examination of a course and is also unable to take a make-up examination based on acceptable reasonable grounds.

c. A student is unable to complete the Final Project Report or the bachelor Thesis within one semester.

d. What qualifies as acceptable and reasonable grounds for a K grade is as follows.

   1) A student has fallen ill or suffers from an accident which requires a long period of time for recovery or treatment as evidenced by a specialist physician or hospital providing care for the student.

2)A student is affected by a family misfortune which requires him/her to be absent from classes for a significant period of time as evidenced by proper relevant documents

e. Another acceptable and reasonable reason for issuing a K grade is abnormal delivery of a child or other grounds verified by the Dean, or other reasons than those in point d but the students has received official permission from the Dean to take leave from studies for one (1) semester.

f. Courses given K grades are not counted towards the GPA.

g. A student who receives K grades for all of the courses he/she is taking in one particular semester will have that semester count towards the whole study period, as he/she is not considered to have taken temporary leave of absence from studies.

h. in the case that the circumstances in point e occurs for a second time, the semester is considered an official temporary leave of absence from studies with the permission of the Dean, taking away the number of academic leaves allotted for one student.

i. In the case that the circumstance in point e occurs for the third time (consecutively or intermittently), the semester is not considered as a temporary leave of absence from studies with the permission of the Dean for the second time. It does not count towards the maximum study period but takes away future allowances for more academic leaves.

j. Further official leaves of absence from studies as stated in point g with grounds as stated in point d, is permissible but will count towards the maximum study period.

k. In the case a course given a K grade is retaken in future semesters, the letter grade can be changed as per the performance in the course in the semester.

l. The stipulations as stated above do not apply to the case of e-learning.

Grade Improvements

Grades can be improved when:

a. A student retakes a course previously given an E, D, or C, and the best grade is used to count towards the GPA.

b. A student retakes a course previously given a B, and the most recent grade is used to count towards the GPA.

c. The grade of E can be repaired by taking the course in future semesters.

d. Reparation of E and D grades can be done by taking a remedial test in the current semester or by retaking the course and registering the course in the SPC.

Examination Requirements

A student is allowed to sit in an examination when the following requirements are fulfilled.

1. Registered as a student for the semester.
2. Fulfilled all the administrative requirements set by the Faculty of Pharmacy.
3. Attended at least 80% of class meetings held in the semester and/or participated in all (100%) activities of laboratory practice, field work, clinical work, seminar, or related activities.
4. To sit in the Bachelor's defense, a student must have fulfilled all of the following requirements:
   a. Passed all of the courses required by the program (fulfilled the minimum cumulative study load required).
   b. Have composed and written the undergraduate thesis (and has been declared worthy for examination by the supervisor).
   c. Have completed the administrative requirements as set by Universitas Padjadjaran and the Faculty of Pharmacy.

5.2. Undergraduate Thesis

Writing the Undergraduate Thesis

At the conclusion of the Undergraduate Program in Pharmacy, a student is required to produce a Final Project worth six (6) credit-hours consisting of the Research Proposal Seminar (2 credit-hours), Seminar on Thesis Result (2 credit-hours), and the Bachelor's defense (2 credit-hours). The undergraduate thesis may be replaced by an article published in a reputable international journal or an accredited national journal with the student as the main author and the supervisor as co-author stating Universitas Padjadjaran as the affiliation.

1. Research Proposal Seminar

A student may take the Research Proposal and Seminar course, provided that he/she:

a. Has completed 110 credit-hours as evidenced by a letter from the academic adviser and the APC.
b. Has a GPA ≥ 2.75 with a maximum of 20% D grades.
c. Holds a valid student card.
d. Has a GPA ≥ 3.20 in semester 6 if the student wishes to take the Research Proposal Seminar in semester 7
e. Registered the Research Proposal Seminar course in the SPC of the semester
f. Registered in bachelor degree of pharmacy and supplying the research interest.

The requirements to participate in the Research Proposal Seminar are as follows:

a. Have attended seminars in the bachelor program in pharmacy on at least ten (10) occasions.
b. Have submitted the manuscript of the research proposal paper signed by all supervisors.
c. Have submitted Chapters I, II and III of the undergraduate thesis draft signed by all supervisors.
d. Presents the research proposal in the seminar no later than one month following registration at the academic Office.

2. Thesis Supervisors

The Chair of the Bachelor Program in Pharmacy shall determine the supervisor for the undergraduate thesis based on their interest and the recommendation from the Chief of Department. If the undergraduate thesis requires that there be a field supervisor, the Bachelor Program in Pharmacy may determine a supervisor from the agency/organization where the student conducts the research.

