

**CHARLES UNIVERSITY IN PRAGUE**  
**FACULTY OF PHARMACY IN HRADEC KRÁLOVÉ**  
**Department of social and clinical pharmacy**

**SYSTEM OF EDUCATION  
OF PHARMACISTS IN GREECE**

*(Diploma thesis)*

**SYSTÉM VZDĚLÁVÁNÍ FARMACEUTŮ V ŘECKU**

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## **STATEMENT**

I declare that this thesis is my original authorial work, which I wrote alone. All literature and other sources which I used, are listed in the reference and are not previously published.

11.5.2013

Eirini Georgia Mougou

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## LIST OF ABBREVIATIONS

<b>AEI</b>	Higher Education Institutions (in gr.)
<b>AEO</b>	Authorised Economic Operator
<b>BoD</b>	Board of Directors
<b>CAGR</b>	Compound Annual Growth Rate
<b>DEP</b>	Teaching and Research Staff (in gr.)
<b>EAP</b>	Greek Open University (in gr.)
<b>EEC</b>	European Economic Community
<b>EFPIA</b>	European Federation of Pharmaceutical Industries and Associations
<b>EKEVIL</b>	Research Center for Biomaterials (in gr.)
<b>EOF</b>	National Organization for Medicines (in gr.)
<b>EU</b>	European Union
<b>FSA</b>	Pharmaceutical Association of Athens (in gr.)
<b>FSTH</b>	Pharmaceutical Association of Thessaloniki (in gr.)
<b>FIP</b>	International Pharmaceutical Federation
<b>GA</b>	General Assembly
<b>GOK</b>	General Construction Regulations (in gr.)
<b>HPS</b>	Greek Pharmaceutical Society (in gr.)
<b>IFET</b>	Institute of Pharmaceutical Research and Technology (in gr.)
<b>IEK</b>	Vocational Training Institutes (in gr.)
<b>IP</b>	Integrated Programme
<b>Mgr</b>	Magister
<b>MS</b>	Master
<b>NHS</b>	National Health Service
<b>NMA</b>	National Medical Association
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OTC</b>	Over the Counter
<b>PC</b>	Personal Computer
<b>PEF</b>	Panhellenic Association of Pharmacists (in gr.)
<b>PEFNI</b>	Panhellenic Association of Hospital Pharmacists (in gr.)
<b>PFS</b>	Panhellenic Pharmaceutical Society (in gr.)
<b>Ph.D</b>	Doctor of Philosophy
<b>PMS</b>	Graduate Programs of Study (in gr.)
<b>PP</b>	Postgraduate Program
<b>PPA</b>	Panhellenic Pharmaceutical Association (in gr.)

<b>STEP</b>	Special Technical Laboratory Staff (in gr.)
<b>TEE</b>	Technical Vocational Schools (in gr.)
<b>TEI</b>	Greek Technological Institutes (in gr.)
<b>TSAY</b>	Fund of Pension and Health Insurance (in gr.)
<b>UK</b>	United Kingdom
<b>UNESCO</b>	United Nations Educational Scientific and Cultural Organization
<b>WHO</b>	World Health Organization



## **INTRODUCTION AND AIM OF DIPLOMA THESIS**

The pharmacist is the medical expert professional who acquires full knowledge of pharmacotherapy, pharmaceutical chemistry, drug or food interactions and the modern pharmaceutical technology. The profession has several career options, such as working in the public sector, as an individual, in a private company or as a researcher. Most pharmacists prefer to work as community pharmacists and are primarily engaged in the execution of prescriptions, while providing health services, consultation and conduction of medical procedures, that may be performed in the pharmacy. In the past few years the role of the clinical pharmacist has arised, as the skilled professional for pharmaceutical treatment, within a hospital unit.

In Greece, there are three Pharmaceutical Departments, in Athens, Thessaloniki and Patras. The Pharmacy School is one of the most demanding schools, according the nationwide examination, which confirms the value of profession. Than many Greek students solve this situation by studying in abroad universities.

The aim of diploma thesis is to get current knowledge about system of education of pharmacists in Greece, their vocational employment and to shortly compare situation in this field in Greece with Czech Republic. Also important aim of the diploma theses is to realive survey between Greek and foreign of pharmacy who attended the Faculty of Pharmacy of Charles University in Czech Republic and to prepare some recommendations to improve satisfaction of all participants.

# CHAPTER I

## *The pharmaceutical profession*

### 1.1 INTRODUCTION TO PHARMACEUTICAL PROFESSION

The current chapter describes the concept of the pharmaceutical profession. There are elements that describe the roles, responsibilities and characteristics of the profession. Later on, key points of the Pharmaceutical Legislation and basic organizing principles in Greece, are identified, such as the Panhellenic Pharmaceutical Association and the National Agency for Medicines.

### 1.2 THE PHARMACEUTICAL PROFESSION

Medicines improve the quality of life for millions of people, but they can also pose serious risks, particularly if not taken correctly. The pharmacist, as a member of the health care team, is uniquely able to help getting the benefits of medicine while reducing risks as much as possible. By choosing a pharmacist whom someone trusts, the public can build a long-term partnership for good health. In recent years, the role of pharmacists has grown and changed to help patients, cope with a complicated health care system. Pharmacists do much more than count out pills and pour liquids to fill prescriptions. Every pharmacist has undergone extensive education in the science of how the human body uses and responds to medicines, and has also built up years of experience in real-life counseling on how to take medicines safely. Pharmacists are medication experts, checking each prescription to help ensure that

- The information provided by the prescriber is complete.
- The new medication will not interact with anything else they know you are taking.
- The medication and dosage are safe with any medical conditions that they are aware you may have.
- You understand how to take and store the medication properly. <sup>[8]</sup>

In addition to this, pharmacists can play a valuable role in helping to manage your overall health care. Often, patients receive care and prescriptions from multiple health professionals in several locations. Yet, the pharmacist serves as a vital link in communication and safety oversight, among all the care team's staff. If possible, one could visit the same pharmacy for every prescription service. Having a medication records, all in one place, lets the pharmacist check for possible interactions or risks, and cuts the chances of duplicating medicine. <sup>[39]</sup>

Finally, your pharmacist is a resource and an educator for you and your family. He or she can answer many of your questions about your health and medicines. By getting to know you and your medication profile, your pharmacist can:

- Warn you of possible harmful drug interactions or allergies.
- Tell you about potential side effects.
- Advise you on foods, drinks, or activities to avoid while taking a certain medication, or on what to do if you miss a dose.
- Tell you when a concern you've raised requires a call to your doctor. <sup>[39]</sup>

### **1.3 THE ROLE OF PHARMACISTS IN PUBLIC HEALTH**

The pharmacist both historically and today is a social service, through a pharmacy hospital or any other professional position. Especially a pharmacist's pharmacy undertakes heavy obligations and defaults are possible to undergo strict administrative, civil and disciplinary sanctions. This is why, one must be aware of the key provisions of the existing Pharmaceutical Legislation and the Code of Ethics for Pharmacy. The modern role of the pharmacist, in the health system in general and pharmaceutical practices employed, was described by the WHO in New Delhi, in 1988, the role of the pharmacist was described in Tokyo in 1993 for pharmaceuticals care and finally, in Vancouver 1997, was the target of seven-star pharmacist, later adopted by the FIP. In order to meet the seven-star pharmacist to modern requirements, one should be able to provide information services and care in collaboration with other health scientists and pharmacists, such as:

- Make decisions about the most appropriate and effective use of medicines and the cost / benefit of treatment.

- Communicating. The pharmacist is the link between patient and doctor. Consequently must possess knowledge and be trusted when working with other health scientists and the public.
- When the pharmacist found interdisciplinary team health care providers, he or she should be able to play a leading role for the benefit of all. The leadership requires passion for performing functions, ability to make decisions and communicate and have managerial skills.
- Must have managerial skills. The pharmacist must be able to manage physical, financial and human resources. Also should feel comfortable in accepting himself managing other if it belongs to a health team.
- The medical science is constantly dramatic developments, which the pharmacist should be able to monitor, continuing lifelong learning.
- Finally, the pharmacist should assist in the education and practice of new pharmacists and other health information to scientists. <sup>[39]</sup>

## **1.4 CODE OF ETHICS FOR PHARMACISTS**

The Code of Ethics for Pharmacists includes provisions governing the function of the scientist pharmacist and is divided into three parts. The first part deals with general principles of conduct (Section A), the general duties of the pharmacist with pharmacy operation (Section B), the contribution of the pharmacist in public health (Section C), and finally includes provisions for dignity and responsibility of the pharmacist. <sup>[46]</sup>

The second part contains two chapters on unfair competition, advertising and promotion of the pharmacy. Similarly, the third part contains rules that should govern its relations with the public pharmacy assistant pharmacy practitioners and students assistants fellow pharmacists and other health scientists. Supervision for compliance with ethics belongs to the administrations of Pharmaceutical Associations under earlier law of 1928 (Article 35, Law 3601/1928) <sup>[29]</sup>. The articles of the Code of Conduct are described in the following pages. <sup>[39]</sup>

### **1.4.1 GENERAL PRINCIPLES OF ETHICS FOR PHARMACISTS**

This section lists the articles that constitute the general and specific principles of ethics of the pharmaceutical profession.

#### *ARTICLE 1*

The pharmaceutical exercised solely by a University diploma in pharmacy and legal authorization to practice the profession of pharmacy. <sup>[39]</sup>

#### *ARTICLE 2*

The drug is an important factor in the prevention and treatment of disease and the pharmacist is the only material specialist in the field of drug trafficking because of his scientific education. <sup>[39]</sup>

#### *ARTICLE 3*

To protect the public health and consumer interests, responsibility and participation of pharmacist should cover all stages of the production process as the administration of the drug to the public. <sup>[39]</sup>

Articles 1-3 comply with Directive 85/432 of the European Union for the duration of pharmaceutical education and training and activities for which they are responsible pharmacist.

