ACADEMIC GUIDELINES
YEAR 2018-2019

Bachelor program in pharmacy

Faculty of Pharmacy

Universitas Padjadjaran

2019

CHAPTER I HISTORY OF THE FACULTY, VISION, MISSION, OBJECTIVES AND TARGETS

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 on September 1986. On October 17, 2006, the Department of Pharmacy changed its status 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 has obtained an A accreditation from the Independent Accreditation Institution for Higher Education for Healthcare (LAM-PTKes).

The Master program in Pharmacy was started since January 10, 2011 after obtaining the 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

1.2.1 Vision and Mission of the Faculty of Pharmacy

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.

1.2.2 Vision and Mission The Bachelor Program in Pharmacy

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

The mission 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 excellent bachelor study Program by 2011.
2. Year 2012-2016: to become excellent bachelor study Program based on Research and national Competitiveness by 2016.
3. Year 2017-2019: to become excellent bachelor study Program based on Research and regional Competitiveness by 2019.
4. Year 2020-2024: to become 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 Transfomative 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 (2012-2016) are:

1. Conducting pharmacy education which fulfill the principle of equal distribution and expansion of public access
2. Organizing research-based undergraduate pharmacy education that is relevant to the development of science and technology in the pharmaceutical field and meets the demands of the user community

3.Organizing professional, accountable and nationally competitive undergraduate pharmacy education

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4.Carrying out research in the pharmaceutical field based on local excellence that is oriented towards scientific publications, patents and commercial products

5.Organizing community service by utilizing the results of research in the pharmaceutical field

1.3 Purposes and targets

1.3.1 Purposes of the Faculty of Pharmacy

The purposes 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 reseach.
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.

1.3.2. Target of the Pharmacy Undergraduate Program, Faculty of Pharmacy, Universitas Padjadjaran (2012-2016) :

1. Increase in the number of qualified students studying in the Undergraduate Program in Pharmacy (UPP).
2. Improvement in the quality of the international class initiative in the UPP.
3. Achievement of the level of quality of the research-based pharmacy undergraduate education based on the National Educational Standard (SPN).

4. Achievement of the compentence of pharmacy graduates as characterized by RESPECT, upholding local and national cultures in the diversity of world cultures.
5. Improvement of the quality of faculty and staff of the UPP.
6. Improvement of the quality and quantity of the necessary facilities and infrastructure of the UPP.
7. Implementation of professional and accountable management and insitution of the UPP based on the principles of Continuing Quality Improvement.
8. Implementation of accountable financial planning and management of the UPP in accordance to the prevailing regulations.
9. Provision of quality educational services in the UPP to improve public trust.
10. Increase of scientific publications, patents, and commercial products of local excellence generated by research in pharmacy based on the Core Scientific Scheme of Universitas Padjadjaran.
11. Increase in the suitable use of research results in pharmacy for public interest.

CHAPTER II EDUCATIONAL ORGANIZATION

II.1 Objectives

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

1. care giver,
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

II. 2. Competencies and Learning Objectives

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.

II. 3 Subjects of Study

The formulation of courses offered in the Undergraduate 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.

A. Subjects with Reference to the Learning Outcomes

LEARNING OUTCOMES LEVEL 6 BASED ON THE INDONESIAN NATIONAL QUALIFICATION FRAMEWORK	SUBJECT
1. Able to correctly explain the concepts of human anatomy,	• Basic Pharmacology

physiology, and pathophysiology. 2. Able to correctly explain the handbook of pharmacotherapy in the treatment of cardiovascular; respiratory; neurological and psychiatric; digestive, urinary and gynecological; endocrinal; eye; nose, ear, and throat; blood; immunological; bone and joint; dermatological, infection, oncological, nutritional, and emergency diseases. 3. Able to accurately analyze the suitability of pharmacotherapy design against the therapy handbook/formularies. 4. Able to accurately identify problems pertaining to drugs covering interaction, toxicity, side effects, and drug non-compliance and abuse. 5. Able to provide accurate solutions to problems pertaining to covering interaction, toxicity, side effects, and drug non-compliance and abuse. 6. Able to provide information and education pertaining to pharmaceutical products and medical equipment to patients covering objectives of therapy, dosage, frequency usage, side effects, storage, and patient compliance.	• Pharmacotherapy of Infectious Diseases • Pharmacotherapy of Immunological and Oncolological Disorders • Pharmacotherapy of Infectious Diseases and Immunological and Oncological Disorders Practicum • Pharmacotherapy of Dermatological, Bone-and-Joint, and Ear-Nose-Throat Disorders • Pharmacotherapy of Neurological and Psychiatric Disorders • Pharmacotherapy of Respiratory Disorders • Pharmacotherapy of Dermatological, Bone-and-Joint, and Ear-Nose-Throat, Neurological and Psychiatric Disorders Practicum • Pharmacotherapy of Disorders of the Digestive Tract and Nutrition • Pharmacotherapy of Endocrinal Disorders • Pharmacotherapy of Gynecological Disorders • Pharmacotherapy of Digestive, Nutritional, Endocrinal and Gynecological Disorders Practicum

7. Able to correctly provide services on self-medication including alternative therapy, drug dosage and consideration of doctor's reference.	• Pharmacotherapy of Hematological, Blood-Vessel, and Cardiovascular Disorders. • Pharmacotherapy of Renal and Urinary Disorders • Pharmacotherapy of Hematological, Blood-Vessel, Cardiovascular, Renal, and Urinary Disorders Practicum • Pharmacy and Biotechnology of Kidneys and the Urinary Tract
1. Able to correctly to explain the standard procedure for the provision of services pertaining to pharmaceutical products and medical equipment. 2. Able to correctly provide services pertaining to doctor's prescriptions.	• Pharmaceutical Services • Basic Formulation • Basic Formulation Practicum
Able to correctly explain the basic sciences that support the field of pharmacy.	• Physical Chemistry • Physical Chemistry Practicum • Physical Pharmacy • Physical Pharmacy Practicum • Pharmaceutical Chemistry • Pharmaceutical Chemistry Practicum • Instrument Analysis • Pharmaceutical Botany • Pharmaceutical Botany Practicum • Biochemistry • Biochemistry Practicum

1. Able to produce various pharmaceutical products in various forms including cytotoxic products in accordance to the handbook. 2. Able to correctly differentiate drug classifications based on physical chemical qualities. 3. Able to accurately determine the physico-chemical and biological parameters of pharmaceutical products and household medical supplies. 4. Able to conduct prefomulation studies based on physico-chemical data of active ingredients and excipients. 5. Able to accurately formulate active ingredients and excipients in dosage forms.	• Preformulation of Pharmaceutical Products • Pharmacognosy and Pharmacy of Natural Substances • Liquid and Semisolid Forms and Product Technology • Liquid and Solid Forms and Product Technology • Liquid and Sterile Forms and Product Technology • Cosmetic Products • New Systems of Drug Delivery
Able to corectly carry out stability tests of phamaceutical products.	Drug Stability
1. Able to accurately identify damaged or substandard pharmaceutical products and medical supplies to be reported the proper authorities. 2. Able to thoroughly conduct qualitative and quantitative analysis of pharmaceutical products and household medical supplies.	• Liquid and Semisolid Pharmaceutical Product Analysis • Solid Pharmaceutical Product Analysis • Food and Contaminant Analysis • Forensic and Biomedical Analysis
1. Able to correctly distinguish various drug classifications based of the functional mechanism.	• Pharmacokinetics • Biopharmaceutics

2. Able to correctly explain the effects of dosage forms and the routes of application of drugs within the body.	
3. Able to correctly explain the interaction of drugs and the target within the body and the resulting biological effects.	
4. Able to analyze the bioavailability and bioequivalence of pharmaceutical products in accordance to the handbook.	
Able to accurately explain the relation between the quantitative chemical structure of drugs, including the thermodynamics thereof, and biological activities.	• Medicinal Chemistry • Medicinal Chemistry Practicum
Able to carefully determine the pharmacokinetic parameters of active ingredients	Pharmacokinetics
Able to correctly conduct research in pharmacy and related fields.	Research Methodology
Able to validly carry out quality assurance of pharmaceutical products.	Quality Assurance
Able to think creatively and have entrepreneurial initiatives in pharmacy-related occupation.	Entrepreneurial Management

II.4. Load and Duration of Study

The minimum study load of the UPP 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.

II. 5. Curriculum

The curriculum implemented in the the UPP 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.

Curriculum of bachelor program in pharmacy shown as follows

Tabel 1. Curriculum of bachelor program in pharmacy

No	Courses code	Courses name	Credits
	SEMESTER 1		
1.	P10A.1403	Introduction to Pharmaceutical Science and Ethics	2(2-0)
2.	P10A.1404	Physical Chemistry	2(2-0)
3.	P10A.1405	Physical Chemistry Practice	1(0-1)
4.	P10A.1406	Introduction to Medicinal Chemistry	1(1-0)
5.	P10A.1423	Introduction of Medicinal Chemistry Practice	1(0-1)
6.	P10A.1407	Cell and Molecular Biology	2(2-0)
7.	P10A.1421	Introduction of Pharmaceutical Chemistry	2(2-0)
8.	P10A.1411	Introduction to Pharmaceutical Chemistry Practice	1(0-1)
9.	UNX10.1007	English language	2(2-0)
10.	UNX10.1006	Indonesian language	2(2-0)
11.	UNX10.1002	Religion	2(2-0)
12.	UNX10.1009	Civics	2(2-0)
		Total	20

No	Courses code	Courses name	Credits
	SEMESTER 2		
1.	P10A.2421	Botanical Pharmacy	2(2-0)
2.	P10A.2428	Botanical Pharmacy Practice	1(0-1)
3.	P10A.2422	Pharmaceutics	2(2-0)
4.	P10A.2429	Pharmaceutics Practice	1(0-1)
5.	P10A.2423	Physical pharmacy	2(2-0)
6.	P10A.2430	Physical pharmacy practice	1(0-1)
7.	P10A.2424	Instrumental Analysis	2(2-0)
8.	P10A.2431	Instrumental Analysis practice	1(0-1)
9.	P10A.2425	Biochemistry	2(2-0)
10.	P10A.2432	Biochemistry practice	1(0-1)
11.	P10A.2426	Pharmacology	2(2-0)
12.	P10A.2427	Pharmacology practice	1(0-1)
13.	P10A.2431	Microbiology	2(2-0)
		Total	20
	SEMESTER 3		
1.	P10A.3401	Microbiology and Imunology	3(3-0)
2.	P10A.3402	Pharmacotherapy of Infectious Disease	2(2-0)
3.	P10A.3403	Pharmacotherapy of Immunology and Oncology	2(2-0)
4.	P10A.3404	Pharmacognosy and Natural Product Pharmacy of Liquid and Semisolid dosage form	2(2-0)
5.	P10A.3405	Introduction to Industrial pharmacy	2 (2-0)
6.	P10A.3406	Preformulation of Liquid and Semisolid dosage forms	1(0-1)
7.	P10A.3407	Formulation and Technology of Liquid and Semisolid dosage forms	1(1-0)

No	Courses code	Courses name	Credits
8.	P10A.3408	Pharmaceutical Analysis of Liquid and Semisolid dosage forms	1(1-0)
9.	P10A.3409	Medicinal chemistry	2(2-0)
10.	P10A.3410	Pharmacotherapy of Infectious Diseases, Immunologic disorders and oncology practice	1(0-1)
11.	P10A.3411	Pharmacognosy and Natural Product of Liquid and Semisolid dosage forms practice	1(0-1)
12.	P10A.3412	Formulation and Technology of Liquid and Semisolid dosage forms Practice	1(0-1)
13.	P10A.3413	Pharmacy Analysis of Liquid and Semisolid dosage forms Practice	1(0-1)
		Total	20
	SEMESTER 4		
1.	P10A.4401	Pharmacoterapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry	2(2-0)
2.	P10A.4402	Pharmacoterapy of Neurological Disorders and Psychiatry	2(2-0)
3.	P10A.4403	Pharmacoterapy of respiratory disorder	2(2-0)
4.	P10A.4404	Pharmacotherapy Skin Disorders, Bone and Joints, Eye, Nerves and Psychiatry Practice	1(0-1)
5.	P10A.4405	Pharmacognosy of Natural Pharmaceutical Ingredients	1(1-0)