3. Research Proposal and Seminar on Thesis Result

A student may take the Research proposal seminar and seminar on thesis result provided that he/she:

1. Registers the Research Proposal Seminar and the Research Results Seminar courses in the SPC of the semester.
2. Has a GPA ≥ 3.20 and has taken 110 credit-hours of courses at the time he/she applies to have the Research Proposal Seminar if he/she plans to complete studies in the program in Semester 7 (graduate in 3.5 years).
3. Has made preparations to be examined by three (3) faculty members from the departments relevant to the topic of the research, assigned by the Chair of the Undergraduate Program in Pharmacy by the authority of a letter of appointment from the Dean.

The requirements for the Seminar on Thesis Result is as follows.

a. Passed all courses (140 credit-hours) and have fulfilled the required cumulative study load as evidenced by a letter from the academic adviser and the APC.
b. Has a minimum GPA of 2.75 with a maximum of 20% D grades.
c. Submitted the thesis, the research paper, and an e-poster on an A0 paper (84.1 x 118.9 cm) approved and signed by all supervisors.
d. Registered the Research and Research Result Seminar course in the SPC

e. Passed the pre-exam CBT/CAT with an average score of ≥ 56,00 per subject.
f. Holds a valid student card.
g. Submits the draft of the thesis no later than five (5) days prior to the seminar to the UPP.
h. Attended Research Proposal Seminars and/or Research Results Seminar in the UPP on at least 15 occasions.
i. Submits a letter certifying non-possession of all laboratory equipment of the Faculty of Pharmacy.
j. Submits a letter certifying that he/she has no outstanding loans with the libraries of the Faculty of Pharmacy and Universitas Padjadjaran.
k. Fulfills all administrative requirements as set by the Faculty and the University.

The Seminar on Thesis Result is to be held no later than three (3) months following the Research Proposal Seminar.

In the case that research cannot be completed within one semester,
a. The students are allowed to complete the research in the following semester by registering the Research and Research Results Seminar as a course in the SPC keeping the same supervisors and topic.
b. At the end of the semester, the course is given a Withdrawn (K) and does not count towards the GPA.

In the case that the undergraduate thesis is not completed within two semesters,
a. The Research and Research Results Seminar course is given a grade of E, unless in such cases where the failure can be academically accounted for.
b. The student must redo the research with a different title with the same or different supervisor.

Examination is done to the substance of the research results in a Research Results Seminar.

5.3. Bachelor's Defense

The Bachelor's defense is formally held within closed rooms, covering four subjects, namely Pharmaceutics and Pharmaceutical Technology, Pharmacology and Clinical Pharmacy, Pharmaceutical Biology, and Pharmaceutical Analysis and Medicinal Chemistry.

The requirements to take the Undergraduate Comprehensive Examination are as follows.
1. The student must have taken and received passing grades for the Seminar on Thesis Result by all examiners.

2. Passed all courses (142 credit-hours) and have fulfilled the required cumulative study load as evidenced by a letter from the academic adviser and the APC.
3. Has a minimum GPA of 2.75 with a maximum of 20% D grades.
4. Passed the English Language Test with a minimum score of 475.
5. Submitted the results of plagiarism detection of the draft of the thesis with a maximum score of 25%.
6. Submits proof of scientific article published at least in a local journal with an ISSN, or uploaded onto the Unpad repository.
7. Receives an average grade of ≥ 56 in CBT pre-comprehensive from each department.
8. Receives a grade of ≥ 56 or a C or the Undergraduate Comprehensive Examination.

5.4. Graduation Predicate

The graduation predicate is based on the final GPA, namely the combined average of all courses including the thesis.

Graduation Predicate for the UPP

1. An undergraduate student is declared as having graduated when he/she:
    a. have undergone all of the required study load;
    b. achieves the learning outcomes as set by the UPP;
    c. has a GPA equal to or greater than 2.75.
2. The graduation predicate of undergraduate studies is set as follows:
    a. GPA 2.75-3.00 is declared “satisfactory”;
    b. GPA 3.01-3.50 is declared “very satisfactory”;
    c. GPA 3.51-4.00 is declared “Praise” provided that the study period does not exceed five years and the students has published a scientific article
3. An undergraduate student who achieves a GPA of 3.51-4.00 but whose study period exceeds five years and/or does not have a published article shall receive the graduation predicate of “very satisfactory.”