#### *ARTICLE 4*

Pharmacies should belong exclusively to pharmacists so to avoid interference of foreign interests, unrelated to the pharmaceutical profession - function within the marketing and retail distribution of pharmaceutical products. This article is of particular importance since last year discussed the possibility of ownership of pharmacies by non-pharmacists capitalists. <sup>[39]</sup>

#### *ARTICLE 5*

It is an inalienable right of free patient choice of pharmacy owners and pharmacists pharmacy operation must avoid any means or manner or method that would limit the freedom of choice of the patient's pharmacy of preference. This is absolutely true and the various providers of pharmaceutical care to the Greek people. <sup>[39]</sup>

The following articles 6, 7 through 17 refer to relations with the state pharmacy, health agencies and Pharmaceutical Associations. <sup>[39]</sup>

#### *ARTICLE 6*

Ethics are the principles that govern and guide pharmacists with proprietary owner or chief operating pharmacy in their dealings with patients, colleagues and other health scientists, the institutions of the state, the collective bodies to which they belong and general attitude them to society. <sup>[39]</sup>

#### *ARTICLE 7*

The pharmacist with pharmacy must exercise in accordance to the applicable laws and the Charter for European pharmacy. Also, he or she should behave generally with dignity, in his life, and in accordance with the traditions of the pharmaceutical profession; office, respecting the health authorities, the National Pharmaceutical Association and the Pharmaceutical Association which owns and is entitled to enjoy the same respect of the above entities. Still must comply with the requirements of the law and legal decisions concerning the exercise of his function, in particular to respect the existing retail drug prices. <sup>[39]</sup>

#### *ARTICLE 8*

The pharmacist must have a superior understanding of the mission and the sanctity of medicinal function and to refrain from any action that may reduce the assessment to the society, about the function of the pharmacist or contrary to morality. Finally the pharmacist with a pharmacy, is prohibited to exercise any other profession that is incompatible with the dignity of the medicinal function. <sup>[39]</sup>

#### *ARTICLE 9*

The pharmacist has the same dedication to all patients who visit him and within the limits of his knowledge he or she should provide every assistance to a patient, who is in immediate or dire danger. <sup>[39]</sup>

#### *ARTICLE 10*

The pharmacist who owns a pharmacy or is responsible for one, may not abandon or close it, but only when is required by law. <sup>[39]</sup>

#### *ARTICLE 11*

The pharmacist is obliged to assist in the task of social hygiene and cooperate with the government for the protection and preservation of public health. <sup>[39]</sup>

#### *ARTICLE 12*

The relations of pharmacists, in order to insure funds providing pharmaceutical care, should be configured in such a way as to ensure the independence of the pharmacist and the free choice of pharmacy by the patient. <sup>[39]</sup>

### *ARTICLE 13*

The prescription is secret. The pharmacist must observe professional secrecy, except those provided by law and in many cases the patient through a statement of release pharmacist of confidentiality. Moreover, any public discussion or hints relative to the health of its customers, is prohibited. <sup>[39]</sup>

### *ARTICLE 14*

The pharmacist must exercise personally and pharmaceutical manufactures and delivers himself medicines to patients or their relatives. We personally oversee every medical work performed by the staff of the pharmacy. <sup>[39]</sup>

### *ARTICLE 15*

Each pharmacy must have a prominent place in front of the name of the licensed pharmacist, and the signals that enforce existing laws. The hereditary pharmacies will indicate below the name of the deceased pharmacist and the name of the responsible pharmacist with the same letters. <sup>[39]</sup>

### *ARTICLE 16*

In case of ethical violations replacement licensed pharmacist, the Disciplinary Board will hear these offenses should assess and the possible involvement of a licensed pharmacist in them and the need to attribute responsibility to him. <sup>[39]</sup>

### *ARTICLE 17*

The pharmacist must indicate in writing to the pharmacists in the region of any change in address of the pharmacy, any interruption in the exercise of his function or responsibility of every hiring partner or dissolution of the partnership. <sup>[39]</sup>

## **1.4.2 LIABILITY AND DIGNITY OF PHARMACISTS**

### *ARTICLE 18*

It is prohibited to pharmacists, who own a license and operate a pharmacy, or pharmacists responsible for hereditary pharmacies and beneficiaries inheritance pharmacy, the congregation of particular individual contracts with insurance funds, as long as the law does not provide such option. This subject is described by Article 21 of the Law No. 1384/98. <sup>[31]</sup>

### *ARTICLE 19*

The pharmacist pharmacy operation or the pharmacist responsible for hereditary pharmacy must not accept remuneration incompatible with the dignity of the office of the pharmacist. <sup>[31]</sup>

#### *ARTICLE 20*

The pharmacist must give clear instructions for granted drugs to customers of the pharmacy and indicate thereon a summarized instruction manual and any other markings, in order to avoid errors during the use of their medications. <sup>[31]</sup>

#### *ARTICLE 21*

The pharmacist when supplying drugs listed in recipes and other traded products must verify that the given species meet the legal requirements. <sup>[31]</sup>

### **1.4.3 UNFAIR COMPETITION**

#### *ARTICLE 22*

Pharmacists must avoid attracting customers with actions and in contrary to the dignity of man and the pharmacist Scientists and public health function (granting gifts or other compensation). <sup>[5]</sup>

#### *ARTICLE 23*

It is prohibited to the pharmacist to substitute other drugs listed in a prescription, even if these one consist of a larger and better therapeutic value, without the consent of the doctor who issued the prescription. <sup>[5]</sup>

#### *ARTICLE 24*

Generally pharmacists who own a pharmacy are prohibited to follow beneficiary policies, such as the following ones:

- Each drug sale at a price lower than that prescribed by the retail price bulletins of the Ministry of Commerce.
- Any contract, transaction or agreement that aims to speculation at the expense of patients' health and any other person.
- Any distribution or other distribution of profit rate for pharmacists.
- Grant gifts or other benefits to doctors, dentists, midwives, nurses or other brokers to attract customers.
- Any violation of the opening hours of the pharmacy.
- Each exchange for cash or other goods, the subscribed prescription drug insurance fund.
- Any act that can bring a client undue benefit.
- Each facility to anyone who employs illegal pharmaceutical science.



- An agreement with anyone through recourse to, any health profession in order to reap benefits of the pharmacist and this agreed upon at the expense of the health of the patient and any other person.
- Any use honorific office held by the pharmacist, in order to attract customers.
- A contract with an insurance fund or legal persons providing pharmaceutical care with conditions other than those who have accepted the PFS and the pharmaceutical society of which he is a member of the pharmacist.<sup>[5]</sup>

## ARTICLE 25

It is expressly prohibited:

- The media advertising of drugs or pharmaceuticals, in order to attract clients, as it is opposed to the laws and provisions of the Code of Ethics for Pharmacy
- The promotion and advertising activities developed by the pharmacy, creating special sections and cosmetics or mainly dietary, orthopedic goods, hygiene products and health foods that are generally characterized-counter activities and recommend areas of particular expertise of the pharmacist does not constitute unethical behavior as long as there refers merely to the pharmaceutical services provided by the pharmacy. Also the provision of health services to the public by the same pharmacist, if he has any expertise in the field of Health and advertising of providing these services, is not an unethical behavior.<sup>[39]</sup>

## 1.5 EU DIRECTIVES OF THE TASKS AND EDUCATION OF PHARMACISTS

The most important EU directives related to pharmacists were Directive 432/85 and Directive 433/85, which are listed below:

1. *Directive 432/85 EU Council Directive: For the coordination of laws, regulations and administrative provisions relating to certain activities in the field of pharmacy.*<sup>[39]</sup>

The Directive refers to the responsibilities of pharmacists and the general framework standards for University degrees and years of study and practice.

2. *Directive 433/85 EU Council Directive: For the mutual recognition of diplomas, certificates and other evidence of Pharmacy and to take measures to facilitate the*

*effective exercise of the right of establishment relating to certain activities of the pharmaceutical sector.* <sup>[39]</sup>

Furthermore, current important EU directive related to pharmacists is listed in Directive 2005/36/EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications <sup>[5]</sup>. This directive replaces both directives above, which referred only to pharmacists. In addition to this, the new Directive refers to more regulated professions. Section 7 includes articles for profession of pharmacists only.

#### ***Article 44. Training as a pharmacist***

Admission to a course of training as a pharmacist shall be contingent upon possession of a diploma or certificate giving access, in a Member State, to the studies in question, at Universities or higher institutes of a level recognised as equivalent.

Evidence of formal qualifications as a pharmacist shall attest to training of at least five years' duration, including at least:

- four years of full-time theoretical and practical training at a University or at a higher institute of a level recognised as equivalent, or under the supervision of a University
- six-month traineeship in a pharmacy which is open to the public or in a hospital, under the supervision of that hospital's pharmaceutical department.

Training for pharmacists shall provide an assurance that the person concerned has acquired the following knowledge and skills:

- Adequate knowledge of medicines and the substances used in the manufacture of medicines.
- Adequate knowledge of pharmaceutical technology and the physical, chemical, biological and microbiological testing of medicinal products.
- Adequate knowledge of the metabolism and the effects of medicinal products and of the action of toxic substances and of the use of medicinal products.
- Adequate knowledge to evaluate scientific data concerning medicines in order to be able to supply appropriate information on the basis of this knowledge.

- Adequate knowledge of the legal and other requirements associated with the pursuit of pharmacy. <sup>[5]</sup>

***Article 45. Pursuit of the professional activities of a pharmacist***

For the purposes of this Directive, the activities of a pharmacist are those, access to which and pursuit of which are contingent, in one or more Member States, upon professional qualifications and which are open to holders of evidence of formal qualifications of the types listed in Annex V, point 5.6.2. <sup>[5]</sup>

The Member States shall ensure that the holders of evidence of formal qualifications in pharmacy at University level or a level deemed to be equivalent, which satisfies the provisions of Article 44, are able to gain access to and pursue at least the following activities, subject to the requirement, where appropriate, of supplementary professional experience:

- Preparation of the pharmaceutical form of medicinal products.
- Manufacture and testing of medicinal products.
- Testing of medicinal products in a laboratory for the testing of medicinal products.
- Storage, preservation and distribution of medicinal products at the wholesale stage.
- Preparation, testing, storage and supply of medicinal products in pharmacies open to the public.
- Preparation, testing, storage and dispensing of medicinal products in hospitals.
- Provision of information and advice on medicinal products. <sup>[5]</sup>

If a Member State makes access to or pursuit of one of the activities of a pharmacist contingent upon supplementary professional experience, in addition to possession of evidence of formal qualifications referred to in Annex V, point 5.6.2, that Member State shall recognise as sufficient proof in this regard a certificate issued by the competent authorities in the home Member State stating that the person concerned has been engaged in those activities in the home Member State for a similar period. <sup>[5]</sup>

The recognition referred to in third paragraph shall not apply with regard to the two-year period of professional experience required by the Grand Duchy of Luxembourg for the grant of a State public pharmacy concession. <sup>[5]</sup>

- If, on 16 September 1985, a Member State had a competitive examination in place designed to select from among the holders referred to in paragraph 2, those who are to be authorised to become owners of new pharmacies whose creation has been decided on as part of a national system of geographical division, that Member State may, by way of derogation from first paragraph, proceed with that examination and require nationals of Member States who possess evidence of formal qualifications as a pharmacist referred to in Annex V, point 5.6.2 or who benefit from the provisions of Article 23 to take part in it.<sup>[5]</sup>

## 1.6 NATIONAL PHARMACEUTICAL LEGISLATION

The Pharmaceutical Legislation in Greece is a branch of the Special Administrative Law includes provisions regulating the exercise firstly of Medical Professions (Pharmacist-Pharmacy - Pharmaceutical - Pharmaceutical Representatives of foreign companies - Pharmaceutical Industries and Laboratories) and for the approval and distribution of pharmaceutical products (Drugs - Poisons - Speciality - Chemicals and such OTC) and has as its primary purpose, if not exclusively, to protect the public interest, namely the Public Health. Therefore the provisions of the Pharmacy Law and Public Order is applicable to all persons whose object is included in them, not excluding the State itself. Consequence of the provisions of the Pharmacy Law, as a mandatory rule, is that the application can not be excluded with private will, upon agreement between pharmacists, or may be modified or abolished by custom, and is closely interpreted and not be interpreted widely.<sup>[39]</sup>

Though the Pharmaceutical Legislation belongs in Administrative Law, crosscutting issues that are addressed by other branches of the law, and specifically includes provisions :<sup>[39]</sup>

- Criminal Law (usurping works pharmacist)
- Civil Law (hereditary pharmacies)
- Commercial Law (recruitment partner-pharmacy co-location)
- International Law (contracts for drugs)
- European Law (EU directives)<sup>[39]</sup>

Its legal side of the Greek Pharmaceutical Legislation is overregulation, while flawed and imperfections. Despite recent settings, the basic law regulating the establishment and operation of pharmacies is the law of 1932 and the Law on Pharmaceutical Associations of 1928. There is however rich jurisprudence of the Administrative Courts and especially at the Council of State and Justice of the European Communities in Luxembourg, covering gaps and assist in the interpretation and application of the provisions of the Pharmacy Law .<sup>[16]</sup>