No	Courses code	Courses name	Credits
6.	P10A.4406	Pharmaceutical of Natural pharmaceuticals Practice	1(0-1)
7.	P10A.4407	Preformulation of Solid Dosage Form	1(1-0)
8.	P10A.4408	Formulation and technology of Solid dosage forms	2(2-0)
9.	P10A.4409	Formulation and technology of Solid dosage forms practice	1(0-1)
10.	P10A.4410	Pharmaceutical Analysis of Solid dosage forms and Cosmetic	1(1-0)
11.	P10A.4411	Pharmaceutical Analysis of Solid dosage forms and Cosmetic Practice	1(0-1)
12.	P10A.4412	Theory and Synthesis of Radiopharmaceutics	2(2-0)
13.	P10A.4413	Phytochemistry	1(0-1)
14.	P10A.4414 P10A.4415 P10A.4416 P10A.4417	Elective course 1: Toxicology Pharmaceutical excipients Etnopharmacy Electrochemical Application in the Field of Pharmacy	2(2-0)
		Total	20
	SEMESTER 5		
1.	P10A.5401	Pharmacotherapy of Gartrointestinal Disorders and Nutrition	2(2-0)
2.	P10A.5402	Pharmacotherapy of Endocrine Disorders	2(2-0)
3.	P10A.5403	Pharmacotherapy of Gynaecoly Disorders	2(2-0)

No	Courses code	Courses name	Credits
4.	P10A.5404	Pharmacotherapy of gastrointestine, nutrition, endocrine and Gynaecology disorders practice	1(0-1)
5.	P10A.5405	Cosmetics and cosmeceuticals	2(2-0)
6.	P10A.5406	Formulation and technology of sterile preparations	2(2-0)
7.	P10A.5407	Formulation and technology of sterile preparations practice	1(0-1)
8.	P10A.5408	Food and contaminant analysis	2(2-0)
9.	P10A.5409	Community service	3(0-3)
10.	P10A.5410 P10A.5411 P10A.5412 P10A.5413	Elective course 2: Nutreceuticals and Therapeutic Nutrition Marine pharmacy Pharmaceutical enginering Analysis of chemicals in herbal medicines	2(2-0)
		Total	19
	SEMESTER 6		
1.	P10A.6401	Pharmacotherapy of Hematology, Vascular and Cardiovascular disorder	3(3-0)
2.	P10A.6402	Pharmacotherapy of Kidney and Urinary Tract Disorders	2(2-0)
3.	P10A.6403	Biotechnology pharmacy	2(2-0)
4.	P10A.6404	Pharmacotherapy of Hematology, Vascular and Cardiovascular, kidney and urinary disorder and biotechnology Practice	1(0-1)
5.	P10A.6405	Pharmacokinetics	2(2-0)

No	Courses code	Courses name	Credits
6.	P10A.6406	Biopharmacy	2(2-0)
7.	P10A.6407	Biopharmacy practice	1(0-1)
8.	P10A.6408	Analysis of biomedics and forensic	2(2-0)
9.	P10A.6409	Analysis of biomedics and forensic practice	1(0-1)
10.	P10A.6410	Research Methodology and Biostatistics	3(3-0)
11.	P10A.6411 P10A.6412 P10A.6413 P10A.6414	Elective course 3: Pharmacoepidemiology and Pharmacovigilans Aromatherapy and hydrotherapy Pharmaceutical Environment Pharmaceutical practice	2(2-0)
		Total	21
	SEMESTER 7		
1.	P10A.7401	Clinical pharmacy	3(3-0)
2.	P10A.7402	Clinical pharmacy practice	1(0-1)
3.	P10A.7403	Drug stability	2(2-0)
4.	P10A.7404	New drug delivery system	2(2-0)
5.	P10A.7405	Development of analytical method	1(1-0)
6.	P10A.7406	Development of analytical method practice	1(0-1)
7.	P10A.7407	Drug design and development	2(2-0)
8.	P10A.7408	Drug design and development practice	1(0-1)
9.	P10A.7409	Research proposal Seminar	2(0-2)
10.	P10A.7410	Field study	1(0-1)
11.	P10A.7411	Pharmaceutical management, Regulation and entrepreneurship	2(2-0)

No	Courses code	Courses name	Credits
12.	P10A.7412 P10A.7413 P10A.7414 P10A.7415	Elective course 4: Pharmacoeconomy Herbal Medicine Management of supply chain Fundamental of quality assurance	2(2-0)
		Total	20
	SEMESTER 8		
1.	P10A.8401	Seminar on thesis result	2(2-0)
2.	P10A.8402	Bachelor's defense	2(2-0)
		Total	4
		Total credit of bachelor programme	144

II.6. Courses Description

II.6.1. Department of Pharmaceutic and Pharmaceutical Technology

1. Chemical Physics 3(2-1)

This course studies the theoretical concept of solution; solution thermodynamics, surface tension, absorption, viscosity, reaction kinetics, buffer and isotonic solution, colloid, distribution constant, equilibrium, and chromatography

Instructor : Dr. Iyan Sopyan, M Si, Nasrul Wathoni, Ph. D., Dr. Yoga Windhu W., M Si

2. Fundamentals of Pharmaceutics Practicum 1(0-1)

This Practicum supports the Fundamentals of Pharmaceutic course to conduct the dispensing and mixing of pharmacy supplies based on the standard formula and recipe into pharmacy preparation forms (solid, liquid, semisolid)

Instructor : Dr. Dolih Gozali, MS, Angga Prawira K, MARS, Norisca Aliza P., M Si

3. Fundamentals of Pharmaceutics 3(2-1)

This course comprises the principles of basic pharmaceutic introductory, recipe and Latin language, drug dosages, galenic preparation, solid preparation, liquid preparation, and semisolid preparation

Instructor : Dr. Dolih Gozali, MS, Angga Prawira K, MARS, Norisca Aliza P., M Si

4. Introduction to Industrial Pharmacy 1(0-1)

This course provides concepts, policy, and technology related to the pharmaceutical industry. The materials cover GMP, PPIC, Warehousing, Drug Registration, Distribution System of Drug, Drug Development, Drug Preparation Production, Quality control of drug preparation, Packaging

Instructor : Patihul Husni., Dr. Dolih Gozali, MS, Dr. Yoga Windhu W., M Si

5. Liquid and Non-Sterile Semisolid Products Preformulation and 1 (1-0)

This course provides solid preparation design by considering the basics of formulation and pharmaceutical technology that students capable of producing an appropriate Liquid and Semisolid preparation design. The materials cover preformulation study, preformulation objective, preformulation criteria, Karl Fischer, pKa, LogP/LogD, solubility, crystal structure, hygroscopy, solubility stability, spectroscopy data, preformulation data interpretation, and the application of formula drafting

Instructor : Dr. Dolih Gozali, Dr. Yoga Windhu W., MS Patihul Husni., M Si

6. Technology and Formulation of Liquid and Semisolid Products 3 (2-1)

The course of Technology and Formulation of Liquid and Semisolid Preparation (TFSSL) comprises liquid and semisolid preparation in

correlation to formula, formulation, and evaluation. The materials cover molecular disperse system, coarse disperse system (suspension and emulsion), liquid preparation process technology, semisolid products process technology, evaluation of liquid preparation, evaluation of semisolid preparation, formulation, and evaluation of cosmetics preparation, packaging technology, aerosol preparation, and industrial extraction technology
Instructor : Dr. Dolih Gozali, M.Si, Apt., Patihul Husni, M.Si., Apt., Norisca Aliza Putriana, M. Farm., Apt

7. Formulation Technology of Liquid and Semisolid Products Practicum 1 (0-1)
The Practicum materials of Formulation Technology of Liquid and Semisolid Preparation comprises preformulation, cosolvent, laxative emulsion, topical suspension, extract quality check (microbe contamination), an oral suspension containing an extract of quercetin (West Indian elm, Indonesian bay leaf, guava), cosmetics and Households Health Supplies (PKRT), Ointment ZnO, cream and gel, suppository and ovula
Instructor : Angga Kautsar, Mars., Apt., Patihul Husni, M.Si., Apt., Norisca Aliza Putriana, M. Farm.,

8. Solid Products Preformulation 1(1-0)
The course of Solid Preformulation comprise the Introduction, definition, purpose, and objective of preformulation, solid product development (NDDS), drug design (drug production challenge), solid preparation design, compatibility and incompatibility, solid characterization, solid property engineering, powder properties (applicative), pharmaceutic polymer, polymer application in pharmaceutics, and presentation assignment
Instructor: Dr Dolih Gozali, M.S., Dr. Yoga Windhu Wardhana, M.Si, Apt., Dr. Iyan Sopyan, M Si

9. Formulation and Solid Products Technology 3(2-1)

The course of Formulation and Solid Preparation Technology comprises the details of pharmacy preparation formulation in the solid-state, including tablet, capsule, and granules, and evaluating preparation being made. The materials cover solid preparation (with other active substances, excipient, and packaging), powder technology, solid calcification, particle downsizing, granulation types and methods, theory and manufacture technology of capsule, tablet coating (film-coated and sugar-coated), powder coating technique, and microencapsulation, formulation, and controlled release preparation technology, powder, and granule evaluation, and tablet preparation evaluation

Instructor : Dr. rer. nat. Anis Yohana Chaerunisaa, M Si., Dr. Marline Abdassah, M S., Taofik Rusdiana, Ph. D., Patihul Husni, M Si, Dr. Yoga Windu W., M Si

10. Technology and Sterile Products Formulation 3 (2-1)

The course of Technology and Sterile Preparation Formulation comprises Good Manufacturing Practice (GMP/CPOB) in producing sterile preparation. The materials cover introduction, pharmaceutical industry development in Indonesia, GMP for sterile preparation, sterilization definition, sterilization test, sterilization method and mechanism, classification of injection preparation, formulation, and its evaluation, classification of eye medicines, formulation, and its evaluation, and osmolarity tonicity calculation

Instructor : Dr. Marline Abdassah, MS, Dr. Dolih Gozali, MS, Patihul Husni, MSi

11. Pharmacokinetics 2 (2-0)

The course of Pharmacokinetics comprises Introduction (Fundamentals to comprehend ADME process in drug course, and a support discipline to comprehend pharmacokinetics), Pharmacokinetics Model, Pharmacokinetics Parameters, the one-compartment model of Intravenous Pharmacokinetics, Analysis of Urine Data (Rate and Sigma Minus Methods), two-compartment

model of Intravenous Pharmacokinetics, one-compartment oral model of Pharmacokinetics, two-compartment oral model of Pharmacokinetics, IV Administration Pharmacokinetics, Multiple Dose Intravenous Administration Pharmacokinetics, Oral Multiple Dose Administration Pharmacokinetics, Non-Linear Pharmacokinetics, and exercises with the discussion of PK parameter calculation
Instructor : Dr. Taofik Rusdiana, M.Si., Apt., Dr. Sri Adi Sumiwi, M. Si, Apt, Prof. Dr. Ahmad Muhtadi, MS, Apt, Norisc Aliza P., M Si

12. Biopharmaceutic 2 (2-0)
The course of Biopharmaceutic comprises the fundamental concept of drug delivery and drug release from preparation until absorption process into the body, biological membrane and mechanism of drug transport; absorption and main routes of drug administration; drug distribution and elimination; drug activity and physiology factor; pathological and environment factor; formulation and technology factor; biopharmaceutic study of the rectal route; biopharmaceutic study of skin and eye route; biopharmaceutic study of parenteral route and inhalation; Bioequivalence
Instructor : Dr. Taofik Rusdiana, M.Si., Apt., Dr. Marline Abdassah, MS, Patihul Husni, M Si

13. Biopharmaceutic Practicum 1 (0-1)
The materials of biopharmaceutic Practicum comprise the main discussion of intrinsic dissolution velocity, the study of In Vitro drug absorption, In Vitro drug absorption percutaneous, Comparative Dissolution Testing (CDT/UDT), data analysis using pharmacokinetics software, pharmacokinetics In Vitro model after drug administration using bolus IV therapy, pharmacokinetics In Vitro model after drug administration using infusion, drug bioequivalence test.
Instructor : Dr. Taofik Rusdiana, M.Si., Apt., Dr. Marline Abdassah, MS, Patihul Husni, M Si

14. Cosmetics and Cosmeceutical 2 (2-0)

The main discussions of cosmetics and cosmeceutical course are Introduction to cosmetics, bathing soap preparation, decorative cosmetics, fingernail polishes, body care preparation, hair care and hair coloring preparation, theory, and technology of capsule manufacture, baby preparation. skincare, eye preparation, man preparation, Introduction to cosmeceuticals

Instructor : Dr. rer. nat. Anis Yohana Chaerunisaa, M Si., Soraya Ratnawulan Mita, M Si., Norisca Aliza Putri, M Pharm

15. Drug Stability 2 (2-0)

The course of drug stability studies the drug degradation types, factors affecting drug stability, drug degradation through hydrolysis route, drug degradation through oxidation route, drug degradation through photolysis route, drug degradation through complex reaction route, the effect of pH and activation energy to drug stability, reaction order kinetics (Q10 and part-time), reaction order kinetics (determination of expired date), data interpretation of reaction kinetics, drug stability and degradation test according to GMP and ICH, degradation drug in solid-state (Solid State Stability), analysis and test method of drug degradation in solid sate, and interpretation stability test data on solid-state.

