

MEDICAL UNIVERSITY – SOFIA
FACULTY OF PHARMACY



QUALIFICATION CHARACTERISTICS
OF THE SPECIALTY "PHARMACY"

**for acquiring an educational qualification
degree "master" in a professional field
7.3. Pharmacy**

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Sofia

Approved by:

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QUALIFICATION CHARACTERISTICS OF THE SPECIALTY "PHARMACY" for acquiring an educational qualification degree "Master" in a professional field

7.3. Pharmacy

The mission of the Faculty of Pharmacy is to improve the health of the nation by training pharmacists practicing in pharmacies, pharmaceutical researchers and other health professionals through various programs for obtaining the title of Master of Pharmacy and Doctor of Pharmacy (PhD), as well as through numerous programs for continuing education and specialization after graduation.

Objectives of the training for educational-qualification degree "Master" in professional field 7.3. Pharmacy.

The main goals of the master's program for educational-qualification degree "Master" in professional field 7.3. "Pharmacy" are:

1. To train highly qualified and competent specialists capable of solving applied tasks in the field of pharmacy and the production and control of medicinal products in order to meet the needs of the pharmaceutical industry, universities, pharmaceutical development and control laboratories and scientific and state regulatory institutions.

2. To train highly qualified specialists with the necessary theoretical knowledge and practical training in order to fully characterize the efficacy and safety of available drugs based on objective criteria, as well as the development, characterization and creation of new ones.

ACADEMIC PROGRAM FOR SPECIALITY "PHARMACY"

The Faculty of Pharmacy has six separate departments, three of which teach fundamental disciplines (General and Non-organic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Pharmaceutical Botany and Higher Mathematics). In the remaining departments, training is organized on special pharmaceutical disciplines:

1. Pharmaceutical technology and biopharmacy
2. Pharmacognosy
3. Pharmacology and toxicology
4. Pharmaceutical chemistry
5. Social pharmacy and pharmaceutical legislation.

The education of students in pharmacy is carried out according to curricula adopted by the Faculty Council and approved by the Academic Council in accordance with the unified state requirements (EDI) for obtaining the educational qualification degree "Master" in professional field 7.3. "Pharmacy". They fully comply with the European Pharmaceutical Education Directives.

The duration of the training is 5 academic years: IX semester and 6 months internship in a pharmacy. The curriculum for pharmacy students includes 39 subjects, one of which is elective. Each student chooses only one of the selected academic disciplines, which are 19. Faculty academic disciplines are 2. Teaching of medical disciplines is held at the Medical Faculty of the Medical University - Sofia.

During their studies, students may receive additional specializations in Industrial Pharmacy or Clinical Pharmacy. The profiling of the students is of their own choice after the 6th semester.

In the 10th semester of their studies, pharmacy students conduct a mandatory undergraduate internship in a pharmacy and take colloquia in the subjects included in the state exam. Graduation takes place after passing a state exam in 5 profile disciplines (pharmacognosy, pharmacology, pharmaceutical chemistry, drug technology and social pharmacy) or with the development and defense of a thesis.

1. Pharmaceutical technology and biopharmacy
2. Pharmacognosy
3. Pharmacology and toxicology
4. Pharmaceutical chemistry
5. Social pharmacy and pharmaceutical legislation.

Graduated students receive the educational-qualification degree "Master" in Pharmacy.

Horarium	N:
LECTURE	1455
EXERSICES	2475
TOTAL	3930

First academic year

First semester

Second semester

Higher mathematics	Statistical methods in pharmacy
Molecular biology	Human physiology
History of pharmacy	Human anatomy
General and inorganic chemistry	General and inorganic chemistry
Physics and biophysics	Physics and biophysics
Latin language	Latin language
Foreign language	Foreign language
Sports	Sports

Second academic year

Third semester

Fourth semester

Human physiology	Pathophysiology
Pathoanatomy	Physical chemistry with colloidal chemistry
Information technology	Pharmaceutical botany
Analytical chemistry	Analytical chemistry
Organic chemistry	Organic chemistry
Microbiology with virolog	Microbiology with virology

Third academic year

Fifth semester

Sixth semester

Physical chemistry with colloidal chemistry	Pharmacology
Pharmaceutical botany	Social pharmacy and pharmaceutical legislation
Medical supplies	Clinical chemistry
Biochemistry	Pharmacognosy - Part I
Pharmaceutical chemistry	Pharmaceutical chemistry
Pharmaceutical technology - Part I	Pharmaceutical technology - Part I

Fourth academic year

Seventh semester

Eighth semester

Pharmacognosy - Part I	Pharmacotherapy
Pharmacology	Toxicology
Social pharmacy and pharmaceutical legislation	Pharmacoeconomics
Hygiene and ecology	Medical genetics
Pharmaceutical technology - Part II	Pharmaceutical technology - Part II
Pharmaceutical analysis	Pharmaceutical analysis