## **1.7 NATIONAL MEDICINES AGENCY**

The National Medicines Agency (NMA) was found in 1983 by Law 1316 and is a Legal Entity of Public Law at the Ministry of Health and Social Solidarity. NMA is responsible for the protection of public health in Greece, in the supervision of the following areas:

- medicinal products for human and veterinary use
- medicated feed additives and feed
- special diet food and nutritional supplements
- biocides
- medical devices
- cosmetics<sup>[39]</sup>

As apart of this mission, the AEO with absolute transparency and post-authorization monitors the quality, safety and efficacy of products in circulation in the country. The agency controls the production, clinical trials and circulation in the Greek market of products to meet the standards of good manufacturing, laboratory and clinical practice and the law regarding the movement, distribution, marketing and advertising. It develops and promotes medical and pharmaceutical research. Inform health professionals, relevant agencies and the public with objective and useful information about medicinal products and other products to use rational and objective assessment of economical dimension<sup>[16]</sup>

NMA is governed by a ten member Board of Directors. It's current structure was established by Presidential Act 142/89 and consists of 9 Divisions. Below are the main committees :<sup>[16]</sup>

### *1. Scientific Council Approval*

It is responsible on the adoption, amendment, renewal, revocation and suspension of marketing authorizations for products under EOF. It operates various sections, such as conventional medicines, biological, blood products, radiopharmaceuticals, special-diet, veterinary, etc. <sup>[16]</sup>

### *2. Committee on Medical Assistance*

The Committee suggests the classification of products as medical devices or not, their classification into categories, the definition and control of Notified Bodies and specific regulations for the implementation of legislation. <sup>[16]</sup>

### *3. Secondary Science Council*

It examines the appeals against the first instance decisions of NMA. <sup>[16]</sup>

### *4. Institute of Pharmaceutical Research and Technology (IFET)*

IFET assists the work of the NMA with its statistical and econometric analyzes, studies, research projects and organizations and computer applications. Also IFET has assumed the responsibility EOF handling products for its own account or for third parties to cover fixed or temporary market shortages. <sup>[16]</sup>

### *5. Research Center for Biomaterials (EKEVIL)*

It's main activity is the certification, quality control, and research around medical devices. It is a notified body of the European Union, since 1997, in the field of medical devices. <sup>[5]</sup>

### *6. Resources of NMA*

The primary resources of the Agency are provided by the government fees for various services offered (approvals, renewals, modifications, authorizations, permits production, certificates, endorsements tariffs) on products jurisdiction and the annual fee paid by the person placing products. <sup>[5]</sup>

## **1.8 PHARMACEUTICAL ASSOCIATIONS**

The Greek Pharmaceutical Society (HPS) is a scientific society, which embraces the whole pharmaceutical sciences. It was founded in 1932 and its historical path is parallel to the Greek Pharmaceutical science and Greek pharmacist. For many years edited the journal Archives of Pharmacy. The historical process of HPS since 1932 makes credible interlocutor of state power and its scientific interventions can ensure the safe use of the HPS. <sup>[39]</sup>

The Panhellenic Association of Pharmacists is the official body of all pharmacists, operating a pharmacy. The establishment, operation and responsibilities of PFS described in the next chapter. <sup>[29]</sup>

The Panhellenic Association of Pharmacists (PEF) is a professional association, in which are engaged all pharmacists in the pharmaceutical sector, other. The goals of the PEF is generally referred to upgrading the pharmaceutical profession and to organize once every two years, the National Pharmaceutical Congress in order to discuss business, social and scientific issues. It also publishes the journal Pharmaceutical Times. <sup>[29]</sup>

The Panhellenic Association of Hospital Pharmacists (PEFNI), consists of pharmacists working in hospitals. It should be noted that the division of professional pharmacists at more than one institution often creates problems and reduces the scientific status of Pharmaceutical Associations. <sup>[39]</sup>

The Panhellenic Association of Pharmacists (PEF) are the Greek Pharmaceutical Industry. Accordingly, the Association of Pharmaceutical Companies (Directors) are mostly multinational Pharmaceutical businesses. Collaborates with EFPIA and recently adopted Code of Conduct for Pharmaceutical Companies. <sup>[39]</sup>

### ***1.8.1 PANHELLENIC PHARMACEUTICAL ASSOCIATION***

The Panhellenic Pharmaceutical Association (PFS) is the secondary science and trade union body for pharmacists and is a special Public Entity decentralized and self-governing Public Service. (Article 58 & B on N.1339/85) In the list below, are described the objectives of the establishment of the association:

- Supervision of local Pharmaceutical Associations and updating them on current Pharmaceutical issues.

- Strict enforcement of existing Pharmaceutical Legislation.
- The preparation and implementation of the Code of Ethics for pharmacists.
- The opinion of ministers responsible for every matter, relating to the Pharmaceutical profession.
- Processing of proposals submitted by Pharmaceutical Associations on pharmaceutical issues.
- The report is the most comprehensive magazine for science communication Pharmaceutical Associations and the State.
- The organization of Pharmaceutical conferences (number N.3601/28 N.328/76 Article 4).<sup>[39]</sup>

The PPA consists of:

- The Board of Directors. Consists of the President, two Vice Presidents, a Secretary, an Assistant Secretary, a Treasurer, and nine Directors (15 members overall) elected every three years, by the representatives of PFS and Pharmaceutical Associations (Article 58, & A approx 1 - N.1339/85 2)
- The General Assembly delegates which is the highest body of it (Article 2 N.328/76)
- The Supreme Pharmaceutical Disciplinary Board chaired by judge and dealing with the investigation of Appeals, from local pharmacists Disciplinary Councils, for violations of the Laws and Ethics.<sup>[39]</sup>

### ***1.8.2 OTHER PHARMACEUTICAL ORGANIZATIONS***

The Pharmaceutical Association of Athens (FSA) and Pharmaceutical Association of Thessaloniki (FSTH) were established in accordance with the provisions of Law No. 3601/1928 on the establishment of Pharmaceutical Associations. Both of them work with public entities form and their operation is governed by the applicable provisions for drug associations. They are governed by a nine Board elected every three years by the General Assembly.

Members of FSA must be all pharmacists who operate legally their own pharmacy in Attica region. Respectively members of FSTH must be also pharmacists who operate their own pharmacy in Thessaloniki region.



Main aim of FSA and FSTH is the concentration and distribution of prescription insurance funds and organizations performing in pharmacies belonging to the power of the Pharmaceutical Association of Attica and Thessaloniki. <sup>[17][18]</sup>

## CHAPTER II

### *The educational system in Greece and education of pharmacists*

#### 2.1 HISTORICAL BACKGROUND

The function of education in the process of reproduction, can not be accessed through the penetration of quantitative school machinations and formal structure of teaching. To do this requires the identification of the specific characteristics of ideology, as imprinted in the pedagogical activity. <sup>[47]</sup>

The history of Greek education is consistent with the one of the modern Greek social formation. The central feature of the establishment of the Greek state has been the dependence of the capitalist centers. Any intervention was not complete proposals, as the reforms carried out in the capitalist metropolises. Basically they aimed at adjusting the education model of socioeconomic development that would preserve the dominant structural feature of Greek society dependence. <sup>[4]</sup>

After the liberation from the Ottomans in 1821, the Greek educational system had to be organized from the very beginning. It followed a conservative educational policy influenced by the German (Bavarian) educational laws, of the early 19th century. Their influence continued until the early part of 1960's. <sup>[19]</sup>

Generally, both interventions and reforms in education are identified and defined by the evolution of socioeconomic organization. Simply enough, one observes that this model of social organization is another policy force, which has nothing to do with education <sup>[1]</sup>. If the desired model is the capitalist mode of production, then any reform efforts in education, which is an integral part of social policy, seek to adapt to the needs of development and modernization of the current economy <sup>[40]</sup>.

This is exactly what happened in Greece, where interventions in the educational system seemed to succeed in the short term management of the emerging crisis, leading to some more advanced forms of economic organization, such as industrialization <sup>[5]</sup>. However, that leads to bankruptcy and subsequent regression that makes the country, a modernized region. Nikolidakos and Legewie <sup>[15]</sup> while approaching the phenomenon referred to in Greece, characterized it as a capitalist <<sub-metropolis>>. In general, educational changes may not occur, without any structural social change.

## 2.2 ORGANIZATION THE OF EDUCATIONAL SYSTEM

The Greek educational system is structured in three levels of education. Primary, which includes Kindergarten and Elementary Secondary School, which includes the Gymnasium and Lyceum (Single and Technical-Vocational) and Higher, which includes the University and Technological Institutes (TEI). Primary and Secondary Education is governed by the Law N. 1566/85, while the Higher Education Legislation from 1268/82 for Higher Education Institutions(AEI) and 1404/83 for TEI. <sup>[10]</sup> The current structure of the education system is a result of the reforms which were the respective time periods, namely the period 1982-1985. The Structure of the Education System in accordance with the division of the European Union and Compulsory Med - mandatory reads. <sup>[13]</sup>

### *Mandatory Education*

Education in Greece is compulsory for all children between the ages of 6-15, that includes the Kindergarten, Primary (Elementary) and Lower Secondary (High School). The school life can begin at the age of 2.5 years (preschool education) in both private and public institutions, called Nursery Stations. Attendance at Primary Education is six years, at the entry age of 6 years old. In addition to the common primary and elementary schools, it also exists all-day schools, an extended timetable and an enriched curriculum. <sup>[38]</sup>

### *Post-compulsory*

Post-compulsory Secondary Education, according to the reform of 1997, includes two types of schools: Single High Schools and Technical Vocational Schools (TEE). The duration of studies is 3 to Lyceums and 3 in Technical Vocational Schools. Along with the mainstream schools of Primary and Secondary Education and special kindergartens, primary schools, secondary schools, high schools and high school classes, it also exists school for students with special educational needs. Also Musical, Ecclesiastical and Physical Education High Schools are operated. <sup>[13]</sup>

### *Stepless*

The post-compulsory Secondary Education also includes the Vocational Training Institutes (IEK), which provide formal and variable education. <sup>[13]</sup>

## *Higher*

Public Higher education is divided into Universities (AEI) and Technological Educational Institutes (TEI). The entry of the students in these institutions, depends on their performance at national level examinations which take place in the second and third grade of high school. Additionally, Greek Open University (EAP) students are accepted from the age of 22 years old. The classification of educational institutions include the need for proof of degree for the previous level of study, in order to continue to the next. However, the offered educational services to Greece is much more complex. Many other education services, classified or unrated, offered through the formal education system and in conjunction with this. <sup>[13]</sup>

In Greece exist three types of high schools (Single, Special and Technology) which are divided into lines. The Technical High Schools have two cycles (cycle 2 years lower and upper 1 year.). Also, there are night Schools (Unified and Technical High Schools). In comparison, in Greece there are 1297 schools, whereas in Finland there are respectively 448 and in Portugal 822 units. Also, in Greece there is 1 unit per 8700 public school population, in Finland the corresponding ratio is 1 unit per 11900 inhabitants and finally in Portugal 1 unit per 12900 inhabitants. <sup>[13]</sup>

The 94.2% of high schools in the country is housed in public buildings mean age of 30 years and average 8.8m<sup>2</sup>/student surface, a surface that exceeds international standards. At the same time 91.4% of high schools have science labs, 97.2% have Computers, approximately 1 to 2 high schools has a multipurpose hall and library school, while about 1 in 3 has closed and Fitness. <sup>[10]</sup>