Instructor : Nasrul Wathoni, Ph D., Muchtaridi, Ph. D., Dr. Iyan Sopyan, M Si

16. New Drug Delivery Systems 2(2-0)

On this topic, students will study controlled release drug delivery systems, types of polymer, microencapsulation, colonic drug delivery, implant, transdermal preparation, gastroretentive delivery system, nasopulmonary system, ocular drug delivery, and intrauterine device delivery.

Instructor : Dr. rer. nat. Anis Yohana Chaerunisaa, M.Si., Dr. Marline Abdassah, MS, Patihul Husni, M Si

17. Pharmaceutical Practice 2 (2-0)

The course of pharmaceutical practice studies global and Indonesia pharmaceutical practices, pharmaceutical community development in Indonesia based on national health system: clinical drugstore and community health center, non-clinical service (drug management), clinical pharmacy service (Recipe study of Extemporaneous compounding and dispensing), Drug Information Service (PIO and Counseling), hospital pharmacy (Home care service), pharmaceutical industry, clinical pharmacy service (sterile preparation dispensing), and Visitation

Instructor : Angga Prawira Kautsar, MARS, Apt., Norisca A. Putriana, M.Farm., Apt., Patihul Husni, M.Si., Apt

18. Pharmaceutical Management, Regulation, and Entrepreneurship 2 (2-0)

The course of Pharmaceutical Management, Regulation, and Entrepreneurship studies cases related to entrepreneurship, entrepreneur characteristics and entrepreneurship pathway, business planning (business plan and marketing, promotion, finance, accounting, human resource), entrepreneurship topic research, laws, norms, laws, and ethics, health laws and regulation, pharmaceutical laws and regulation, professional standard competency, case study: Violation of ethics and case study: violation of laws and regulation.

Instructor : Angga Prawira Kautsar, MARS, Apt., Auliya A. Suwantika, PhD., MBA., Apt.,

19. Pharmaceutical Excipient 2 2(2-0)

The course of pharmaceutical excipient comprises Introduction, usability objective, requirements, interaction and compatibility of excipient, solid-state characterization, filler-binder-disintegrant-lubricant-anti adherent-glidant agent, excipient type of solid preparation, pharmaceutical polymer, exploration of pharmaceutical polymer, Introduction to liquid preparation excipient, the excipient in liquid preparation formulation, emulsion, emulsifying agent,

Introduction to semisolid preparation, cream and gel, sample, paste and suppository, and adjunctive excipient (Introduction, antioxidant, antifoam, buffer, flavoring agent, coloring agent, fragrance agent, complexing agent, flavors, and preservative)
Instructor : Nasrul Wathoni, Ph.D., Apt., Dr. Dolih Gozali, MS; Dr. Iyan Sopyan

II.6.2. Department of Pharmacology and Clinical Pharmacy

1. Fundamentals of Pharmacology 2 (2-0)
The course of Fundamentals of Pharmacology studies human anatomy as a unit, Introduction to pathology, Introduction to various clinical biochemistry parameter testing to help diagnose organ pathology, Introduction to drug delivery inside the body from biopharmaceutical phase, pharmacokinetics and pharmacodynamics phase, concepts of a drug on autonomous organs, Introduction to drug interaction, Introduction to pharmacotherapy, and Introduction to clinical pharmacy.

Instructor: 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.

2. Immunology and Oncology Disorders Pharmacotherapy 2 (2-0)
This course visualizes the immune system's definition, anatomy and physiology acted in the immune system, immune system response to immunogen and cancer, clinical biochemistry parameter on the immune system, and pharmacotherapy given to those disorders condition. The materials cover cellular injury, cancer cell biology, proliferation, and cell cycle, the mechanism of cancer drug, allergy and hypersensitivity, immunodeficiency, immune system tolerance and autoimmune, transplantation and immune system, tumor immunology, clinical biochemistry parameter on immune disorder and cancer, pharmacotherapy on several immune system function disorders and cancer.

Instructor: Prof. Dr. Ajeng Diantini, MS., Apt., Rizky Abdulah, Ph.D., Apt., Dr. Tiana Milanda, M.Si., Apt., Melisa Intan Barliana, Dr. Med. Sc., Apt.

3. Infections Diseases Pharmacotherapy 2 (2-0)
This course studies the concept of infections disease, clinical data interpretation, antibiotic pharmacology, systematics of rational antibiotic use, antibiotic preference on selected infections disease, and antibiotic use monitoring. The materials cover human immune system; infectious pathology; antibiotic classification; action mechanism and antibiotic combination; antibiotic potency and resistance; antibiotic side effect and toxicity; systematics of rational antibiotic use; epidemiology, etiology, pathophysiology, prognosis, pharmacotherapy, and monitoring of therapy effectiveness on respiratory tract infectious diseases (bronchitis and pneumonia), tuberculosis, urinary tract infections, gastrointestinal infection, parasitic and fungal infections, and HIV-AIDS: infections phytotherapy; and integrated case studies of infections diseases.
Instructor: Irma M. Puspitasari, PhD., Apt., Sri Agung FK, M Si., Dika Pramita Destiani, M. Pharm., rano Kurnia Sinuraya, M.Farm., Apt

4. Pharmacoepidemiology and Pharmacovigilance 2 (2-0)
This course discusses pharmacoepidemiology, pharmacoeconomics, and pharmacovigilance. The materials cover cross-sectional study, case-control study, and 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.
Instructor: Auliya A. Suwantika, Ph.D., Apt., Neily Zakiyah, Ph.D., Apt

5. Pharmacotherapy of Skin Disorders, Bone and Joint, Eye, and Otorhinolaryngology (ORL/THT) 2 (2-0)

This course is given with learning outcomes:

- Students can define pharmacotherapy as appropriately treating eye, nose, ear, and throat diseases, bones and joints, and skin.
- Students are capable to appropriately identify problems related to drugs, including interaction, toxicity, side effects, abuse, and non-compliance drugs.
- Students are capable of giving appropriate solution related to the drug for eye diseases, nose, ear and throat, bones and joints, and skins including interaction, toxicity, side effects, abused and non-compliance drugs.
- Students are capable to appropriately perform self-medication service, including therapy alternative, drug dosage, and doctor referral consideration.

The materials cover anatomy and physiology of eye, nose, ear, throat, bones and joints, skin, the pathogenesis of diseases aggression to the organs, pharmacology and non-pharmacology therapy, and its phytotherapy. Some pharmacotherapy cases are also presented in the tutorial session, including eye disorder (glaucoma and conjunctivitis), ENT disorders (allergic rhinitis, otitis media, pharyngitis), skin disorders (dermatitis, cutaneous drug reaction, hyperpigmentation, acne vulgaris), bone diseases (osteoporosis), joint diseases (rheumatoid arthritis, osteoarthritis, gout), etc., and role-play simulation for drug information related to those organ disorders.

Instructor: 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., Imam Adi Wicaksono, M.Farm., Apt

6. Pharmacotherapy of Kidney Diseases, Electrolyte, and Urinary Tract 2 (2-0)

This course studies the concepts of kidney diseases, clinical data interpretation, drug pharmacology of kidney disorders, electrolyte imbalance and urinary tract disorder, kidney therapy preferences, electrolyte imbalance and urinary tract disorder, and drug use monitoring. The materials cover Excretory System (Kidney and urinary tract); Pathophysiology of kidney disorders, electrolyte imbalance, and urinary tract disorder; Drug classification of kidney and urinary tract disorder; Drug classification of electrolyte imbalance; Drug classification of urinary tract disorder; the side effects and toxicity of drugs for a kidney disorder, electrolyte imbalance and urinary tract disorder; Etiology, pathophysiology, prognosis, pharmacotherapy, and monitoring for kidney diseases, electrolyte imbalance, and urinary tract disorder; and infectious phytotherapy.

Instructor: Dr. Eli Halimah,MS, Ivan Surya Pradipta, M Si., Sri Agung FK, M. Si., Dika Pramita Destiani, M Pharm. Apt., Maya Febrianti, M Si

7. Pharmacotherapy of Neurological and Psychiatric Disorder 2 (2-0)

This course studies the concept of neurological and mental disorders (anxiety, epilepsy, pain management, headache, sleep disorder), drug pharmacology of neurological and mental disorders (anxiety, epilepsy, pain management, headache, sleep disorder), therapy preferences, and drug use monitoring. The materials covers nervous system (central nervous system and peripheral nervous system); pathophysiology of nervous disorder and mental disorder; drug classification of nervous disorder and mental disorder; drug classification of the central nervous system and autonomic nervous system disorder; drug's side effect and toxicity of nervous and mental disorder; drug's use of the central nervous system and peripheral nervous system, autonomic nervous system disorder drug; epidemiology, etiology, pathophysiology, prognosis,

pharmacotherapy, and therapy effectiveness monitoring to depression, epilepsy, sleep disorder, headache, and pain; and integrated case studies of neurological and mental diseases.
Instructor: Prof. Dr. Anas Subarnas, M Sc., Dr. Rini Hendriani, M Si., dr. Budhi Prihartanto, Maya Febrianti, M Si

8. Pharmacotherapy of Gastrointestinal Tract Diseases, Malnutrition, and Obesity 2 (2-0)
This course studies various topics to treat digestive system disorder, malnutrition, and obesity. The materials cover Introduction, anatomy and physiology of digestive system, pathophysiology, clinical parameter check, pharmacology, and pharmacotherapy on peptic ulcer disease and GERD, diarrhea, and constipation, liver function disorder (hepatitis), and digestive system disorder related to nutrients and obesity.
Instructor: Dr. Sri Adi Sumiwi, M.S., Apt., Ellin Febrina, M.Si., Apt., Dr. Eli Halimah, M.S., Apt., Dr. Rini Hendriani, M.Si., Apt.

9. Pharmacotherapy of Endocrine Disorders 2 (2-0)
This course studies anatomy, physiology, biochemistry related to the endocrine system and epidemiology, pathogenesis, pathophysiology, and endocrine disorder treatment, specifically thyroid disorder and diabetes mellitus. The materials cover anatomy, physiology, and biochemistry of endocrine system; pathophysiology; pharmacology; clinical biochemistry; pharmacotherapy of endocrine disorder; drug clinical pharmacy service of endocrine disorder; and case studies.
Instructor: Dr. Keri Lestari, M.Si., Apt., Ellin Febrina, M.Si., Apt.

10. Pharmacotherapy of Respiratory Disorder 2 (2-0)
This course studies anatomy and physiology of the respiratory system, respiratory system disorder, respiratory system infection, therapy preference to respiratory system disorder, drug interaction related to respiratory system disorder, and clinical pharmacy service

to a patient experiencing respiratory system disorder. The materials cover anatomy and physiology of respiratory system, respiratory system disorder; respiratory system infectious disease; therapy preference to respiratory system disorder; drug interaction; clinical pharmacy service, and case studies.
Instructor: Prof. Ajeng Diantini, M.Si., Apt., Dika Pramita Destiani, M Pharm. Apt.