Fifth academic year

Ninth semester

Tenth semester

Pharmacotherapy	Undergraduate internship - 6 months and colloquia in the subjects included in the state exam
Biopharmacy and pharmacokinetics	
Bromatology	
Pharmacognosy - II h.	
Pharmaceutical care	
Elective subject	

Teaching

Teaching takes the form of lectures, seminars and practical exercises. The lectures present the theoretical formulations, while the practical experience is achieved through special individual tasks and projects. The seminars expand the theoretical knowledge through practical examples, ongoing tests, presentations, etc., during which the application of the acquired knowledge is required to solve specific problems. Attendance at lectures, seminars and practical classes is mandatory throughout the learning process and each student is required to take colloquia, theoretical and practical exams depending on the curriculum.

**Additional study disciplines for the specialization in
Industrial Pharmacy**

№	Academic discipline	Semester	Lectures/ Exercises	ECTS
1.	Standards and norms for the quality of pharmaceutical products.	VI	30/0	3
2.	Pharmaceutical biotechnology	VII	30/60	7
3.	Processes and apparatus in chemical-pharmaceutical technology	VIII	30/60	7
4.	Processes and apparatus in the production of dosage forms	IX	30/60	7
5.	Quality management in pharmacy	IX	30/30	5
	TOTAL		150/210	29

**Additional study disciplines for the specialization in
Clinical Pharmacy**

№	Academic discipline	Semester	Lectures/ Exercises	ECTS
1.	Analysis of drugs and metabolites in biological media	VI	30/60	7
2.	Pharmacoepidemiology	VII	30/30	5
3.	Medical safety	VIII	30/30	5
4.	Hospital pharmacy	VIII	30/45	6
5.	Clinical pharmacokinetics	IX	30/30	5
6.	Problem cases of pharmacotherapy	IX	30/30	5
	TOTAL		160/225	33

The training in the specialty Pharmacy is in accordance with the normative requirements of:

1) Higher Education Law

2) Ordinance on the unified state requirements for acquiring higher education in the specialty "Pharmacy" for educational-qualification degree "Master" (Adopted by the Council of Ministers 561 of 5 April 2005) (Promulgated in the State Gazette, issue 32 of 12.04.2005, amended, SG No. 94/2005, issue 82/2006, SG No. 87/2008) EU

3) Directives 85/432, 85/433, 2005/36 and 2006/100, which regulate the professional competence and types of activities to be performed by the recipient of the Master of Pharmacy degree.

The specialty "Pharmacy" is a specialty in a regulated profession in the professional field 7.3. "Pharmacy".

The training ends with taking state exams in:

1. Pharmaceutical technology and biopharmacy
2. Pharmacognosy
3. Pharmacology and toxicology
4. Pharmaceutical chemistry
5. Social pharmacy and pharmaceutical legislation.

Students who have completed the curriculum that meets the regulatory requirements receive a diploma of higher education in the specialty "Pharmacy" for the educational qualification degree "Master" with a professional qualification "Master Pharmacist".

Opportunities for the development of doctoral studies in Faculty of Pharmacy

The Faculty of Pharmacy offers opportunities for the development of doctoral studies in all specialties taught at the faculty. They relate to the following scientific fields:

- Pharmacognosy and phytochemistry
- Pharmacology
- Toxicology
- Pharmaceutical chemistry and pharmaceutical analysis
- Technology of dosage forms with biopharmacy;
- Organization and economics of pharmacy;
- Inorganic, Organic, Analytical and Physical Chemistry.

There are three forms of doctoral training:

1. Full-time for Bulgarian and foreign doctoral students with a term of 3 years;
2. Part-time for Bulgarian and foreign doctoral students with a term of 4 years;
3. Independent preparation of a dissertation for lecturers and associates of the Faculty of Pharmacy.

Programs for PhD at the Faculty of Pharmacy are:

1. Pharmaceutical Botany
2. Pharmacognosy and phytochemistry
3. Pharmacology (Chemotherapy and Pharmacokinetics)
4. Toxicology
5. Pharmaceutical Chemistry
6. Technology on pharmaceutical drugs with biopharmaceuticals
7. Pharmacoeconomics and pharmaceutical regulation
8. Theoretical (including computational) chemistry
9. Bioorganic chemistry, chemistry on nature and physiologically active substances.

Postgraduate studies at the Faculty of Pharmacy

Postgraduate training includes specialization and continued qualification of specialists with higher education in the system of health care. The postgraduate training and specialization of the higher medical and non-medical staff is organized and conducted according to the the terms and conditions of Law on Higher Education and regulations on the Ministry of Education and on the Ministry of Health Care. Postgraduate training includes specialization and continued qualification of specialists with higher education in the system of health care.

Post-graduate training to obtain a specialty for a of the practicing persons with professional qualification Master-Pharmacist and for a persona with non-medical education is carried out in accordance with the ordinance the of the Ministry of Health in 12 specialties, which are clinical and non-clinical, in two forms – state order and paid training..