Finally, the equipment of schools with PCs is relatively satisfactory compared with the international situation. Alongside all the computers that are in high schools are connected to the Internet. Also, it should be noted that almost all high schools are working through breakfast time. In high school are enrolled 316643 students, serving 41905 teachers of all disciplines. Based on these data, the average estimation of students per school is calculated to 180 students, whereas in Finland the corresponding figure is 257 students per school. <sup>[10]</sup>

According to the Greek Statistical Authority in high school the average segment size amounts to 20.6 students, while according to the OECD average proportion of pupils per teacher stands at 8,5:1. The ratio of students to teacher is the second from the top, in member countries of the OECD. Specifically, according to the latest data, Greece

ranks second among OECD countries and with a significant difference from the average results (12.5 students / teacher) or other advanced educational countries. This very good ratio of students per teachers come to strengthen two additional components. First, in Greece the level of scientific expertise of teachers is extremely high. It is characteristic that all Greek teachers (especially at the level of high school) have at least a University level education in the subject they teach. Simultaneously, important and based on international data rate has postgraduate qualifications and / or doctorate (9.4%). Indeed, 34.7% of the teachers who work in high school, have additional academic qualifications (postgraduate studies at home or abroad, holding the second higher education degree, MSc or PhD Master). In connection with this point-and for the sake of understanding of our comparative advantage-it simply states that in the UK only 20% of teachers who teach science have obtained a University education. <sup>[10]</sup>

A second point concerns the fact that high school serving the most experienced teachers. Furthermore, despite the fact that the average residence time of Greek teachers in their school unit is very small, according to international standards, teachers serving in high school are better connected to their school unit. This results in a relatively higher percentage of teachers with full-time employed at this stage and the relatively smaller proportion deputy education . <sup>[10]</sup>

## **2.3 SYSTEM ENTRANCE EXAMINATIONS**

In the past few years years there is a debate on the reform and modernization of the Education system. The training modules have changed, with the largest one being observed in high school. The students of the third class of High School are examined, which will largely determine their career. This evaluation focuses on both fundamental understanding of the key issues and concepts, and to conquer higher cognitive abilities and skills, such as critical thinking and synthesis, evaluation, reasoning, problem solving, originality. The examination as a method of evaluation, is based on the following principles:

- identification of each course syllabus based modules or units, rather than the definition of pages from the textbook
- ability composition of the essential knowledge from broader segments of matter

- understanding the basic concepts, or, subject to facts, procedures or processes of any scientific field
- implementation of specific methodological tools of every domain knowledge to evaluate the specific way of thinking that characterizes each field
- ability to critically evaluate and develop rational arguments and documentation issues associated with the material
- application of knowledge for troubleshooting or evaluating situations in real and varied contexts. Apart from the knowledge will be assessed and skills of students
- competence in the use of special expressive codes, such as formalism in mathematics and science, reading graphs or special profiles.<sup>[13]</sup>

Tests in all grades of school conducted donating to common questions raised at the national level, issues of bank graded difficulty. The grade of lyceum shows the average score of students in the A, B and C Grade. The degree of any class derived from the average of the final oral and written student's performance in each subject. The degree of graduation may be counted for introducing students at a rate decided by the independent National Board Exam .<sup>[13]</sup>

The entrance exams for Higher Education include the following steps:

- The students of the third grade school considered the final exam nationwide per lesson and in two groups of subjects. The performance of students in the first group of subjects determines the extent taken into account for the acquisition of the lyceum in this class, while the performance in the second group of subjects determines admission to higher education. The tests were conducted nationwide in all subjects of the third grade of high school.
- All students are required to come to the examination of the first group of issues to take the High School Diploma. In consideration of the second group of issues involving only those who want admission in Higher Education. These students choose what classes will take exams in the second group of subjects, based on their desire to enter a particular University departments or institutes of technology.

- Departments of Universities and Technological Institutions define the criteria to access those particular courses and the weights of each of these students to introduce them. The number of test subjects is 5 courses. The Greek language is a compulsory subject examination.
- Each February, students submit a first computer-based bulletin, specifying the Departments of low demand. In these sections the students admitted without examination, if the demand is lower than the number of seats available. These departments may set minimum entry requirements related only to the performance of pupils in the school. After conducting entrance examinations in June, students who participated in these new definitive submit this entry form once their preferences.
- Students can be seen in many subjects like the indicative curriculum watching.
- By presidential Act, issued upon proposal of the Minister of Education, Culture and Sport, define the modalities of application of this Article in particular as to the manner and process evaluation, and responsible individual and collective bodies and how to set up.
- The regulations of this Article shall apply from the 2015-2016 school year.<sup>[10]</sup>

From the school year 2013-2014, the institution of the New School is slowly established and gradually implemented to the A Grade. This program aims to combat chronic pathologies of the past and modernize the role of education. The new school ambitions to<sup>[10]</sup>

- Provide universal quality education.
- To promote the critical thinking, initiative, creativity and skills of students.
- Cultivation students skills that will facilitate access through further specialization or training, the labor market.
- To strengthen the values of democracy, collectivity and solidarity and active citizenship shaping consciousness.
- Equilibrium in the lives of students.<sup>[10]</sup>

## **2.4 INTRODUCTION TO PHARMACY SCHOOL**

In Greece there are three University departments of Pharmacy. These consist of the Aristotle University of Thessaloniki, the University of Patras and the University of Athens. Medicinal stations in Greece require particularly high score in the Panhellenic examinations, making it difficult to access the students. Indicative of this is the phenomenon of Greek students who are unable to achieve domestic parts and studying Pharmacy in the neighboring Balkan countries or in Universities, of low capacity.

## **2.5 DEPARTMENTS OF PHARMACY IN GREECE**

### ***2.5.1 DEPARTMENT OF PHARMACY, ARISTOTLE UNIVERSITY OF THESSALONIKI***

The Aristotle University of Thessaloniki was found in 1925 on the recommendation of Alexander Papanastasiou and started operations with five faculties: the Theology, Philosophy, the Faculty of Law and Economic Sciences, Medicine and the School of Physical and Mathematical Sciences. The School of Physical and Mathematical Sciences gradually supplemented with Physics, Mathematics, Chemistry in the Naturalistic (Bio-Geology) and in 1955 by the Pharmacy Department.<sup>[2]</sup>

The newly created Department of Pharmacy, invited twenty students annually, taught ten professors and four assistant professor of whom six belonged to the School of Physics in Medicine. As one realizes the Pharmaceutical Thessaloniki started life somewhere between Physics and Medicine, a position he will retain until today. The Pharmacy department originally consisted of two facets.<sup>[2]</sup>

- Pharmaceutical Chemistry with elements of Pharmacognosy and
- Pharmacy and Pharmaceutical Technology, with two workshops
  - Pharmaceutical Chemistry and Pharmacognosy
  - Pharmaceutical and Drug Control.<sup>[2]</sup>

Medicinal courses were taught by Professor Constantine Makris firstly, and these were Pharmacognosy, Pharmaceutical Chemistry and Pharmaceutical. Around the 1970's, following the departure of Professor Constantine Makris (1968), pharmaceutical courses were taken by Professor George Fokas (Pharmacognosy and Pharmaceutical



Chemistry) and Professor Nicholas Economou-Petrovic (Pharmaceutical Technology). By Act 1268 of 1982 created two areas:<sup>[2]</sup>

- Department of Pharmaceutical Chemistry and
- Department of Pharmaceutical Technology with corresponding labs:
  - Pharmaceutical Chemistry
  - Pharmaceutical and Medicines Control<sup>[2]</sup>

In 1985 the Pharmacognosy - Pharmacology sector was created which found two more workshops, Pharmacy and Pharmacology. The year 1997 was created at the Department of Pharmaceutical Technology Laboratory of Pharmaceutical Analysis. Since its inception, the Department of Pharmacy housed on the third floor of the Laboratory.<sup>[2]</sup>

In 1989 the Department moved into three floors of the building Pharmaceutical Biology, where it stands until today<sup>[2]</sup>

The School of Pharmacy welcomes from 110 to 150 students per year. The overall approximate number of students is about 650 and the specific medicinal lessons taught by 5 professors, 10 assistant professors, 5 assistant professors and 5 lecturers. Non-specific pharmaceutical courses taught by faculty members of the Departments of Chemistry, Medicine, Veterinary Science, Mathematics, Physics and Biology. In modern times, the Department of Pharmacy, in Aristotle University of Thessaloniki, consists of 3 sectors<sup>[2]</sup>

- Pharmaceutical Chemistry. This is included in the Laboratory of Pharmaceutical Chemistry
- Pharmaceutical Technology. In this embedded Workshops:
  - Pharmaceutical and Medicines Control
  - Pharmaceutical Analysis.
- Division of Pharmacognosy-Pharmacology.
  - Pharmacognosy
  - Pharmacology<sup>[2]</sup>

The administration of the School of Pharmacy is the General Assembly (GA), the Board of Directors (BoD) and the President. The supreme governing body of the Department is the General Assembly. The General Assembly consists of all members of the academic staff, student representatives (50 % of all faculty members), representatives of graduate students (15% of all faculty members), representatives of the Teaching Assistant (5% of all faculty members) and representatives the STEP (5% of all faculty members).<sup>[2]</sup>

In the General Assembly is chaired by the Chairman of the Department elected (along with Deputy Chairman), for a term of 2 years from all the faculty members of the Department, representatives of the undergraduate students 80%, postgraduate student representatives 5%, representatives the Teaching Assistant 5%, and representatives of the EIB 5%. The Board of the Department consists of the President, the Deputy President, the Directors of the Divisions, 2 representatives of the undergraduate and 1 graduate student representative.<sup>[2]</sup>

### ***2.5.2 DEPARTMENT OF PHARMACY, UNIVERSITY OF ATHENS***

The idea for the establishment of the University of Athens belonged to John Kapodistrias and was founded by King Otto. Founded by royal decree on 14 April 1837 and launched on 3 May of the same year. It was built at the residence of architect Stamatis Kleanthis on the road Dome, on the north eastern side of the Acropolis. It was the first University not only the newly established Greek State and the Eastern Mediterranean<sup>[48]</sup>

The Othoneion University, as it was called before taking its present name, consisted of four faculties: Theology, Law, Medicine and Arts (which then included the Applied Sciences and Mathematics). In 1904, the Faculty of Arts was split into two schools, this is the Arts and Sciences, which included the new School of Physics, Mathematics and Pharmacy. In 1919 he added the department of Chemistry and in 1922 the School of Pharmacy<sup>[49]</sup>

The supreme governing body of the School of Pharmacy is the General Assembly. It consists of 30 faculty members (faculty), 15 representatives of students and 6 graduate students of the Department as well as 2 representatives Special Technical Laboratory Staff (STEP). In the General Assembly is chaired by the chairman

of the Department, elected (along with Deputy Chairman) of all the members of the Faculty, student representatives equal to 80% of the faculty members of the Department, the postgraduate student representatives equal to 5% of the members of the Faculty and representatives of STEP equal to 5% of the members of the Faculty. In the General Assembly brings rightfully elected Directors Sections. Another body part is the Board of Directors consisting of the President, the Deputy President, the Head of Department, 2 student representatives, 1 representative of graduate students and 1 representative of STEP. Another change occurred when the Medical School was added portion of Dentistry.<sup>[48]</sup>