11. Endocrine System 2 (2-0)
This course studies the anatomy and physiology of the endocrine system, carbohydrate metabolism, and endocrine system disorder, therapy preference to endocrine system disorder, drug interaction related to endocrine system disorder, and clinical pharmacy service to a patient experiencing endocrine system disorder. The materials cover anatomy and physiology of endocrine system; physiology of hormone; anatomy, physiology, pathophysiology, and types of diseases, treatment preference to thyroid and diabetes mellitus diseases; phytotherapy of endocrine system disorder; and case studies.
Instructor: Dr. Keri Lestari, M.Si., Apt.

12. Respiratory System 2 (2-0)
This course studies anatomy and physiology of respiratory system, respiratory system disorder, therapy preference to respiratory system disorder, an immune reaction to respiratory system disorder, drug interaction related to respiratory system disorder, phytotherapy, and clinical pharmacy service to a patient experiencing respiratory system disorder.
Endocrine system disorders to be learned, including asthma, COPD, bronchitis. The materials cover anatomy and physiology of respiratory system, respiratory system disorder (asthma, COPD, bronchitis.); Immunology related to respiratory system disorder, phytotherapy of respiratory system disorder; and case studies.
Instructor: Prof. Ajeng Diantini, M.Si., Apt.

13. Reproductive System 2 (2-0)

This course studies the reproductive system's anatomy and physiology, reproductive system disorder, therapy preference to reproductive system disorder, drug interaction related to reproductive system disorder, and clinical pharmacy service to a patient experiencing reproductive system disorder. The materials cover anatomy and physiology of men and women reproductive system; hormonal (endocrine) system; reproductive system disorder (diseases related to contraception and menstrual disorder); diseases related to the condition of a pregnant mother, sexually transmitted disease, the parameter of reproductive hormone (male and female hormone); drug mechanism of action affecting reproductive system; oral contraception drug, estrogen, and progestin (progestogen), androgen and anti-androgen, contraception tools, reproductive system disorder drug; drug interaction; reproductive system infection diseases (infectious disease, HIV-AIDS, cancer); infection drug of reproductive system, anti-HIV drug, anti cervical cancer drug, sexually transmitted disease; therapy preference; and clinical pharmacy service of reproductive system disorder.

Instructor: dr. Budhi Prihartanto, Sp.PD., Gofarana Wilar, M.Si., Apt.

14. Pharmacotherapy of Hematological and Cardiovascular System Disorders 2 (2-0)

This course studies drug preference usage of hematological system disorder (antianemia, anticoagulant, essential antihypertensive), cardiovascular (angina, stroke), and performs drug use monitoring of the diseases based on scientific review, guidelines, and proof, and able to communicate it appropriately and correctly. The materials cover anatomy and physiology of hematological and cardiovascular system; hematological system disorder; cardiovascular system disorder; sepsis and cardiovascular system disease; biochemistry parameter of hematological and cardiovascular disorder; pharmacotherapy of hematological and cardiovascular disorder; antiparasitic for hematological and

cardiovascular disorder; drug interaction; and clinical pharmacy service to hematological and cardiovascular system disorder.
Instructor: Dr. Ahmad Muhtadi, dr. Budhi Prihartanto, Auliya A. Suwantika, Ph.D.

15. Pharmacotherapy of Reproductive System Disorders 2 (2-0)
This course studies anatomy and physiology of male and female reproductive system, the pathogenesis of diseases aggression to the organs, pharmacology and non-pharmacology therapy, and its phytotherapy, identification, and interpretation of clinical/laboratory data, and patient medical history of providing appropriate therapy (C3).

Instructor: Prof. Dr. Jutti Levita, M.Si., Apt., Dr. Yasmiwar Susilawati., M.Si., Apt., Dr. Tina Rostinawati., M.Si., Apt., Rano Kurnia Sinuraya, M.Farm., Apt.

16. Fundamentals of Pharmacology Practicum 1 (0-1)
The materials in this Practicum comprise the main discussion of body as a unit; treatment and drug dosage to animal testing; dose-response relationship, determination of therapeutic index and LD 50; activity testing of autonomous nervous system drug; and pharmacology screening.
Instructor: Instructor Team of Fundamentals Pharmacology Practicum

17. Pharmacotherapy Practicum of Skin Disorders, Bones and Joints, Eye, ENT, Neurological & Psychiatry 1 (0-1)
This Practicum's materials comprise the main discussions of the integumentary system; sensory system; antidepressant activity test; locomotor activity test; and analgesic activity experiment.
Instructor: Instructor Team of Pharmacotherapy Practicum

18. Pharmacotherapy Practicum of Gastrointestinal Tract, Nutrient, Endocrine, and Gynecology Disorders 1 (0-1)

This Practicum's materials comprise the main discussion of antidiarrheal and laxative activity test; diabetes and anti-diabetes activity test; antiulcer activity test; blood glucose testing; and liver function test.

Instructor: Instructor Team of Pharmacotherapy Practicum of Gastrointestinal Tract, Nutrient, Endocrine, and Gynecology Disorders

19. Pharmacotherapy Practicum of Infectious Diseases, Immunology and Oncology Disorders 1 (0-1)

The materials of this Practicum comprise the main discussion of simple staining; gram staining; acid-fast staining; endospore staining; capsule staining; physiological characteristics of bacteria; MIC determination from a test preparation potentially as an antibiotic; determination of bacteria susceptibility to various antibiotics preparation; determination of inhibition from preparation as antiseptic or disinfectant to testing bacteria; and anti-inflammatory activity testing.

Instructor: Instructor Team of Pharmacotherapy Practicum of Infection Disease, Immunology and Oncology Disorders

20. Practicum of Hematology, Blood Vessel, Cardiovascular, Kidney, and Urinary Tract Disorders 1 (0-1)

This Practicum materials comprise triglyceride and cholesterol check; kidney function check; and urine analysis.

Instructor: Practicum Instructor Team of Hematology, Blood Vessel, Cardiovascular, Kidney, and Urinary Tract Disorders

II.6.3. Department of Pharmaceutical Chemistry and Medicinal Chemistry

1. Introduction to Pharmaceutical Chemistry (2-0)

This course provides the theoretical concept of fundamental sciences (basic natural science) serving as comprehension base of pharmaceutical science-primarily related to primary laboratory skills occupation, chemical bond, GLP, reaction kinetics, the analytical concept of inorganic salt (cation and anion), calculation concept of solution concentration, gravimetric analysis, the fundamental concept of acid-base, acid-base titration, and deposition. The material given covers chemical bond and the atom structure; GLP; solution; reaction kinetics, identification of cation and anion; identification of inorganic salt; acid-base characteristics of drug molecule; alkalimetry and acidimetry titration; argentometric titration; and project administration.
Instructor: Dr. Ida Musfiroh, M Si., Muchtaridi, Ph. D., Dr. Aliya Nurhasanah, M Si

2. Environmental Pharmacy (2-0)
This course comprises human-environmental interactions, environmental phenomena, various pharmaceutical waste management, and alternatives of environment-friendly activity. The materials cover Introduction to environmental pharmacy; environmental laws; biogeochemical cycle; waste management; alternatives of environment-friendly activity.
Instructor: Driyanti Rahayu, M T, Dr. Aliya Nurhasanah, M Si., Dr. Ida Musfiroh, M Si.

3. Food and Contaminant Analysis (2-0)
This course aims to achieve one of Pharmacy graduates' competencies that they are capable of mastering the theoretical concept of a specific part in-depth in a field of knowledge. The materials cover food safety and total quality of food; basic food management principles based on GMP, SSOP, and HACCP; food additives; nonfood additives; new food processing technology and micronutrient and macronutrient analysis; and analysis of physical, chemical, and microbiological contamination.

Instructor: Dra Wiwiek Indriyati MS., Dr. Ida Musfiroh M.Si.,Apt., Muchtaridi Ph.D., Apt., Dr. Aliya Nur Hasanah M.Si., Apt

4. Biomedical and Forensic Analysis (2-0)
This course aims to achieve one of Pharmacy graduates' competencies that they are capable of mastering the theoretical concept of a specific part in-depth in a field of knowledge. The materials cover principles of biomedical and forensic analysis; biological sample treatment techniques; electrophoresis, immunoassay; forensic laws; forensic toxicology; and forensic toxicology analysis.
Instructor: Mutakin Ph.D., Dr. Aliya Nur Hasanah M.Si., Dra Wiwiek Indriyati MS, Dr Med.Sc Melisa Intan Barliana.

5. The Application of Electrochemical for Pharmaceutical (2-0)
This course aims to achieve one of Pharmacy graduates' competencies that they are capable of mastering the theoretical concept of a specific part in-depth in a field of knowledge. The materials cover the static system's electrochemical method; electrochemical method of the dynamic system; ion-selective electrode; and the development of the electrochemical sensor.
Instructor: Dr. Aliya Nur Hasanah M.Si., Apt; Mutakin Ph.D.; Ida Musfiroh M.Si.

6. Radiopharmaceutical Synthesis and Theory (1-0)
This course aims to achieve one of Pharmacy graduates' competencies that they are capable of mastering the theoretical concept of a specific part in-depth in a field of knowledge. The materials cover the structure and characteristics of an atom; mass and energy of interconversion; fundamentals of radiation; types of decay; production of radiopharmaceutical; quality control of radiopharmaceutical; radiopharmaceutical imaging; biodistribution; and radioligand binding assay.
Instructor: Muchtaridi Ph.D., Holis Abd Holik M.Si., Danni Ramdhani M.Si.

7. Medicinal Chemical (BKO) Analysis in Herb Remedies/Jamu (2-0)

This course studies the identification method of medicinal chemicals in herb remedies. Materials given cover regulation of traditional medicine; medicinal chemical in herb remedies; identification of medicinal chemical in analgesic drug type; NSAID anti-inflammatory; steroids; antibiotics; antihistamines; quantitative analysis of medicinal chemical; design and development of test kit/test strip of a medicinal chemical detector in herb remedies.

Instructor: Mutakin, Ph.D., Dr. Aliya Nur Hasanah, M.SI., Dr. Ida Musfiroh, M.Si.

8. Medicinal Chemistry (2-0)

This course let students learn the history and role of medicinal chemistry in the pharmaceutical, drug discovery stage, active receptor model such as histamine receptor, bioactive compounds (the relationship between chemical structure and bioactive), theories of drug-receptor interaction, drug metabolism and inactivation (ADME), the quantitative structure-activity relationship of drugs, drug stereochemical, lead compound discovery strategies, rational drug design, and issues in new development drug. The materials cover Introduction to medicinal chemistry; the influence of physicochemical properties; types of drug action; drug metabolism and inactivation; theories of drug-receptor interaction; QSAR; stereochemical aspects of drugs; lead compound discovery strategies; and molecular modification and rational drug design.

Instructor: Sandra Megantara, M.Farm, Apt., Driyanti Rahayu, M.T., Rina Fajri Nuwarda, M.Sc., Prof. Resmi Mustarichie, Ph.D, Apt.

9. Drug Design and Development (2-0)

This course defines how a new drug is discovered and developed, from initial ideas until clinical use to human, and to visualize interphase between bioscience and pharmaceutical business. The materials cover stages in drug discovery and development;

identification, evaluation (bioassay), drug target validation; lead compound identification; bioisostere and simplification use in drug design; utilizing lead compound and its derivatives in predicting activity; CADD; the importance of applying pharmaceutics in drug development; preclinical and clinical test in drug discovery process; drug registration; and project presentation.
Instructor: Muchtaridi, Ph.D, Apt, Dr. Jutti Levita, Apt, Sandra Megantara, M.Far, Apt, Nyi Mekar, M.Si., Apt.