Each year, after a competitive exam, enrolled pharmacists can begin a three-year specialization with elements of distance learning for theoretical and practical training, as well as taking six colloquia. To acquire the rights of a specialist in the respective specialty after completing the training, as well as on the placement of Colloquium, provided for in the educational program, confirmed by the Minister of Health.

To acquire the right to specialize in the relevant specialty after completing the studies, candidates appear for the The exam is held in the months of May and December every year.

The specialties in the nomenclature of the ordinance are:

A. Clinical specialties

- Clinical Pharmacy

B. Non-Clinical Specialties

- Analysis of medicinal products
- Hospital pharmacy
- Medicinal plants and phytopharmaceutical products
- Organization and economics of distributor and pharmacy practice
- Organization and economics of pharmaceutical production
- Technology of medicine with biopharmaceutical
- Toxicology and toxicological analysis
- Pharmacology and pharmacotherapy

C. Non-clinical specialties for persons with higher non-medical education

- Analysis on medicinal products (by chemicals)
- Medicinal plants and Vegetable business (for a person with qualification in the field of biological sciences and biotechnology)
- Organization and economics Pharmaceutical production (for biologists, economists, chemists and engineer-chemists).

The training is based in the departments and laboratories of the faculty, units of the Medical Faculty of MU-Sofia, the University Hospitals and some production units. Each of the specialties is conducted from the assigned commanding leader on the basis of a developed study-program and teaching individual plan.

Compulsory thematic courses/modules are expressed as per the annual plan, and may be practically oriented, and include solving cases, discussing cases and scientific publications. This form allows learners not to get distracted from their hidden activity, accumulating the necessary amount of knowledge.

It is the duty of the heads of the specialists (teacher-tutor) to follow and carry out regular meetings for the separate thematic units and during the preparation and taking of the state exam.

Separate thematic courses for pharmacists and other specialists from various fields of the pharmaceutical sector are held annually - pharmacies and hospital pharmacies, wholesale companies and others. to which there is also a certain interest.

Professional competencies

The subjects included in the curriculum of the specialty "Pharmacy" provide the acquisition of COMPETENCIES, KNOWLEDGE AND SKILLS:

I. Fundamental competences:

chemical, pharmaceutical, biomedical, knowledge in the field of:
methods for drug synthesis and analysis
pharmacology and toxicology

II. Specific professional competencies.

The professional competence of pharmacists is formed through the study of compulsory, elective and optional subjects in the form of lectures, seminars, practical exercises and independent work, providing fundamental and specific pharmaceutical knowledge, building practical abilities and skills in the following areas:

1. Knowledge in the field of:

Pharmacognosy modern and methods in the field of pharmacy
quality assurance of medicinal products
drug metabolism drug legislation pharmacoconomics

2. Evaluation and application of the studied physicochemical principles and factors that affect the pharmaceutical and bioavailability and efficacy of medicinal products

3. Formation of knowledge, skills for application of pharmacopoeial methods for quality control of medicinal products and development and validation of new analytical methods and procedures for identification and determination of substances, mono- and multicomponent dosage forms, in order to control quality assurance according to the requirements of GLP
4. Knowledge and skills for introduction, maintenance and control of the requirements of good manufacturing practice in pharmaceutical enterprises to ensure uncompromising quality, efficiency and safety of medicinal products manufactured and distributed in the pharmacy network
5. Formation of knowledge, skills and habits for experimental work
6. Formation of knowledge, skills and habits for teamwork
7. Professional communication with patients and experts in the field of healthcare
8. Professional ethical behavior
9. Pharmaceutical care
10. Providing information and consultation on medicines and medicinal products to other medical specialists, patients, healthcare facilities,
11. Carrying out marketing research on the market of medicinal products
12. Skills for collecting and analyzing scientific and professional information
13. ability to use modern information technologies
14. Knowledge of languages
15. Use of Latin in pharmaceutical terminology
16. Ability to work independently
17. Ability to work in a team
18. Ability for creative thinking,
19. Ability to make decisions.

Professional realization – activities

Right of access to and exercise of the following activities (Directive 85/432 / EEC):

1. Production of medicines
2. Quality control of medicinal products
3. Storage, storage and distribution of medicines in the commercial network
4. Preparation, control, storage and delivery of medicines in pharmacies and hospitals
5. Providing information and advice on medicines.
6. Clinical trials of medicinal products
7. Medicinal information

Career realization

The professional qualification allows the master pharmacists to work in:

1. Manufacturing enterprises
2. Areas of distribution of medicinal products
3. Pharmacies
4. Pharmaceutical companies and representative offices
5. Control and analytical laboratories
6. Clinical research companies
7. Higher schools
8. Research institutes
9. Research laboratories
10. State bodies and institutions responsible for drug policy and state control over medicinal products
11. Public and professional organizations