In 1919 he added the department of Chemistry and in 1922 the School of Pharmacy as part stood out. Another change occurred when the Medical School was added portion of Dentistry. The School of Pharmacy, University of Athens comprises three areas:<sup>[48]</sup>

- Department of Pharmaceutical Chemistry
- Department of Pharmacognosy
- Department of Pharmaceutical Technology<sup>[48]</sup>

### ***2.5.3 DEPARTMENT OF PHARMACY, UNIVERSITY OF PATRAS***

The Department of Pharmacy was established in 1977 by Presidential Act 835/1977 Official Gazette Republic of Greece, Volume A 271. Admitted its first students in 1978 as a Department of Natural Sciences, and since 1983, together with the Department of Medicine form the School of Health Sciences (Presidential Act 127/83). Attendance at the School of Pharmacy is 5 years (since 1993-94, according to Presidential Act 110/93). The department receives each year 75 students and 30 graduate students. The laboratories of the Department of Pharmacy at establishing order, are:

- Pharmaceutical Chemistry (1979)
- Pharmaceutical Technology (1981)
- Instrumental Pharmaceutical Analysis (1987)
- Pharmacognosy and Chemistry of Natural Products (1988)
- Molecular Pharmacology (1989), Radiopharmaceuticals (1989)

- Pharmacokinetics (1989)
- Physical pharmaceuticals (1991)
- Laboratory of Molecular Biology and Immunology (2003)

The foundation and the internal rules of the mentioned laboratories approved by the relevant Presidential Act (OG 38/22-02-95 t ) and (GG 1263/4-09-2003 t ), while in establishing the Laboratory Pharmaceutical Biotechnology and Molecular Diagnostics. Establishment Sectors The General Assembly of Special Composition 295/19-6-07 at the meeting of the unanimous recommendation of the following three sectors :<sup>[50]</sup>

- Pharmaceutical Chemistry – Pharmacognosy
- Pharmaceutical Technology and Pharmaceutical Analysis
- Pharmacology - Life Sciences

The School of Pharmacy employs a total of 23 faculty members (Patras School of Pharmacy, 2013). Moreover, 3 positions in DEP are covered. 236 graduate students prepare their postgraduate work within 4 Graduate Programs of Study (PMS) which are implemented, either independently (PMS Department of Pharmacy in Pharmaceutical Sciences and Technology), or with cooperation of other Departments (PMS MSc in Medical Chemistry, Graduate PMS in Isolation and Synthesis of Natural Products and PMS Graduate in Computer Science of Life).<sup>[50]</sup>

## 2.6 MODULE

In Greece there are three parts in three Universities of Pharmacy, Athens, Thessaloniki and Patras. The Graduate Pharmaceutical Education in the country, lasts 5 years and includes theoretical courses, workshops and internships (12-month). At the end of his studies, the pharmacist must provide for the acquisition of professional qualifications. Tests conducted by a public entity in cooperation with professors of the Department of Pharmacy. For Postgraduate Pharmaceutical Education courses are organized in three sections and pharmacy, leading both MSc. and Ph.D. in titles.<sup>[10]</sup>

Regarding Lifelong Learning in Medicine, the University of Athens made a series of seminar courses, in the past few years, which encourages the individual education initiatives. Also, the Panhellenic Pharmaceutical Association two years ago, founded the Institute for Lifelong Education but which has been idle all this time .<sup>[40]</sup>

The content of the curriculum is focused in the field of Medicinal Chemistry, technology, medicines, pharmacognosy and much less of pharmacology and pharmacotherapy. Essentially, the curriculum is structured so that the pharmacist can leave with a very large range of knowledge on the synthesis of drugs (knowledge focused on the product) and a very narrow range of knowledge on the use of medicines. The teaching methods used are focused on teacher's authority and organization of knowledge around specific topics. Professor transmitter is given 'package' of knowledge which the student has to passively digest. The result is to have "ingrained" a pedagogical model based on memorization not pushing the student to the pursuit of knowledge, the understanding, thinking and ultimately to solve problems <sup>[3]</sup>

Ultimately the knowledge received by pharmacist candidates during their University studies, transmitted through pedagogical models and based on the needs of other decades, coupled with the subsequent indifference, collective and individual, for further expansion of knowledge, which does not equip the Greek pharmacist to meet the modern needs of the patient and the healthcare system. <sup>[43]</sup>

### ***2.6.1 DEPARTMENT OF PHARMACY, ARISTOTLE UNIVERSITY OF THESSALONIKI***

Attendance at School of Pharmacy, Aristotle University of Thessaloniki, according to the existing curriculum lasts five years and a total of 10 semesters. The subjects of the curriculum are divided into mandatory and choice while spread over the first 8 semesters. The last 2 semesters, the students practice at a public pharmacy and pharmacy department in a hospital. The rating of course reflected in the scale of 1 to 10, based on the success 5, using fractional part. In case of failure, the student should be reinstated in the course and to follow in the next semester. The examinations are conducted by the teacher at the end of the semester in particular material written or verbally <sup>[2]</sup>

The following pages describe the graduate programs of the School of Pharmacy of Thessaloniki. The purpose of the graduate program is to promote the science of Pharmacy and specialties. Purpose of graduate educational programs are:

- Masters Degree with emphasis in specific sectors of Pharmacy.
- Ph.D. in Pharmaceutics.

The program contributes to the enhancement of education in disciplines of Pharmacy, creating new professional outlets for our students, and to reduce leakage to other countries of our best students. The Graduate Program of the Department of Pharmacy awards:<sup>[2]</sup>

*1. Postgraduate Diploma in Pharmacy with the following directions:*

- Pharmaceutical Chemistry, development of Pharmaceutical compounds.
- Pharmaceutical Technology. Includes formatting and quality control of therapeutic and cosmetic formulations from technological, physical, analytical and biopharmaceutical view.
- Pharmaceutical Biotechnology Molecular Diagnostics.
- Pharmacology and Therapeutics.
- Pharmacognosy-Herbal Medicinal Products.

*2. Ph.D. in Pharmaceutics*

The study duration consists of 4 semesters. The minimum time for a doctoral degree is 8 semesters obtained having regard to the 4 Master's program. The bodies responsible for the organization and operation of the Graduate Studies Program Department of Pharmacy, Aristotle University, is the following.<sup>[2]</sup>

The General Assembly of the Department has overall responsibility for policy development and operation of the program, based on the proposals of the Department.

- The Composition of Special General Meeting of the Department responsible for the specificity of the policy of the Department in matters of graduate study, and for administration and organization of PMS.
- The Coordinating Committee of Graduate Studies Department is responsible for monitoring, supervising and coordinating all activities of the Graduate Department.
- The Director of Graduate Studies who is responsible for the administrative, organizational and operational management of PP appointed by decision of the General Meeting of department.<sup>[2]</sup>

In postgraduate programs, are admitted graduates of the School of Pharmacy, Chemistry, Biology, Medicine, Dentistry, Veterinary Medicine, Agriculture, Forestry,

Chemical Engineering or related departments coming from foreign Universities, as well as graduates of TEI similar discipline in accordance with Article 5 Fri . 12c of Law 2916/2001 (Government Gazette Republic of Greece, Volume 114 A'). In behalf of graduates of other departments other than the Department of Pharmacy, the GA decides, upon the recommendation of the Coordinating Committee on Graduate Studies, if the candidates possess the necessary basic knowledge. If not, the GA determines specific lessons, on a proposal from the relevant sector, which should be considered each candidate taking into account the skill that he wishes to follow School of Pharmacy.<sup>[2]</sup>

The program includes 5 directions:

- Pharmaceutical Chemistry Pharmaceutical Development Associations
- Pharmaceutical Technology
- Biotechnology Molecular Diagnostics
- Pharmacology and Therapeutics
- Pharmacognosy / Herbal Medicinal Products <sup>[2]</sup>

Finally, the Board of Pharmacy, Aristotle University allows doctoral degree: <sup>[2]</sup>

- The doctoral candidate selects the supervisor after a briefing of what faculty members of the three upper grades (regular, deputies and assistant professors) showing interest and is relevant to the subject will be developed where the doctoral thesis. The GA Department adopts the definition of supervisor and provides two additional faculty members which together with the supervisor are the three-member advisory committee of the doctoral candidate.
- For his doctorate, and successful completion of required examination graduate courses total 12 credits, distributed evenly in the first semester. The Advisory Committee provides postgraduate courses which the candidate should be attend during the first two semesters.
- The Advisory Committee shall, at the proposal of the supervisor and in consultation with the doctoral candidate, the subject of his doctoral thesis and evaluates the progress of the candidate at least once per semester. If problems arise during the Ph.D. thesis topic post brought to GA, which decide on the measures to be taken . <sup>[2]</sup>

## ***2.6.2 DEPARTMENT OF PHARMACY, UNIVERSITY OF ATHENS***

Attendance at School of Pharmacy, University of Athens, after the curriculum 110/93, is 5 years and lasts for 10 semesters. The subjects of the curriculum are divided into mandatory and choice while spread over the first 8 semesters. The last 2 semesters include a pharmacy practice "open to the public" and hospital pharmacy department. As compulsory subjects courses are designated, whose attendance and successful examination is considered essential for all students of the Department of Pharmacy. Monitoring deliveries theory courses is the student's academic duty. The curriculum of the School of Pharmacy of Athens includes 37 core courses. Characterized as selecting courses from the courses which the student must choose some to fill the entire 48 courses required for graduation in Pharmacy. The current program of the Department of Pharmacy includes 28 elective courses from which the student must select 11 or thesis and 9 elective courses. <sup>[48]</sup>

The rating of course reflected in the scale of 1 to 10 based on the success 5 and without using fractional part. In case of failure, the student should be reinstated in the course and follow it in the next semester. The examinations are conducted by the teacher at the end of the semester in particular material written or orally. Tests conducted at three periods (in January-February, June and in September), according to the plan drawn up by the Committee on Curriculum and approved by the General Assembly of the Department. <sup>[48]</sup>

To calculate the degree of Bachelor's degree in Pharmacy, taken into account the grades of all courses required for obtaining the degree (compulsory and elective). The degree of each course is multiplied by a coefficient called the weighting factor of course. The sum of the individual dot products, divided by the sum of the rates of all these courses. The degree of diploma rounded to two decimal places range 5 to 10 and characterized the performance: "Good" 5 to 6.49, "Very Good" 6.50 to 8.49 and "excellent" 8.50 to 10, drawn up by the Committee on Curriculum and approved by the General Assembly of the Department. <sup>[48]</sup>

For the graduation of Pharmacy, the student must meet the following 5 requirements:

- To enroll, attend and successfully tested at all 37 compulsory subjects of the curriculum and practiced successfully in laboratories (where available).