10. Introduction to Medicinal Chemistry (2-0)
This course let the students study chemistry fundamentals for Medicinal Chemistry in which students will be recalled their high school studies of organic chemistry such as functional group, chemical reaction of an organic compound, stereochemistry, chemical bond, and intermolecular force. The students are then provided with a comprehension level of practical theories that support Medicinal Chemistry learning, such as physical and chemical properties of drug molecules, fundamentals of drug synthesis, fundamentals of molecular modeling, and lead compounds discovery from natural material.
Instructor: Muchtaridi, Dr. Ph. D., Sandra Megantara, M Si, Driyanti Rahayu,MT

11. Analytical Method Development (1-0)
This course study the aspects of analytical method development. Materials given cover the importance of error measurement, standardization of analytical method (external standard, internal standard, addition standard), optimization of an analytical method, validation of the analytical method, and development of the analytical method in bioanalysis, BABE, HPLC, and spectrophotometry.
Instructor: Mutakin, Ph.D., Dr. Ida Musfiroh, M.Si., Apt., Dr. Aliya Nurhasanah, M.Si., Apt.

12. Quality Assurance (2-0)

This course studies quality concept, defines quality characteristics of a product, defines quality control techniques required in quality controlling of a product, and can formulate a required quality assurance program. The materials cover an Introduction; analytical quality assurance system; statistic quality assurance; acceptance sampling plan; acceptance standardized sampling plan; quality assurance standard; and case studies of quality assurance of pharmaceutical production process.
Instructor: Muhtaridi, Ph. D

13. Solid Preparation and Cosmetics Pharmaceutical Analysis (1-0)
This course studies the analytical method of raw material and product of solid preparation, and cosmetics, including raw material analysis, diazotization reaction, high-performance liquid chromatography, mixed spectrophotometry, and addition standard spectrophotometry. The materials cover active compound analysis in solid preparation raw materials; diazotization reaction analysis; determination of active compound assay in solid preparation using HPLC, HPLC internal standard method, and UV-vis spectrophotometry for mixture sample; solid-state cosmetic preparation analysis; determination of coloring assay in solid-state cosmetic preparation using addition standard method.
Instructor: Rimadani Pratiwi, M Si

14. Instrument Analysis (2-0)
This course defines the fundamentals selection of analytical method, atom spectroscopy method, molecule spectroscopy method, separation technique, and elemental analysis. The materials cover Introduction; molecular spectroscopy; infrared spectroscopy; UV-vis spectrophotometry; separation technique (chromatography), and mass spectroscopy.
Instructor: Mutakin, Ph. D., Dr. Ida Musfiroh, M Si., Danni Ramdhani, M.SI., Apt.

15. Biochemistry (2-0)

In this course, students will learn about the structure and function of macromolecules (protein, carbohydrate, and fat), enzymes (nomenclature, mechanisms, kinetics, inhibition, and regulation), macromolecules metabolism (protein, carbohydrate, and fat), citric acid cycle, and oxidative phosphorylation.

Instructor: Dr. Nyi Mekar Saptarini, M Si., Dra. Wiwiek Indriyati, Dr. Med. Melisa Intan Barliana.

16. Liquid and Semisolid Products Analysis (2-0)

This course aims to Achieve One of the Competencies from Pharmacy Graduates that They are Capable of Mastering the Theoretical Concept of a Specific Part In-Depth in a Field of Knowledge. The materials cover the determination of purity material of active compound and determination of active compound degree in liquid and semisolid preparation with redox titration-complexometric titration, and UV-vis spectrophotometry; determination of drug material quality by using non-instrumental and instrumental identification.

Instructor: Dr. Aliya Nur Hasanah M.Si., Apt; Driyanti Rahayu MT; Mutakin Ph.D; Dr. Ida Musfiroh M.Si.

17. Drug Design and Development Practicum (0-1)

This Practicum applies the discovery and development process from the initial ideas until clinical use to humans. The materials cover choosing and downloading drug target on PDB; activity prediction using QSAR; pharmacophore and molecular docking; bio guided assay isolation on guava leaf or mangosteen peel; modification of chalcone compound or alpha mangosteen as a result of isolation; structure elucidation; bioassay; and formulation of previous Practicum result.

Instructor: Muchtaridi, Ph. D., Sandra Megantara, M Si., Dr. Nyi Mekar, Driyanti Rahayu, MT Febrina Putri, M Pharm., Danni Ramdani, M Si

18. Analytical Method Development Practicum (0-1)

This Practicum applies analytical method development covering the standardization of analytical method (external, internal, addition), optimization of the analytical method, validation of analytical method and development of analytical method with HPLC, and spectrophotometry. The materials cover standardization of analytical method with external, internal, and addition standard technique; system compatibility; validation of analytical method (linearity, LOD, LOQ, accuracy, and precision); the development of HPLC method; and the development of spectrophotometry method.
Instructor: Mutakin, Ph.D., Dr. Ida Musfiroh, M.Si., Apt., Dr. Aliya Nurhasanah, M.Si., Apt.

19. Biomedical and Forensic Analysis Practicum (0-1)

This Practicum aims to achieve one of Pharmacy graduates' competencies that they are capable of mastering the theoretical concept of a specific part in-depth in a field of knowledge. The materials cover determination of uric acid level in blood; determination of glucose level in blood; determination of cholesterol in the blood; DNA fingerprint analysis; bioactive analysis and separation using SPE offline KCKT method.
Instructor: Mutakin Ph.D., Aliya Nur Hasanah M.Si., Dr Med.Sc Melisa Intan Barliana

20. Food and Contaminant Analysis Practicum (0-1)

This Practicum aims to achieve one of Pharmacy graduates' competencies that they are capable of mastering the theoretical concept of a specific part in-depth in a field of knowledge. The materials cover borax analysis using turmeric paper and toothpick; fat quality analysis with acid value determination; color compound (rhodamine) analysis with yarn-wool method followed by paper chromatography; food additive (BTP) testing in sauces; and formaldehyde analysis in fruits or tofu.
Instructor: Dra Wiwiek Indriyati MS., Ida Musfiroh M.Si.,Apt., Muchtaridi Ph.D., Apt., Aliya Nur Hasanah M.Si., Apt.

21. Solid and Cosmetics Products Analysis Practicum (0-1)
This Practicum studies the analysis practice of raw materials and solid preparation products, and cosmetics. The materials cover active compound and heavy metals analysis in solid preparation raw material, table analysis using high-performance liquid chromatography, mixed table analysis using mixed spectrophotometry, and coloring analysis in cosmetics using addition standard spectrophotometry.
Instructor: Driyanti Rahayu, MT

22. Liquid and Semisolid Products Analysis Practicum (0-1)
This Practicum aims to achieve one of Pharmacy graduates' competencies that they are Capable of Mastering the Theoretical Concept of a Specific Part In-depth in a Field of Knowledge. The materials cover raw material check of vitamin C (iodometry); ZnO raw material check (complexometry); paracetamol raw material check; potio paracetamol level check; quality extract check; chloramphenicol raw material check; determination of chloramphenicol level in cream preparation; and project presentation.
Instructor: Aliya Nur Hasanah M.Si., Apt., Driyanti Rahayu MT., Ida Musfiroh M.Si., Mutakin Ph.D.

23. Instrument Analysis Practicum (0-1)
This Practicum defines the fundamentals of color reaction based on the functional group (alcohol, phenol, carboxylic acid, alkaloid, nitrogen base, antibiotic, sulfonamide, barbiturate), understands the concept and adjunctive process of drug solubility, understands the quality of cooking oil sample through functional group analysis with an infrared spectrometer.
Instructor: Mutakin, Ph. D., Dr. Ida Musfiroh, M Si., Danni Ramdhani, M.SI., Apt.

24. Introduction Practicum to Medicinal Chemistry (0-1)

This Practicum studies and practices how to define distribution coefficient (D), pH of drug molecules (pKa), performs multiple organic reactions, identifying functional group, synthesis of drug raw materials, extraction, isolation, fractionation, also performs computational chemistry such as QSAR and Structure and Ligand-Based Drug Design.
Instructor: Muchtaridi, Ph. D., Driyanti Rahayu, M T, Sandra Megantara, M Si.

25. Introduction Practicum to Pharmaceutical Chemistry (0-1)
This Practicum provides the comprehension of good practices in a laboratory (GLP), specifies reaction rate, identifies inorganic salt (cation and anion), defines the concentration of solution, performs gravimetric analysis, the fundamental concept of acid-base, acid-base titration, and deposition.
Instructor: Dr. Ida Musfiroh, M Si., Muchtaridi, Ph. D., Dr. Aliya Nurhasanah. M Si.

II.6.4. Department of Pharmaceutical Biology

1. Introduction to Pharmacy Science and Ethics 2(2-0) (UNX1010)
The entirety of Introduction to pharmacy science course comprises Introduction, pharmacy profession, pharmacy studies in Indonesia, pharmacy occupation and its competency, traditional drug, drug, and drug development, drug delivery in the body, types of drug preparation (BSO), and BSO, BABE and drug registration, price structure of drug and drug distribution system, pharmaceutical industry, apothecary pharmacy, hospital pharmacy, and government/federal pharmacy.
Instructor: Dr. Yoppi Iskandar, M.Si., Apt., Ade Zuhrotun, M.Si., Apt., Auliya Suwantika, Ph.D

2. Cell and Molecular Biology (2-0) (UNX.1011)

In this course, students will learn about macromolecule: DNA, RNA, and chromosome macromolecule (carbohydrate, fat, and protein), chromosome, plasmid, and the flow of genetic information, regulation of gene transcription-expression in prokaryotes and eukaryotes, DNA mutation and repair, Hemostasis and cell death, virus, Carbohydrate metabolism, Protein and fat metabolism, distinctions between Prokaryotic, eukaryotic, and archaeal cell structure, Cell Growth and Division, Cell Membrane Transport System and the Application of Cell and Molecular Biology in pharmaceutical.
Instructor: Dr. Tina Rostinawati, M.Si., Apt., Arif Satria, M.Si., Apt.

3. Microbiology and Immunology 3(3-0) (P10A.3401)

This course discusses Introduction to fundamentals microbiology, prokaryotic protist, prokaryotic protist, Virus, Protozoology, Helminthology, Sterilization, and Aseptic Technique, Introduction to microbe culturing medium, Isolation and identification of microorganism metabolism, microorganism and infection diseases, Control of Microorganism , Immunodiagnosis and vaccine.
Dosen Instructor: Sri Agung Fitri Kusuma, M Si

4. Pharmaceutical Biotechnology 2(2-0) (P10A.6403) (P10A.3403)

This course visualizes the definition, function, and biotechnology benefits in drug development. Materials given covers the Introduction to pharmaceutical biotechnology, recombinant DNA technology, DNA replication and application of Polymerase Chain Reaction (PCR), protein technology, microbe technology, plant biotechnology, animal biotechnology, disease detection and diagnosis on human: types of human diseases and genetically detection of diseases, medicinal product: discovery of the new drug, vaccine, and monoclonal antibody, gen therapy, regenerative drugs: cell and tissue transplantation, , stem cell technology, and cloning.
Instructor: 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.; Arif Satria W.K., M.Si., Apt.

5. Pharmaceutical Botany 2(2-0) (P10A.2421)

This course introduces the pharmaceutical plants, covering charactristics, identification, and naming and classification employing morphological, anatomical, and phytochemical approaches as well as the introduction of simplicia as sources of pharmaceutical sunbstances.

Instructors: Ade Zuhrotun, M.Si., Apt.; Ami Tjitraresmi,M.Si., Apt.; Zelika Mega R, M.Si., Apt.

6. Pharmaceutical Botany Practicum1(0-1) (P10A.2428)

This practicum focuses on the practice of microscopic and macroscopic analysis of natural drug raw materials. This course covers the introduction of the microscope and biological magnifying instruments, introduction of the morphology of cells and plant tissues as raw materials and forms of simplicia, introduction of various specific fragments of simplicia, observation of specific coloring of simplicia which contains particular metabolites, and analysis of simplicia mixtures.

Instructors: Ade Zuhrotun, M.Si., Apt.; Ami Tjitraresmi,M.Si., Apt.;Zelika Mega R, M.Si., Apt., Dr. Yasmiwar Susilawati, M.Si., Apt, Yoppi Iskandar, M.Si., Apt., Raden Bayu Indradi, M.Si., Apt

7. Pharmacognosy and Pharmacy of Natural Substances in Liquid and Semisolid Forms 3(2-1) (P10A.3404)

This course provides an overview of the concept, function, and use of pharmacognosy and natural substance pharmacy in the development of drugs from natural substances. The materials cover simplicial, extraction methods and phytochemical screening, technological process of manufacturing herbal medicine, standardization of herbal medicine, secondary metabolite contents of simplicia (flavonoid, quinone, tannin dan polyphenol, essential oil)

including classification, biosynthesis, systematics, chemical contents, and the relation to pharmacology and examples of the use of plants in medical treatment.

Instructors: Dr. Yasmiwar Susilawati, M.Si., Apt., Dr. Yoppi Iskandar, M.Si., Apt., Ami Tjitraresmi, M.Si., Apt., Ferry Ferdiansyah, M.Si., Apt.

8. Pharmacognosy and Pharmacy of Natural Substances in Liquid and Semisolid Forms Practicum (P10A.3411)

The practicum focuses on the preformulation of extract suspension products, examination of simplicial (organoleptic, macroscopic, microscopic, histochemistry, phytochemical screening), the process of manufacturing extracts, extract quality assurance in accordance to Farmakope Herbal Indonesia and Materia Medika Indonesia, evaluation of products (thin-layer-chromatography markers in products), product packaging, product effectiveness testing.

Instructors: Dr. Yasmiwar Susilawati, M.Si., Apt., Dr. Yoppi Iskandar, M.Si., Apt., Ami Tjitraresmi, M.Si., Apt., Ferry Ferdiansyah, M.Si., Apt.

9. Pharmacognosy and Natural Substance Pharmacy (Solid Forms) 2(1-1) (P10A.4405)

This course provides an overview of the concept, function, and use of pharmacognosy and natural substance pharmacy in the development of drugs from natural substances. The materials cover simplicial, extraction methods and phytochemical screening, technological process of manufacturing herbal medicine, standardization of herbal medicine, secondary metabolite contents of simplicia (flavonoid, quinone, tannin dan polyphenol, essential oil) including classification, biosynthesis, systematics, chemical contents, and the relation to pharmacology and examples of the use of plants in medical treatment.

Instructors: Dr. Yoppi Iskandar, M.Si., Apt., Dr. Yasmiwar Susilawati, M.Si., Apt., Dudi Runadi, M.Si., Apt., Ferry Ferdiansyah, M.Si.

10. Phamacognosy and Natural Substance Pharmacy Practicum (Solid Forms) (P10A.4406)

The practicum focuses on the preformulation of extract suspension products, examination of simplicial (organoleptic, macroscopic, microscopic, histochemistry, phytochemical screening), the process of manufacturing extracts, extract quality assurance in accordance to Farmakope Herbal Indonesia and Materia Medika Indonesia, evaluation of products (thin-layer-chromatography markers in products), product packaging, product effectiveness testing of extract tablets.

11. Phytochemistry 1 (1-0) (P10A.4412)

This course discusses the concept, characteristics, classification, extraction methods, separation, identification and and analysis of carbohydrate, nitrogen, and phenolate compunds; organic acids; lipids and related compounds, terpenoids from plants.

Instructors: Ami Tjitraresmi, S.Si., M.Si., Dr. Yoppi Iskandar, M.Si. Dr. Yasmiwar Susilawati, M.Si, Ferry Ferdiansyah, M.Si., Dudi Runadi, M.Si.

12. Phytochemstry Practicum 1 (0-1) (P10A.5415)

This practicum covers discussions and practice of various methods of isolation and identification pf secondary metabolite compounds from plants, including the processing of simplicia, various ways of extraction, extract fractionation, isolation of compound identity, purity test and qualitative analysis of isolated compounds (tests use thin layer chromatography by comparing the isolated compounds to the standard compound).

Instructors: Ami Tjitraresmi, S.Si., M.Si., Dr. Yoppi Iskandar, M.Si. Dr. Yasmiwar Susilawati, M.Si, Ferry Ferdiansyah,

13. Ethnopharmacy 2(2-0) (P10A.4416)

This course is offered to achieve the main competence of mastering ethnopharmacy in relation to the discovery of herbal medicine of

pharmaceutical quality based on the local wisdom of certain ethnic communities.
Instructor: Prof. Moelyono MW., MS., Apt.

14. Marine Pharmacy 2(2-0) (P10A.5411)
This course discusses the potentials of marine natural materials in the field of pharmacy covering the macro and micro potentials of algae, mangrove and coastal plants, marine animals, and soft coral. It also discusses marine ecology, secondary metabolites in marine organisms and the prospects for development in pharmacy including drugs, medical raw material, cosmetics, and food.
Instructors: Prof. Moelyono Moektiwardoyo, Apt.; Dr. Yasmiwar Susilawati, M.Si., Apt.

15. Aromatherapy and Hydrotherapy 2(2-0)
Mata kuliah ini diberikan untuk mencapai kompetensi utama penguasaan materi aromaterapi dan hidroterapi serta penerapannya dalam bidang farmasi
Instructors: Dr. Yasmiwar Susilawati, M.Si., Apt., Ferry Ferdiansyah, M.Si., Apt., Zelika Mega R., M.Si., Apt.

16. Herbal Medicine 2(2-0) (O10A.7414)
This course discusses various subjects pertaining to medicinal plants and herbal medicine and theor various aspects, particularly concerning botanu, phamacognosy, phytochemistry, and pharmacology in health care and medical treatment.
Instructors: Dr. Yoppi Iskandar, M.Si., Apt.

II. 7. Learning System

The Universitas Padjadjaran Facultay 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.

II.7.1. 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 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 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 on 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 writing, research activities, and similar activities basically refers to fieldwork.

One credit for internship report writing activities refers to fieldwork, is set to be equivalent to a workload of 170 minutes scheduled activities per week for one semester.

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.

II.7.2.Student Registration

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

Administrative Registration

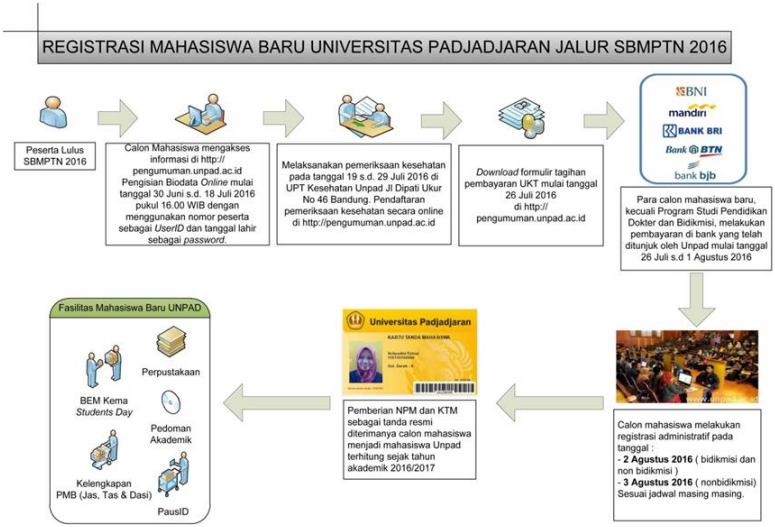
1. Administrative registration is done online, namely registration and re-registration in the beginning of each semester.
2. Administrative registration is done by both new and current students to determine their administrative status.
3. The requirements for administrative registration for new and current 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 dine 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 alamamater jackets.



II.7.3. Cards and Lists

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

Study Plan Card (SPC)

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)

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)

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)

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)

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)

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.

II.7.3. 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 verified by the instructor of the course.

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 practicum, field work, clinical work, seminar, or related activities.
4. To sit in the Final Comprehensive Examination, a student must have fulfilled all of the follwong 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.

Undergraduate Thesis

Writing the Undergradate 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 and Seminar (2 credit-hours), Research and Research Results Seminar (2 credit-hours), and the Comprehensive Examination (2 creit-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 Universias 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 nd 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 and Seminar course in the SPC of the semester
f. Registered in the UPP and supplying the research interest.

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

a. Have attended seminars in the UPP 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 Undergraduate Program in Pharmacy shall determine the supervisor for the undergraduate thesis based on the research interest of the student. If there shall be more than one supervisors, the main supervisor and the co-supervisor shall be determined in accordance to the prevailing regulations. If the undergraduate thesis requires that there be a field supervisor, the UPP may determine a supervisor from the agency/organization where the student conducts the research.

3. Research Proposal and Research Results Seminars

A student may take the Research and Research Results Seminar provided that he/she:

1. Registers the Research Proposal Seminar and the Research Results Seminar courses in in the SPC of the semester.

2. Has a GPA ≥ 3.20 and has taken 120 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 Research Results Seminar is as follows.

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

l. Fulfills all administrative requirements as set by the Faculty and the University.

The Research Result Seminar 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 is 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 in 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.

4. Undergraduate Comprehensive Examination

The undergraduate comprehensive examination is formally held within closed doors, covering four subjects, namely Pharmaceutics and Pharmaceutical Technology, Pharmacology and Clinical Pharmacy, Phamaceutical 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 Research Results Seminar 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 2.50 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 a grade of ≥ 56 or a C or the Undergraduate Comprehensive Examination.

Graduation Predicate

The graduation predicate is based on the final GPA, namely the combined average of the 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 graduatuion predicate of “very satisfactory.”

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 Witdrawn (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 Undergradate 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 ised 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.

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 thneir 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 programsPelayanan bagi mahasiswa yang terkena anjuran alih program studi, 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 Universiity 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, completenad keep 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 take based on the student;s 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% absene must be supported by reasonable grounds.
6) Study load per semester as low grades in a semester will affect the GPA and determines 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, bit if the academic adviser cannot provide a solution, the matter should be referred to faculty member assigned as a counselor or the guidance and counseling team.
11. In the case that the academic adviser is hindered form 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.

CHAPTER III ACADEMIC SANCTIONS

Academic sanctions can be in the form of academic warnings and/or termination of studies. The study termination sanction is proposed by the study program/faculty and decided by the Rector.

Academic Warning

Academic warning is in the form of a letter from the Vice Dean addressed to parents/ guardians or funding institutions to inform student's lack of academic achievement or violations of other provision s. Academic warning is carried out to warn the student in order to not to experience the termination of study.

Academic warning is imposed on students who at the end of the second semester and the semesters there after have a GPA below 2.00 and / or the amount of credit savings is less than 50% of the total credits that should be taken.

Academic Warning Due to Administrative Negligence

Academic warning is imposed on students of the bachelor of Pharmacy Study Program who neglect administrative obligations (not registering / re-registration, etc.) for one semester.

Study Termination

With the stipulation of termination of study, it means that students are expelled from Universitas Padjadjaran because their performance does not comply with applicable regulations, administrative negligence, and/or negligence in participating in learning activities. Reports on student conditions who must be given an academic warning as a

result of negligence, attached with the proof of academic achievement and/or evidence of negligence.

1. A warning letter to the student concerned from the Faculty Leader (Dean/Vice Dean)
2. A letter requesting consideration of students who have violated the law from the Faculty Leader (Dean /Vice Dean) to the Faculty Senate.
3. The decree violate /does not violate the law on behalf of the student concerned from the Faculty Senate
4. A letter of application for termination of study on behalf of the student concerned from the Faculty Leader (Dean / Vice Dean) to the University Leaders (Rector / Vice Rector I)
5. Letter of approval / rejection of the study termination of the student concerned from the University Leadership (Rector / Vice Rector I)
6. Academic transcripts that have been taken by the student while studying at Universitas Padjadjaran, signed by the Head of the Faculty (Dean/Vice Dean)

Study termination is imposed on students who experience one of the conditions that exceeds the set cumulative study time limit.

Termination of Study Due to Administrative Negligence

Termination of study is imposed on students of the Pharmacy bachelor Study Program who stop their studies for two consecutive semesters or at different times without the permission of the Rector.

Other Academic Sanctions

1. Academic sanctions are imposed on students who commit disrespectful actions in the teaching-learning process, both academic and non-academic, or violate the law, and / or commit immoral acts.