- To enroll, attend and successfully tested in 11 out of 28 choice of courses and practiced successfully in laboratories (where available).
- To total at least 210 credits.
- To complete internships whole 4 quarters in pharmacy "open to the public" and hospital pharmacy service.
- To attend at least 10 semesters.<sup>[48]</sup>

A part of the curriculum includes optional Dissertation (IP). The IP shall be prepared after the completion of the semester and corresponds to 2 semester courses. Every student entrusted with the preparation of IP at the beginning of Fall or Spring semester, if it meets the requirements and procedures set out below (Department of Pharmacy, University of Athens, 2013). The thesis should be subject to 1 of the following 15 modules disciplines:<sup>[15]</sup>

*Department of Pharmaceutical Chemistry*

- Synthetic Medicinal Chemistry
- Pharmaceutical Analysis
- Study of Physicochemical Properties Simulation-Molecular-Biological Activity in vitro
- Pharmaceutical Radiochemistry

*Department of Pharmacognosy and Chemistry of Natural Products*

- Chemical Study-Natural products, stereochemical taxonomy, terrestrial and marine organisms
- Semisynthesis of Natural products
- Chemical Ecology
- Biological activities of natural products
- Applications-Uses Natural Products (Medicines, Cosmetics, Food)

*Department of Pharmaceutical Technology*

- Pharmaceutical Technology
- Biopharmaceutics
- Pharmacology
- Pharmacokinetics

- Clinical Pharmacokinetics
- Cosmetology

The thesis is experimental or theoretical research paper on a topic with incremental originality, totaling up to 2 semesters, the results of which lead to writing essay, which is submitted for assessment (Department of Pharmacy, University of Athens, 2013). It aims at training students in methods of literature research, design and execution of experiments or theoretical calculations to investigate or solve a drug problem, evaluation of results and sound written and oral presentation. Finally, it aims at transmitting culture and love for research, tomorrow's scientists. <sup>[48]</sup>

At postgraduate level, the School of Pharmacy, University of Athens organizes and operates from the academic year 1993-1994 Graduate Program in accordance with the provisions of Articles 10 to 13 of N.2083/1992 from 05.12.1993 and the General Assembly Special Composition. <sup>[48]</sup>

The goals of graduate studies is to promote scientific knowledge and meeting the educational, research and development needs of the country in the field of Pharmaceutical Sciences. Specifically, graduate studies aim to offer expertise in both young scientists in the area of Pharmaceutical Sciences and in individual sectors to highlight scientists capable of contributing to the educational and economic development of our country. Further postgraduate studies leading to the Ph.D. degree designed to enhance scientific knowledge and a broad research capability, which will contribute to the further development of pharmaceutical sciences and their applications, covering more than one specialization. <sup>[48]</sup>

To achieve these objectives, the Department of Pharmacy will seek cooperation with other departments of the same or another University recognized domestic or foreign institutions as well as the connection of the Postgraduate Program in industry and production. The Graduate Program of the Department of Pharmacy awarded MSc in general following specializations:

- Clinical Pharmacy
- Synthetic Medicinal Chemistry
- Pharmaceutical Analysis - Quality control
- Radiopharmaceutical Chemistry
- Isolation - Development - Production and Testing of Bioactive Natural Products

Simultaneously operate two graduate programs that require further specialized in the following areas - *Production and testing of pharmaceutical compounds and Industrial Pharmacy*.

The programs aim is on the one hand to promote scientific knowledge and the application of new knowledge and technology, on the other hand the specialization of young scientists and specialists capable of creating face transportation problems and assimilation of new high-tech processes and contribute to economic and social development of the country. Be part of the effort to modernize and upgrade the level of Graduate Studies offered by the School of Pharmacy of the University of Athens and Thessaloniki level competitive with international standards. <sup>[48]</sup>

### ***2.6.3 DEPARTMENT OF PHARMACY, UNIVERSITY OF PATRAS***

The undergraduate curriculum established by the General Assembly of the Department. <sup>[50]</sup>

- The duration of the undergraduate degree in Pharmaceutical Science shall be 5 years (10 semesters) and includes theoretical instruction and laboratory practice.
- All courses are mandatory for the first four years of study. From the academic year 2010-2011, for students attending the fifth year of study:
- During the fifth year of study, students are asked to choose whether to draw Experimental Thesis or Dissertation Literature. To faculty member undertaking the supervision of Experimental Thesis I have an obligation to take the teaching and exam Research Methodology I. The preparation of the Thesis I and Thesis II supervised by the same faculty member. For students who have been exempted from examination courses, minus the corresponding classes with number of credits by the requisite number for obtaining the degree.
- For students who have taught fewer subjects or have changed the credits of coursework in the curriculum decisions of the General Assembly Department changed accordingly and the number of credits required to receive their degrees.
- Also for training of pharmacists required internship lasting one year.

The post-graduate studies are controlled by the Division of Pharmacy, University of Patras. In 1993, this was submitted to the Ministry of Education's proposal

for the pharmaceutical division operation Graduate Program, approved as it was, by a Presidential Decree published in the Government Gazette Republic of Greece. In 2001 became the first overhaul of the graduate program in Pharmaceutical Science and Technology (GG 1525t.V/14.11.2001), which was applied to the academic year 2003-2004. In the spring of 2004 the General Assembly of Special Composition of Pharmacy established new updated PP, which was published in the Government Gazette <sup>[35]</sup> applied to the academic year 2010-2011.

The GASC 331/19.04.2010 meeting at the Department, approved the Amended Graduate Program of the Department of Pharmacy, and which after approval by the Senate of the Foundation to take effect <sup>[39]</sup>. This clarifies the fact that the Department of Pharmacy in the current academic year 2011-2012, launched and implemented the Modified Graduate Program of the Department of Pharmacy 'Graduate Program in Pharmaceutical Sciences and Technology "according to the decision of the Senate of the Foundation <sup>[51]</sup> and is expected to issue the relevant Ministerial Decision <sup>[42]</sup>

The program aims in education and training in new scientific areas of Pharmaceutical Science and Technology, to the creation of appropriate people-oriented infrastructure, which will support the country's participation in international scientific developments, help to develop imported technologies and support the research and penetration of young people in different sectors. It also aims to link research effort with the production process, enhancing technology transfer mechanisms to the Greek production facilities to meet specific business needs related to operational planning, development and distribution of pharmaceutical products. <sup>[50]</sup>

On the other hand, the program postgraduate diplomas graduate diploma specialization in the following directions:

#### *Design and development of substances of pharmaceutical interest*

Target direction is to provide graduate students (M.F.) a complete and specialized knowledge base in the disciplines of Pharmaceutical Chemistry, Pharmacognosy and Chemistry of Natural Products, Pharmacology, Molecular Biology and Biomedical order to cope with the current demands of the research or diagnostic laboratory, pharmaceutical industry or hospital. The breadth of knowledge available in the scientific frontier areas, along with the experience gained in the context of the

preparation of their thesis work, will allow graduates to seek employment in a variety of jobs or to continue their studies for a Ph.D. <sup>[50]</sup>

### *Industrial Pharmacy-Pharmaceutical Analysis*

The objective of this direction is to provide theoretical and practical knowledge to graduate students to respond successfully to the demands of the modern Pharmaceutical Industry. The breadth of knowledge offered along with the experience gained in the context of the preparation of their thesis work, will allow graduates to seek employment in Pharmaceutical and other similar industries. It also provides the opportunity to continue their studies for the Ph.D. <sup>[50]</sup>

### *Clinical Pharmacy - Pharmacotherapy*

The purpose of this direction is the study of drug action at the molecular and cellular level and the use of knowledge for drug design, which ensure more selective, specific and therefore more efficient and safer operations. The direction provides the basis for research work in Universities and other research institutions, and employment in the industry. Emphasis is also placed on medication, drug interactions and pharmacokinetics that graduates this direction can work in hospitals and specialized pharmacies. It also provides the opportunity to continue their studies for a doctorate degree. <sup>[50]</sup>

### *Pharmaceutical Marketing*

The purpose of this guidance is to provide theoretical and practical knowledge to graduate students to meet with success in their contact with the general business in the field of medicine. Specifically, they will acquire the necessary background knowledge on concepts and fields related to business planning and development, management and administration of medicinal products and pricing, distribution and promotion of these. <sup>[50]</sup>

## **2.7 LIFELONG LEARNING IN GREECE**

### ***2.7.1 LIFELONG LEARNING GENERALLY***

At this point, it should be noted the role of two modern structures of the Ministry of Education aims at continuing education of the entire population. The first on

is General Secretariat for Lifelong Learning and the other one is Foundation for Youth and Lifelong Learning. At the meeting of the Council for Lifelong Learning and Employment Association, held on December 18, 2012 the Ministry of Education, Culture and Sport, presented the Annual Report on Lifelong Learning in Greece. <sup>[43]</sup>

The Institute is governed by a 12-member board, appointed by the Director General of UNESCO. The Board consists of excellent specialists in the field of education from various parts of the world who meet once a year to review the progress of the Institute's work and policy plans for the future. <sup>[43]</sup>

On the other hand the "Foundation of Youth and Lifelong Learning" was established with the merger, by absorption of Institute of Continuing Education of Adult and the Institute of Youth National Foundation, into a single entity, which is supervised by the Minister of Education, under the 127175 / h (GG v2508/4-11-2011). The "Foundation of Youth and Lifelong Learning" is designed to implement the actions, programs and projects:

- Lifelong Learning.
- For the youth, with emphasis on supporting young people in their career, to enhance and support youth innovation.
- The management issues associated in any way with the school and student welfare.

### ***2.7.2 LIFELONG LEARNING OF PHARMACISTS***

Unfortunately in modern Greece there are no organized social structures and organizations that deal with sustainable education. Of course, this applies to all professional disciplines and not only pharmacists. However, in recent years, an initiative of University Foundations of Medical Associations and the Institute of Lifelong Learning and Professional Development Pharmacists, was applied ongoing training seminars. In conclusion, there is a constant need for information and training, aimed at <sup>[3]</sup>:

- Continued timely and reliable information to pharmacists about developments on scientific or sectoral issues or public health.
- Continuing and Lifelong Education certified pharmacists and assistants.

- The Scientific Certification of Pharmacists in specialized items relating to both drugs and health care products (cosmetics, etc.) and food products, which are promoted through pharmacies. To fulfill these objectives the Institute may cooperate with public or private entities to provide for the certification of training.
- The Organisation of Scientific Events, in partnership with the above organizations or independently.
- The visibility of pharmacists and the supply of public health.

According to the Institute of Lifelong Learning and Professional Development Pharmacists, participation in activities and programs requires <sup>[44]</sup>

- Participation of the individual in a company or business with a similar purpose.
- Working with any legal or natural person eg. Universities, public organizations, ministries, local authorities, and international organizations or international authorities.
- The creation and organization of information projects, relating to Public Health.
- Participation in Community programs.
- The Lifelong Learning seeks to become certified and validated by the Ministry of Education to respond fully in this important role, the services provided by the pharmacy to the public.