2. The determination of academic sanctions for certain cases (data plagiarism, discussion plagiarism, not mentioning sources, norms and ethics) is determined based on a recommendation from the Faculty / Graduate School Team.
3. The handling of plagiarism cases refers to the applicable regulations in Unpad and the prevailing laws and regulations.
4. The types of academic sanctions are determined based on the prevailing laws and regulations by the Advisory Commission, which consists of:
   a. University representatives (Rector / Vice Rector for Academic and Student Affairs / Director of Education and Student Affairs); and
   b. Representatives of Masters Education administering institutions (Dean of the Faculty / Postgraduate School, Deputy Dean, Chairperson / Secretary of the Masters Study Program, and Chief Advisor).
5. The results of the Advisory Commission agreement are then followed up by signing the Minutes as the basis for determining the decision.

Not completing KRS and not participating in Teaching and Learning Activities in Semester I and / or Semester II

Students who have registered administratively in semester I and / or semester II, either filling in KRS but not participating in teaching-learning activities or not completing KRS at all, without justifiable reasons, are considered resigned and subject to study termination sanctions.

Not Filling KRS

Students who have registered or re-registered administratively, but do not complete KRS (do not participate in teaching and learning activities) without justifiable reasons, are subject to the following sanctions:

1. Given a stern written warning by WD I not to repeat;
2. The semester left is calculated within the maximum time limit for completion of the study;

3. If this action is repeated, either in the following semester or in another semester, students will be subject to study termination sanctions.

Resign After the Change of KRS

Students who withdraw from one or more courses after the KRS change deadline without a justifiable reason (for example, illness, accident, or accident) are subject to the following academic sanctions:

1. The courses that are abandoned are declared not passing (given the letter quality E);
2. The letter E quality is used in calculating the Grade Point Average (GPA);
3. Got a warning letter from Vice Dean to not repeat.
4. The abandoned semester is calculated within the maximum time limit for completion of the study;
5. If this action is repeated, either in the following semester or in another semester, students will be subject to termination of their studies

Sanctions for Non Academic Violations

If a student commits a violation, after discussing it with the Faculty Senate, he will be subject to special sanctions, while the handling of criminal matters will be left to the authorities. The types of violations are like:

1. **Violation of Law**
   Students who violate the law are subject to special sanctions in the form of academic suspension during the legal process, after being discussed with the Faculty Senate, while criminal matters are handed over to the authorities. Students who violate the law and have been legally found guilty by a court that has permanent legal force, will be subject to sanctions in the form of termination of study by the Rector. in accordance with applicable regulations.
2. **Violation of Moral Ethics and Professional Ethics**

Students who violate moral, professional ethics (examining patients / clients without supervision, making prescriptions, conducting consultations without supervision, etc.), falsifying signatures and the like, will be subject to sanctions in the form of suspension by the Dean until termination of studies by the Rector.

3. **Violation of Academic Ethics**
   Students who violate academic ethics, including cheating, plagiarizing (papers, reports, Final Project Reports, Thesis, etc.), plagiarism, leaking questions or similar, will be subject to sanctions in the form of academic suspension by the Dean until termination of studies by the Rector.

Other Sanctions

All activities that disturb public order and immoral acts in the campus environment are subject to sanctions in the form of warnings up to termination of studies.

Basically every student has the right to carry out various activities as part of the academic community, however, as in human life in general, it must be avoided from committing actions that can be categorized as crimes. These actions include:

1. Brawls between students, whether carried out inside or outside the campus environment that cause damage to other people's property and / or injured victims. The perpetrator of an act that causes damage or a victim of injury may be subject to the provisions of Article 406 of the Criminal Code concerning the destruction of property and Article 351 of the Criminal Code concerning persecution. The provisions in Article 406 and Article 351 of the Criminal Code can also be imposed on demonstrations that are disorderly and cause riots resulting in damage to other people's property and / or injured victims.
2. Drinking alcohol, both inside and outside the campus environment that disturbs public security. The provision that can be imposed is Article 492 regarding public security breaches.
3. Using narcotics, either for yourself or giving narcotics to others both inside and outside the campus environment. The provisions that can be imposed are Article 84 and Article 85 of Law no. 22 of 1997 on Narcotics.

In certain cases, the faculty may issue its own decisions that do not conflict with the legal or regulatory provisions above.

CHAPTER IV INFRASTRUCTURE

IV.1 Facilities

The Faculty of Pharmacy Unpad provides complete, self-owned and adequate facilities to ensure the smooth running of the Tridharma of Higher Education, in order to produce graduates who meet the specified competencies.

The facilities available at the Faculty of Pharmacy Unpad consist of a collection of books, scientific journals (physical and electronic), internet access, computer facilities, notebooks, tablets, LCD projectors, printers, digital cameras, scanners and complete laboratory instruments. Internet network already uses optical fiber with a bandwidth of 84 Mbps. All academicians can easily access the internet, due to the availability of adequate access points in all areas in the Faculty of Pharmacy Unpad.

Students can access library facilities on the Unpad campus at Jalan Dipati Ukur Bandung which since 2017 has moved to the Jatinangor campus. This library is known as CISRAL-Unpad or Center of Information Scientific Resources and Library of Universitas Padjadjaran. CISRAL has implemented a digital library since 2003 and to date has a collection of 200,000 (two hundred thousand) books. Another advantage of CISRAL UNPAD is the search for books using the Online Public Access Catalog (OPAC), namely the automated CISRAL book collection tracking system subscribing to electronic journals (e-journals) related to PSPA UNPAD. CISRAL also has facilities such as a Multi Media room to be able to use the internet and access e-journals and e-books, which consists of: Sampoerna Corner room which provides reading books, internet facilities, TV, DVD and CD-Rom. There is a reading room (readingroom) and there is a computer and WiFi that can be used by users. Online access to the collections of the Universitas Padjadjaran library can be done through: Electronic Library (http://lib.unpad.ac.id/), Electronic Journal (http://jurnal.unpad.ac.id/), Knowledge Management (http: / /repository.unpad.ac.id/) and Online Public Access Catalog (OPAC) (Opac.unpad.ac.id). The central library of Universitas Padjadjaran has various facilities provided to make it easier for the academic community to access the library collections online. Apart from the

university website as a vehicle for information, faculty websites were also developed. Until now, it has a book collection of around 200,000 (two hundred thousand) copies. There are various references available in the pharmacy faculty library which can be accessed online by the PSMF academic community including e-books and e-journals..

Another advantage of CISRAL Unpad is book search using the Online Public Access Catalog (OPAC), a book collection tracking system. CISRAL subscribes to an electronic journal (e-journal) which can be accessed by students of the Faculty of Pharmacy Unpad. In addition, CISRAL also subscribes to electronic books (e-books) in various fields of science. CISRAL also has facilities such as a multi-media room to access e-journals and e-books in the form of the Sampoerna Corner, which also provides books, TV, DVD and CD-Rom. At CISRAL, there is a reading room that provides computers and WiFi.

In addition to the facilities at the Faculty of Pharmacy, students also can access various facilities in the classroom, administration room, laboratory, laboratory center, meeting room, sports facilities (badminton indoor sports hall, futsal field, soccer field, and basketball court), art activity room, activity room student affairs, health facilities, ATM platforms, bookstores, canteens, central library, mosque, Technical Implementation Unit (UPT) Medical & Health Center, Unpad Teaching Home (RSP), arboretum, on-campus transportation facilities and other facilities located on three campuses Unpad located in Bandung, Jatinangor and Arjasari.

Students can also access various facilities owned by other parties, such as the facilities at the Hospital dr. Hasan Sadikin Bandung, PT. Prodia Widya Husada and BATAN as well as facilities in various pharmacies, pharmaceutical industries, hospitals and government agencies (Balai POM and Puskesmas).

In the next five years, the Faculty of Pharmacy plans to increase the availability of various facilities, including the addition of laboratory instruments (HPLC, FTIR, UV spectrophotometer, densitometer, PCR, refrigerator, freeze dryer, dissolution device, SPE-vacuum and CO2 incubator), additional equipment. at the Unpad Educational Pharmacy-Kimia Farma, adding office equipment (electronics and furniture), teaching equipment, adding library collections and increasing internet bandwidth.

The management information system and ICT (Information and Communication Technology) facilities used by the Faculty of Pharmacy Unpad are in the form of:

1. Hardware in the form of a computer connected via an intranet and the internet.
   a. Cable network & hot spots covering all areas of the Faculty of Pharmacy, both inside and outside the building.
   b. 3 servers
   c. 143 personal computers, 39 notebooks, 9 tablets and 12 Hubs.
   d. The use of PABX as many as 16 points for direct communication services between divisions and between administrative rooms.
2. A sufficient number of licensed software
   a. Licensed Windows Operating System and *Office Applications* (*Microsoft Certificate Agrrement*), plus *Open source* applications such as Linux
   b. Otomigen X automation *software* and GDL 4.2 *Digital Library software* which are connected to the IDLN (*Indonesia Digital Library Network*) used in the Unpad Faculty of Pharmacy Library and can be accessed through http://farmasi.unpad.ac.id/perpustakaan
   c. *Moodle E-learning* Universitas Padjadjaran for *e-learning* applications, can be accessed at http://elearning.unpad.ac.id/kuliahonline/
   d. *Plagiaricek software*, is a student's thesis antiplagiarism *software,* which can be accessed via a LAN network.

SIAT (Integrated Academic Information System) https://siat.unpad.ac.id/ was built to facilitate and integrate all systems related to academic information both in the fields of education and teaching, research, community service and other support. SIAT can be accessed via
https: //siat.unpad. ac.id/index.php/login (for operator login), https://students.unpad.ac.id/ (for student login) and https://staffs.unpad.ac.id/login (for lecturer login).
SIAT contains:

1. PACIS (Padjadjaran Academics Information System) http://pacis.unpad.ac.id

Application for processing academic data which includes data for new students and old students, the finance department and BAA (Academic Administration Bureau).
The facilities there are:
a. Student registration and registration.
b. Up date student status.
c. Student bio and profile.
d. Payment process (e-payment).
e. Online Graduation.

2. PADI (Padjadjaran Admission) http://padi.unpad.ac.id
Applications for data processing of Unpad Entrance Examination (SMUP) participants include:
a. Purchase number and PIN for online registration.
b. Division of the exam room.
c. Exam attendance.
d. Pass participant report.

3. Registration (http://pendaftaran.unpad.ac.id)
Application for online registration processing, which includes:
a. Fill in participant biodata.
b. Checklist of required documents.
c. Announcement portal.
d. Download proof of registration.

4. Students (http://students.unpad.ac.id/)
This application was built as an information portal for Unpad students. The facilities contained in it are:
a. Filling in student biodata (for up date).
b. Registration information and billing form.
c. Academic information.
d. KRS Online.
e. Academic calendar
f. Test scores
g. Class schedule and lecture
h. Evaluation of learning outcomes (questionnaire)
This application was originally called the student portal with the address http://mahasiswa.unpad.ac.id, which has now changed to become student students.

5. e-Office (Padjadjaran Linked Mail) http://siat.unpad.ac.id/eoffice)
Application / system provided to process incoming and outgoing mail workflow in the Universitas Padjadjaran environment. The facilities provided include:

a. Incoming Mail System.
b. Outgoing Mail System.
c. Mail Tracking.
d. Document Management.

6. *SIMAK BMN (State Property Accounting Management Information System) is an off line reporting system for the use of state property.*
7. Online Alumni Database, is an online alumni database system that can be accessed through http://farmasi.unpad.ac.id/data-alumni.

SIAT has also been integrated with PDPT-DIKTI data (Higher Education Database) or http://forlap.dikti.go.id through a web service that is connected between Universitas Padjadjaran and Kemenristekdikti, to function as evaluation reporting on study programs each semester.

IV.2 Infrastructure

The Faculty of Pharmacy Unpad provides complete, self-owned and adequate facilities to ensure the smooth running of the Tridharma of Higher Education, so as to produce graduates who meet the specified competencies.

In 2015, the infrastructure for the Faculty of Pharmacy Unpad was more complete with a grant from the IDB (Islamic Development Bank) in the form of 2 new buildings, complete with the facilities. This new 3-story building, which is named Laboratory Building 2, contains classrooms and laboratories, which are integrated with research rooms, discussion rooms and lecturers' workrooms. A new 2-story Dean building, contains rooms for faculty and study programs management, academic and administrative service rooms, small meeting rooms, plenary meeting rooms and other rooms needed to support the learning process, including an auditorium room for larger events. The two buildings complement the Laboratory 1 Building, which consists of classrooms, tutorial rooms, CBT Center and laboratories, which are integrated with research rooms, discussion rooms and lecturers' workrooms.

Classrooms, tutorial rooms and discussion rooms are used for lecture activities. The tutorial room is used for lectures using the

SCL learning method and student comprehensive sessions. The auditorium room is used for guest lectures, guest visits or as a paper-based examination room (Paper Based Test). The Computer Based Test (CBT) method was conducted at the CBT Center.

Various laboratories and dry laboratories (Teaching Dispensatory), student research workspaces are available for use by students. The spacious library room is equipped with an adequate reading room. Comfortable open space for study and discussion, canteen, BEM Kemafar room, music room with band and angklung equipment and sports field. A large vehicle parking lot can meet the parking needs of lecturers, students and guests. Unpad Faculty of Pharmacy has Unpad-Kimia Farma Educational Pharmacy, medicinal plant garden and Padjadjaran 3 Dormitory for first year students. The Faculty of Pharmacy Unpad also has a fostered village, namely in Cilayung Village, Jatinangor District, Sumedang Regency, as a place for routine community service implementation.

In addition to infrastructure at the Faculty of Pharmacy Unpad, students can also access various academic and administrative infrastructure, laboratories, laboratory centers, meeting rooms, sports infrastructure (badminton indoor sports hall, futsal field, football field, and basketball court), art activity room, student activity room. Health facilities, ATM platforms, bookstores, canteens, central libraries, mosques and the Technical Implementation Unit (UPT) of the Medical & Health Center which provides health services in the form of Emergency Unit (UGD), doctoral practice, outpatient care, inpatient care and referral to a more complete hospital (generally the Hasan Sadikin Hospital). Universitas Padjadjaran also has Unpad Teaching Hospital (RSP), arboretum and other infrastructure located on three Unpad campuses located in Bandung, Jatinangor and Arjasari.

Unpad Faculty of Pharmacy students can also access various infrastructures owned by other parties, such as the facilities of dr. Hasan Sadikin Bandung, PT. Prodia Widya Husada and BATAN. In the next five years, there will be expansion of the CBT space.

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CHAPTER V RESEARCH, COMMUNITY SERVICE AND COOPERATION

V.1 Researches

Various researches by lecturers of the Bachelor Program In pharmacy at the Faculty of Pharmacy Unpad are funded from various sources. At the university level, there is ALG (Academic Leadership Program) research funding for professors and PUPT (Higher Education Excellence Research) funds. National scale research, such as Competitive Grants according to National Priorities, Foreign Cooperation Grants and International Publications, National Strategic Competitive Grants and Incentive Programs are funded by the Ministry of Research, Technology and Higher Education, the Ministry of Health and several private institutions. The amount of the grant varies depending on the qualifications of the researcher, the scale of the research and the final product produced. Research is generally carried out in groups involving lecturers, students and educational staff, which produce scientific publications, patents and commercial products.

All research activities in the Bachelor Program In Pharmacy at the Faculty of Pharmacy Unpad are carried out in an integrated manner and in coordination with the Directorate of Research, Community Service and Innovation (DRPMI), Universitas Padjadjaran. Monitoring and evaluation of activities and reporting is carried out regularly by faculties, universities and funders to ensure the quality, relevance and productivity of activities.

Currently, the Faculty of Pharmacy Unpad has 4 scientific journals that are published regularly, namely "Farmaka" as a forum for publication of Unpad Faculty of Pharmacy students, "Indonesian Journal of Clinical Pharmacy l" as an accredited national scientific journal, "Indonesian Journal of Pharmaceutical, Science and Techology" as a publication. National scientific journals already been accredited except farmaka as well as international journals "Pharmacology and Clinical Pharmacy Research". Each journal has special personnel (lecturers and education staff) who are trained in professional journal management.

V.2 Community service

Service / community service activities for lecturers of the bachelor program in Pharmacy at the Faculty of Pharmacy Unpad are funded by various sources, including from Unpad DIPA funds in the form of priority PPM (Community Service) funds and integrated KKNM-PPMD funds. Other sources of funds come from the Ministry of Research and Technology in the form of grants (IbM Grants) and other institutions such as PT. Prodia, PT Kimia Farma and the West Java Provincial Health Office in the form of a cooperation fund.

The amount of funds from DIPA Unpad can fund outreach activities, training or simple demonstrations, while other sources of funds are able to fund entrepreneurship programs or application of research results for the community.

The Faculty of Pharmacy Unpad has a fostered village, namely Cilayung Village, Jatinangor District, Sumedang Regency as a routine location for the implementation of services / community service from the academic community of the Faculty of Pharmacy Unpad.

All service / community service activities at the Faculty of Pharmacy Unpad are carried out in an integrated manner and in coordination with the Directorate of Research, Community Service and Innovation (DRPMI), Universitas Padjadjaran. Monitoring and evaluation of activities as well as reporting are carried out periodically by faculties, universities and funders to ensure the quality, relevance and productivity of activities.

V.3 Cooperation

To increase the quantity and quality of higher education tridharma activities, the Master of Pharmacy Study Program at the Faculty of Pharmacy, Universitas Padjadjaran has collaborated with various agencies, both at home and abroad. This collaboration is coordinated by the Research Manager, PPM, Innovation and Cooperation, Faculty of Pharmacy Unpad.

V.3.1 Cooperation in the Education Sector

Bench marking activities for several staff of the Bachelor Program in Phramacy have been carried out to various universities in Indonesia and abroad, such as the College of Pharmacy, Monash University (Australia).

Educational collaboration with institutions abroad has provided opportunities for further study for lecturers and alumni of the Faculty of Pharmacy Unpad at universities where cooperation, lecturers in collaborating institutions become resource persons for public lectures, guest lectures, international workshops or seminars, organizing joint international seminars and student exchanges and lecturers.

To improve the competence of graduates, the Bachelor Program in Pharmacy has collaborated with the pharmaceutical industry, pharmaceutical wholesalers, government agencies and various pharmaceutical service facilities, such as pharmacies, hospitals and health centers, especially as presenters in public lectures, guest lectures, workshops and national / international seminars. The collaborating parties also provide feedback used for improvement and evaluation of curriculum and graduate competencies.

V.3.2 Research Cooperation

Research collaborations that have been established with various domestic agencies include LIPI, BPPT, BATAN, PT. Kimia Farma, PT. Prodia, PT. Jamu Borobudur, Darya Padma Enoes, PT Inertia Utama, PT Midix Graha Farma, PT Martina Berto, and various pharmaceutical service facilities, such as pharmacies, hospitals and health centers, especially as a place for student and lecturer research.

Research collaborations that have been established with various foreign agencies include:

1. *Post Doctoral Research* at Toyama Medical and Pharmaceutical University (Jepang).
2. *Joint Research* with Hohenheim Universitat (Stutgart, Jerman).
3. *Joint Research* with University of the Phillipine (Manila, Filipina).
4. *Post Doctoral Research at* Department of Pharmacy and Biology Munich University (Jerman).

5. *Training Course* at Faculty of Agriculture Kyoto University (Jepang).
6. *Joint Research* with Osaka Prefecture University (Jepang).
7. *Post Doctoral Research* at Institut of Pharmacy – Ludwig Maximilliam (Munich, Jerman).
8. *Post Doctoral Research* at Department of Chemistry, University of Braunsweigh (Jerman).
9. *Post Doctoral Research* at Freie Universitat Berlin – Jerman.
10. *Sandwich Research* with Yonsei University (Korea).
11. *Joint Research* with Graduate School of Medicine, Gunma University (Jepang).
12. *Sandwich Research* with INSA, Toulouse (Perancis).
13. *Joint Research* with Monash University, Australia.
14. *Joint Research* with Universiteit Twente
15. *Joint Research* with Vrije University
16. *Joint Research with* Universitas Pompeu Fabra Barcelona
17. *Joint Research* with Faculty of Science Leiden University
18. *Joint Research* with Chiang Mai University
19. *Joint Research* with China Pharmaceutical University
20. *Joint Research* with Vienna University
21. *Joint Research and double degree program* with Rutgers University the state of new jersey
22. *Joint Research* with Tsukuba University
23. *Joint Research* with Chiba University
24. *Joint Research* with Groningen University
25. *Joint Research with* Glouchestershire University

V.3.3 Cooperation in the Field of Community Service

In the field of community service, the Bachelor Program in Pharmacy at the Faculty of Pharmacy Unpad provides services in the form of self-medication training, pap smear examinations and free medical examinations, in collaboration with PT. Prodia and PT. Kimia Farma. In addition, various health education activities were carried out in collaboration with BPJS and the Indonesian Ministry of Health.

In 2010 and 2017, the Faculty of Phramacy held international seminars, expos and workshops on herbal medicine. In this activity,

the community was introduced to the existence of herbal medicine as a traditional Indonesian medicine which has gone global.

Faculty of Pharmacy Unpad also has an Education Pharmacy, which collaborates with PT. Kimia Farma Apotek, as a place for implementing education, research and community service for lecturers and students of the Faculty of Pharmacy.

The satisfaction statement of the collaborating parties was obtained from the feedback form and questionnaire provided by the Faculty of Pharmacy Unpad, either by email or given during direct visits.

CHAPTER VI STUDENT AND ALUMNI

VI.1 Student

VI.1.1 Student Development System

The main objective of student development in the Bachelor Program in Pharmacy at the Faculty of Pharmacy Unpad is to support and endeavor to complement intracurricular activities with co-curricular activities, so that graduates have added value in the form of organizational experience, actualization and self-development, sensitivity to the surrounding environment and upholding the value of togetherness.

VI.2 Alumni

Universitas Padjadjaran alumni are gathered in the Unpad Postgraduate alumni association. One of the goals of the establishment of this alumni association is to provide input to the study programs, especially in the curriculum, in order to be more applicable and in accordance with the actual situation in the field.

Consequently, alumni of the master of pharmacy study program is member of the Faculty of Pharmacy Unpad alumni association, which are not separated from the postgraduate alumni association. To date, there are 4000 alumni registered at the Faculty, who are spread across the nation. The Alumni Association, embodied in the **Alumni Association of the Faculty of Pharmacy** as part of the **Alumni Association (IKA) Universitas Padjadjaran**. This association is a forum for all alumni, both undergraduate, pharmacists and masters who have AD/ART, vision - mission and work programs that are in line with both academic and non-academic educational goals at the Faculty of Pharmacy, Universitas Padjadjaran. Alumni association is seen as one of the important pillars in the progress and development of the institution. The name of the Faculty of Pharmacy Alumni Aassociation is the **Ikatan Alumni Universitas Padjadjaran Komisariat Fakultas Farmasi (KOMFAK Farmasi).**

The active role of alumni in collecting and providing financial assistance has been demonstrated both in the form of individuals

and on behalf of the Faculty of Pharmacy Unpad. Since 2011, formal fundraising has been carried out with the Decree of the IKA Pharmacy Unpad Management which reforms the membership by carrying out her-registration and is required to pay member fees. 50% of the fundraising results are allocated to be donated to the Faculty in the form of scholarships and assistance for faculty activities. Almost every year IKA Pharmacy conducts major activities in the form of national seminars and alumni gatherings. In the big event, a number of funds were collected which were used to assist the faculty according to agreed needs. In addition, there are also scholarships for student study assistance from various generations.

The Alumni Association donates educational facilities in the form of books, equipments and research materials that are donated/lent as well as provides places for simulation of drug counseling for students who will work in the service sector in order to help implement education in the faculty of pharmacy. In addition, the alumni workplace can also be used as a research place for master students of the Faculty of Pharmacy.

Alumni have formed a wide and strong network through the institutions where theywork to provide information such as job vacancies, training activities and seminars. In addition, social networks such as Facebook and the mailing lists on the *yahoo group* and WhatsApp (instant messaging application) have also strengthened friendship, communication and information between alumni with their alma mater. This network is also often used as a means of information on job vacancies for new alumni.

Alumni also play an active role in providing input on learning activities such as being involved in the curriculum evaluation process, therefore the material provided can meet the needs of stakeholders. As one example, in the alumni forum there is a community of alumni who work in industry who provide input related to the curriculum in order to in order to be in synergy with the field of work.