## **CHAPTER III**

### *Vocational employment of pharmacists*

#### **3.1 BUSINESS PROSPECTS OF PHARMACISTS IN GREECE**

The following section describes the most important areas of employment of pharmacist in Greece. The pharmacist can work <sup>[49]</sup>

- In Pharmaceutical Representatives of foreign companies or Greek Pharmaceutical Industries.
- As scientific staff in the areas of exploration and production in Greek Pharmaceutical.
- In the National Medicines Agency.
- Central and regional services of the Ministry of Health and Welfare.
- To pension funds and organizations.
- In state pharmacies and private hospitals.
- As freelancers to open their own pharmacy. For this purpose, a special license is required in order to establish and operate the pharmacy

#### **3.2 ESTABLISHMENT OF PHARMACY**

##### ***3.2.1 PHARMACY ESTABLISHMENT IN GREECE***

In Greece and the majority of European countries, the right to license the establishment and operation of a pharmacy license has only a licensed pharmacist in that people who have graduated in pharmacy but also has, following tests, the license to practice. Essentially, the ownership, administration and management of pharmacy in the hands of the same person, the pharmacist. The rationale for this is to ensure the scientific and professional independence of pharmacists who thus ensuring patient safety in the process of using drugs. Moreover, the state, recognizing the importance of easy and immediate access to medications and pharmacy services has progressed to the introduction of criteria, geographic and population in order to ensure maximum dispersion of pharmacies <sup>[49]</sup>



Today in Greece the number of pharmacies exceeds 11500. This translates to greater numerical density between EU countries (1 pharmacy per approximately 1126 inhabitants). The number of pharmacies, due to geographic and demographic criteria are uniformly distributed in the Greek territory. Almost every neighbourhood and every village has its own pharmacy. Partial distortion in the form of over-concentration of pharmacies, observed mainly in city centers and due to overconcentration respective doctors. The scientific potential of the Greek pharmacy limited to the owner-pharmacist. Rarely found pharmacy where to work second or more pharmacists. Usually accompanied by a pharmacist's assistant pharmacist without disappearing phenomena nepotism where relatives of the pharmacist, without any qualification, not just working in the pharmacy, but are often involved in making medicines to the patient and address of the pharmacy, the pharmacist is absent <sup>[17]</sup>

Regarding the structure of pharmacies, they are typically small sized stores which hardly exceed 50 m<sup>2</sup>. By law has separate facilities for disposal of medicines (drugstore) for the preparation of extemporaneous preparations (pharmaceutical laboratory) and storage of various drugs and products (warehouse). The majority, however, have inactivate the pharmaceutical laboratory space (which usually turns into extra storage space) while retaining only the functional site. The image of Greek pharmacies is related to their age. At present there are two prevailing images. In the first one, the traditional, drugs exposed to public view, with semi-spaces and a nostalgic style. The second one is a new type of pharmacy, refurbished or newly created, with drawers and a lot of quasi-pharmaceutical products. The design of modern pharmacy has a commercial philosophy, image and scientific logic. It is characteristic that products paraphernalia are so many that sometimes overflow on the bench "disposal" of drugs making it impossible to sight pharmacist - patient relationship. The front facade serves a colorful parade of dermocosmetic advertising companies. The scientific degradation reaches the point, that pharmacies and pharmacists adopt the motto of these companies themselves, as "health and beauty tips" <sup>[1]</sup>

The economic situation of Greek pharmacies was booming until the beginning of the great economic crisis in Greece. A typically good performance of duties and good financial management was sufficient to establish a fairly decent income. The main source of income for the vast majority of pharmacies was and is available drugs. Only certain pharmacies from urban centers, and some few in the region had a substantial

income on the part of cosmetic and dietary supplements. Even fewer pharmacies (usually those located near hospitals) had a remarkable income from the orthopedic department. In modern times the data has changed dramatically. The crisis both drifted lower and middle social strata, including pharmacists and pharmacies. Continued reductions in drug prices, delays in payments from pension funds, direct and indirect reductions in the rate of profit and lower sales of pharmaceutical products without simultaneously, there is substantial opportunity to reduce operating expenses and cost of living. It is characteristic that a large number of pharmacies has resorted to bank loans (in the form of factoring) with very large rates in order to meet current obligations .<sup>[1]</sup>

Summing up, Greece, along with other countries such as Spain and Italy, followed by the so-called "Mediterranean" model pharmacy contradicts the "North European" model prevalent in central and northern Europe. Practically this means scattered, many in number, small in size pharmacies only one pharmacist working versus low dispersion, few in number, large in size pharmacies where pharmacists work long. Each of these two models has a strong advantage that serves as the "Achilles heel" of another model. While the "Mediterranean" because of the large dispersion achieved is readily and easily accessible to the patient, especially in the third age as a percentage of the total population is growing. And the "North European" because of the cooperation of many pharmacists, achieves the provision of modern medical services to the patient .<sup>[9]</sup>

### ***3.2.2 ESTABLISHMENT OF PHARMACY AND LAW***

The current section describes the Law 1963/91 which contains provisions for the establishment and operation of pharmacies .<sup>[30]</sup>

#### ***ARTICLE 1. LICENSING IN ESTABLISHING A PHARMACY***

1. The establishment of a pharmacy in one municipality determined by decision of the local Pharmaceutical Association and the prefect

2. To obtain the required license in order to establish a pharmacy, the applicant has to meet the following qualifications attested by the corresponding certificates submitted to the competent authorities <sup>[17]</sup>

- Greek citizenship or nationality of a Member - States of the EEC
- Degree in pharmacy school and licensed to practice of pharmacy in Greece.

- Have fulfilled his military obligations or lawfully exempt from them.
- Not convicted irrevocably any penalty or theft, embezzlement, fraud, extortion, forgery, crimes against morality, defamation of acts connected with the exercise of the pharmaceutical profession, counterfeiting, forgery, breach of article 5 of .1729/1987
- Not licensed in establishing pharmacy pharmacists:
- Receiving retirement for health reasons or the maximum pension that is awarded by the State, TSAY or any other social security institution or have the conditions to do so, even if resigned from the eligibility for pension.
- Those who have been punished for violations of drug laws to permanent revocation of the license establishing the pharmacy or pharmaceutical warehouse.

4. Pharmacists that completed the 70th year of age, are not licensed in establishing pharmacy. The validity of this provision begins 1/1/2005.

5. Licenses to establish and operate pharmacies and pharmaceutical warehouses pharmacists who condemned by a final judgment in one of the offenses listed in section d of paragraph 2, revoked by decision of the competent prefect <sup>[28]</sup>

## *ARTICLE 2. POPULATION PROPORTIONS*

1. The number of allocated pharmacies, for each municipality of the country, is determined by the following criteria thresholds : <sup>[8]</sup>

- For municipalities with a population of up to 3000 residents as long as they do not operate a pharmacy, may be granted only one license establishing pharmacy.
- For municipalities with populations of 3001 to 10000 inhabitants 3000 inhabitants ratio required for each pharmacy.
- For municipalities with populations of 10001 to 100000 residents required ratio of 2500 people per pharmacy.
- For municipalities with a population of over 100001 inhabitants 2000 inhabitants ratio required for each pharmacy.

2. Population limits of the preceding paragraph shall not apply to pharmacists who have or will acquire a professional license in Greece until 31/12/1996.

3. The population is estimated based on the results of the last official census in the State.

### *ARTICLE 3. QUEUE*

1. Permits issued establishing the pharmacy on the date of service of the request to the competent authority. <sup>[28]</sup>

2. Among pharmacists, who handed application for a particular municipality in the day, preferably in the following order <sup>[28]</sup>

- He who does not have permission to establish and operate a pharmacy in another municipality.
- He has permission exerciser oldest profession of pharmacy within the meaning of the provisions of the relevant law and who has not previously received authorization to open another pharmacy.
- That prior to the graduation of pharmacy school and University, where simultaneous reception of his degree, has a greater degree.
- One that has many children or the child of a large family.

### *ARTICLE 4. DRUG DELIVERY*

Specifications for establishment and operation of a pharmacy <sup>[27]</sup>

1. The drug is administered social good and pharmacist hand.

2. The pharmacy must be independent store with sufficient natural and artificial lighting, ventilation, sanitation, air conditioning and is generally consistent with the provisions of the General Construction Regulations (GOK).

3. The store's pharmacy, which can also be multi-storey, divided into the following sections: <sup>[17]</sup>:

- The drugstore, works on the ground floor of the shop is the main use of space and the minimum net area shall be 30 square meters, the store when housed and operated by 1 to 3 pharmacies. For each additional pharmacy that housed the store, the area of drugstore increased by 5 m<sup>2</sup>. The drugstore is the place serving the public, in which medicinal products are stored in shelves and drawers. At the drugstore may operate in separate additions or other areas of the store's

pharmacy, non-pharmaceutical laboratory sections permitted to be sold in a pharmacy items.

- The pharmaceutical laboratory that the minimum area shall be 10m<sup>2</sup> and is an independent site principal use of smooth surfaces, well lit, which made the pharmaceutical formulations.
- The warehouse, which stored all products legally available to the pharmacy and must be at least 5 m area.
- Toilet, which must be constructed in accordance with the provisions of the existing health regulation. The pharmaceutical laboratory may also be in the upper (balcony), provided, however, be a single building with ground floor drugstore, which will communicate with a wide range, and the warehouse and toilet may be in the basement of the store and in case of multi-storey store in one of the floors.

4. The store's pharmacy system must have adequate facilities or fire and protected with security shutters. Also in the façade should be safe mounting tables and Night Duty pharmacies, with adequate lighting and special safe open to the public during a day and nights <sup>[28]</sup>.

5. Presidential Decree, issued a proposal by the Minister of Health, Welfare and Social Security, can define more specifically the organization and establishment of pharmacies, particularly technical and scientific instruments and furniture must have it, and sold by them species. Until further changes these issues are maintained by the lying requirements <sup>[28]</sup>

#### *ARTICLE 5. DOCUMENTS TO GRANT AUTHORIZATION PHARMACY HOURS*

1. For the administration the licensed pharmacy must be submitted, by the applicant together with an application for inspection of the store, which will operate the pharmacy, the following documents <sup>[8]</sup>:

- Certificate from the competent planning authority that the store will operate where the pharmacy is not arbitrary and does not include arbitrary structures or additions.
- Copy of lease agreement by the applicant pharmacist's shop, where we operate a pharmacy, or a recent certificate of ownership of the land register.

- Drawing plan view of the store in which to show the dimensions of the net.
- Excerpt street plan of the area in 1:200 scale, which will occur pharmacies closer to 100 meters from the pharmacy in operation.
- Certificate from the competent fire service that the store has sufficient fire protection system or fire fighting equipment.

2. The supporting elements with c and d must be accompanied by a declaration under Article 8 of Law 1599/1986 (Government Gazette Republic of Greece, Volume 75 A') the engineer who prepared for accuracy.

#### *ARTICLE 6. DISTANCES PHARMACY*

Article 7 of Law 328/1976 (Government Gazette Republic of Greece, Volume 128 A '), as amended and supplemented it with paragraph 1 of article 19 of Legislative Act 982/1979 (Government Gazette Republic of Greece, Volume 239 A') and paragraph 3 of Article 40 of Law 1759/1988 (Government Gazette Republic of Greece, Volume 50A') is replaced by the following:<sup>[20]</sup>

1. The Bank established the following pharmacies will be apart from the already operating at least 100 feet, and the distance is measured from the nearest edge of the main faces of the imaginary line pharmacies directly on paper or topographical layout endorsed by the relevant planning department.

2. The pharmacies that operate continuously in the same municipality, the same pharmacist, transported to another location, during the time of transfer from the operating pharmacies must refrain:<sup>[9]</sup>

- least 40 feet if completed 5 years of operation and
- at least 20 feet if completed 10 years of operation. These distances are measured in accordance with the provisions of the previous paragraph.

3. Without prejudice to the provision of the following paragraph prohibits the creation and transfer of pharmacies within:<sup>[9]</sup>

- 120 meters from at least 2 co-location pharmacies.
- 160 meters from at least 3 co-location pharmacies.
- 200 meters from at least 4 or more co-location pharmacies.
- 250 meters at least 5 or more pharmacies.

4. The distance on the foregoing provisions shall not apply:<sup>[10]</sup>

- where the transfer function or pharmacy operated in the same store more than 5 years, when the transfer was made due final judgment for reconstruction, demolition or personal use.

5. The distances of paragraphs 2 and 3 of this Article shall be reduced by half for the pharmacy, operating more than five years in municipalities where there are centers or control issue prescriptions laid down by decision of the prefect and to within 200 meters of the building these, and the distance is measured according to the provisions of paragraph 1.<sup>[10]</sup>

6. Municipalities and communities around the area of the municipalities of Athens and Thessaly may be with them uniform pharmaceutical regions, Presidential Act issued once the proposal of the Minister of Health, Welfare and Social Security, after a prior opinion of the general meetings of the Pharmaceutical Association of Attica or Thessaloniki. Regions to single pharmaceutical Athens or Thessaloniki authorizing the transfer of legally operated within these pharmacies

#### *ARTICLE 7. CO-LOCATION PHARMACY*

Article 12 of Law 5607/1932 (Government Gazette Republic of Greece, Volume 300 A'), superseded and supplemented subsequently replaced as follows:<sup>[28]</sup>

1. By decision of the prefect after consulting the relevant Pharmaceutical Association may allow the co-location of the same store more than one establishment in pharmacies, as long as not to impede the spatial serve the public and not reported at specified start pharmacy store or transport pharmacy is already working in another position, less than pharmacies or permits establishing them to be co-located. In this case the completion of the establishment of the pharmacy to obtain authorization and the shipment must be made within a period of 60 days, if no time limit expires, the establishment and declared the transfer shall not constitute an impediment to the approval of the requested co-location. Nor can allow co-location of pharmacies operating under establishment with pharmacies and pharmacies operated together<sup>[28]</sup>

2. Also allow co-location at the same store in pharmaceutical warehouses, operate in establishing and operating with wholesalers.

3. The licensed pharmacists in pharmacies and pharmaceutical warehouses are jointly responsible for any breach of the law, and the physical address and the normal operation of pharmacies and pharmaceutical warehouses and required to enter their names on the signs and upload them.
4. The co-location of pharmacies that operate between and among pharmacies operated by a foundation, not authorized, permitted regardless of the distance they are from another pharmacy or co-location (Law 1963/91).
5. Cons to paragraph 1 co-location pharmacies considered for determining the number of pharmacies operating as required separately and in particular a day and night. Permits for the co-location of pharmacies operating company or recommendation of those pharmacies hereinafter granted only in pharmacies and wholesalers that meet the requirements of current legislation.
6. In case of retirement, resignation for health reasons or death of a pharmacist in the store was approved or approved co-location, according to the preceding paragraphs do not apply, prefabricated of co-location for the remaining therein pharmacists on the area and haul provisions of Articles 4 and 6 of this Act. In order to realize the mentioned co-location is not subject to the conditions of paragraph 5 of this Article and the constraints of Article 2, for the state, when submitting an application for a permit establishing pharmacy that will co-locate after the above and the heirs at holders of the Law, who declare their acceptance in writing on the sheet of the application .<sup>[28]</sup>
7. If the area of the pharmacy in the above cases is less than that stipulated in Article 4 of this Law, the co-location and de-location, mentioned above, can be done once. The pharmaceutical laboratory may be in upper, and the warehouse and toilet can be in the basement or upper area of the pharmacy. All these areas should contact the main store, but always in accordance with the applicable building codes .<sup>[9]</sup>
8. The article in this co-location pharmacies work required to form a general partnership, recommended authenticated, designated co all participants to co-location and pharmacists analogy with the provisions of paragraphs 2,3,4,5 and 7 of Article 17 of Law 5607/1932, as amended and replaced it with Article 6 of Law 328/1976 and Article 14 of Law 1821/1988 .



## *ARTICLE 8. OPERATING COMPANY PHARMACY*

1. By decision of the prefect, if not prevented spatially service to the public may be allowed up companies operating pharmacies that operate as individual, corporate and co-location.<sup>[17]</sup>

2. Following its adoption by the prefect's approval decision, recommended by a notarial document, which referred to the number of the approval decision of the prefect. Certified copies not submitted within one month from the entry in the books of that Court, in part or prefecture address hygiene and Pharmaceutical Association, whose members are participants in the company pharmacists. In case of non-compliance with the senior decision revoked the approval of the prefect. The recall operation, care of that department shall be notified to the relevant court for the note on the relevant entry<sup>[17]</sup>

3. By Presidential Act, issued upon proposal of the Minister of Health, Welfare and Social Security, are :<sup>[17]</sup>

- The type of company.
- The documents that will be submitted to the department or the address of the competent prefectural health, approving the recommendation of the company.
- The management, representation of the company, the distinctive commercial title, which will be inserted after the word "pharmacy" and the name of the pharmacist or pharmacy.
- The terms and conditions of particular places, outside the stores of the participating pharmacies in the company, the exclusive service for those needs.
- The seat, the duration of the company, which may be extended by the same process, and the acceptable percentage of ownership in the company.
- Every detail necessary for the establishment and operation of companies.
- The consequences and how the imposed administrative, contractual and disciplinary sanctions against pharmacists shareholders pharmacies which participate in the National Guard.
- The Bank established the following pharmacies will be apart from the already operating at least 100 feet, and the distance is measured from the nearest edge of the main faces of the imaginary line pharmacies directly on paper or topographical layout endorsed by the relevant planning department.<sup>[10]</sup>

### *ARTICLE 9. RECTORSHIP OF PHARMACY*

1. The under Article 41 of Law 1483 <sup>[25]</sup>, tables of pharmacies overnight accommodation and the area of each medicinal club drafted with care and responsibility, were valid for one year and is mandatory for those included in these States them. The number of pharmacies in day-Saturday set mandatory up to 20% of the number of operating pharmacies.

2. The obligation of the call released by decision of the prefect temporarily or permanently, pharmacists, for whom there are serious reasons of health, evidenced by a certificate of hospitals, or other important reasons. <sup>[25]</sup>

3. Article 22 of Law 1483/1984, as supplemented by paragraph b of Article 41 of Law 1892/1990, the sixth paragraph is added as follows: <sup>[22]</sup>

"6 Pharmacies in the islands Resorts and spas may operate beyond normal operating hours and all days of the week, following a decision of that department's Strength this paragraph begins publication of the law."

4. Violators of the provisions a day and nights, excluding penalties and disciplinary action punishable by a decision of the competent prefect, a fine of 88.04 to 440.20 euros and in case of relapse, with temporary closure of pharmacies by 5 days to 6 months <sup>[9]</sup>

### *ARTICLE 10. PHARMACEUTICAL ADVISORY COMMITTEE*

1. Ministry of Health, Welfare and Social Security Advisory Committee recommended pharmaceuticals comprised: <sup>[17]</sup>

- The legal adviser of the Ministry of Health, Welfare and Social Security or the lawful deputy, as Chairman.
- From the president of the National Medicines Agency or his legal substitute, as vice president.
- From the Head of the Directorate of Technical Drug or legal substitute, as vice president.
- From the Head of Technical Services Directorate of the Ministry of Health, Welfare and Social Security or his legal substitute.
- By the President of the Panhellenic Pharmaceutical Association or his legal substitute.

2. The Committee of paragraph 1 shall be drawn by the Minister of Health, Welfare and Social Security. In the same decision, the rapporteur shall be an employee of the

Ministry of Health, Welfare and Social Security Grade A Sector IP and the secretary of the committee. With such a decision may regulate functional aspects of this Committee .<sup>[8]</sup>

3. The Pharmaceutical Advisory Committee is responsible for the opinion, prior to a decision by the Minister of Health, Welfare and Social Security, in cases brought under Article 8 of N.3200 on issues of pharmacies and pharmaceutical warehouses, and on any other matter that Pharmaceutical Legislation, which the minister addressed a question.<sup>[17]</sup>

4. The Minister of Health, Welfare and Social Security, in actions under Article 8 of Law 3200/1955, shall review the decision of the competent prefect on pharmacies and pharmaceutical warehouses and forces where can cancel or modify them .<sup>[17]</sup>

#### *ARTICLE 11. DISCIPLINARY COUNCILS*

Article 67 of N.3601/1928 as amended by Article 9 of Law 4111/1960<sup>[21]</sup> and VI approx 1 and 2 of Article 37 of N . 1316/1983 is replaced by the following:<sup>[17]</sup>

1. Primary disciplinary councils operating in Pharmaceutical Associations with more than 100 members. Disciplinary States Pharmaceutical Associations who have less than 100 members, decided by the Disciplinary Board of the closest Pharmaceutical Associations designated by decision of the Board of the National Pharmaceutical Association. This setting applies to the conduct of elections by that pharmacists.<sup>[44]</sup>

2. Every complaint must be submitted under the secretariat of the Disciplinary Board. The Chairman of the Disciplinary Board is studying the details of the complaint and decides on the referral or not complained to the Disciplinary Board.<sup>[44]</sup>

3. In case that the alleged judged, referred the Disciplinary Board, the chairman of which calls him to apologize in writing within 15 working days and secondly appoints a rapporteur on the case, one of the members of the Disciplinary Board<sup>[17]</sup>

4. The designated rapporteur to study the details of the complaint and the alleged harasser to apology at the meeting of the Disciplinary Board.<sup>[44]</sup>

5. During the proceedings the alleged invited to attend a special invitation

6. Disciplinary penalties are :<sup>[9]</sup>

- Recommendation.
- Reprimand.

- Fined from 88.04 to 440.20 euros. The minimum and maximum limit of the fine may be increased up to five times by Presidential Act, issued upon proposal of the Ministry of Health, Welfare and Social Security.
- Deprivation for four years or permanently the right to vote.
- Temporary closure of the pharmacy from one month to one year.
- Denial of the license to practice in particularly severe cases.

7. The Disciplinary Board shall, if appropriate, order the publication, at the expense of judgment, when it becomes irrevocable, the association of pharmaceutical care in a local newspaper and issued by the National Pharmaceutical Association "pharmaceutical bulletin" or a form of local Pharmaceutical Association, if released .<sup>[9]</sup>

8. The decisions of first instance disciplinary board notified pharmacists, whose disciplinary Prosecuted is a member, are not subject to appeal and the Panhellenic Pharmaceutical Association.<sup>[17]</sup>

9. Appealed to the Supreme Pharmaceutical Disciplinary Board may within 10 days of notification of the decision to set punitive fine of more than 264.12 euros. For appealing fee payment required 14,67 euros, which, in case of refusal, shall be forfeited in favor of the Panhellenic Pharmaceutical Association, otherwise it is assigned to the appellant.<sup>[17]</sup>

10. The appealing for cases d e f paragraph 6 implies the suspension of sentences before judgment thereon.<sup>[17]</sup>

11. Decisions of the Disciplinary Board, if made final, executed with the care of the department or directorate competent prefectural hygiene.<sup>[17]</sup>

12. Fines imposed on final decisions of first instance disciplinary board levied by pharmacists, whose member are punished. The Pharmaceutical Association shall return to the punished member the fine in whole or in part, in the case of exemption or modification of the judgment of the first instance disciplinary board of the Supreme Disciplinary Council .<sup>[17]</sup>

#### *ARTICLE 12. ENCODE*

A Presidential Act issued on the recommendation of the Minister of Health, Welfare and Social Security, can encode the provisions of existing Pharmaceutical Legislation in a single text, permitted the reform of a series of related articles.<sup>[17]</sup>

#### *ARTICLE 13. EXPATRIATES PHARMACISTS*

Homogeneous pharmacists may receive authorization to open a pharmacy and pharmaceutical warehouse and exercise medicine profession in Greece, according to the provisions of applicable whenever Pharmaceutical Legislation .<sup>[17]</sup>

#### *ARTICLE 14*

Obligations of subsection c of paragraph 2 of Article 1 excludes those who are or will be licensed to practice pharmacy until 1/1/1992. In this case the male pharmacists may be housed together an authorization to open a pharmacy in operating pharmacies or designate an alternate responsible pharmacist to fulfill their military obligations.<sup>[17]</sup>

### **3.2.3 STRUCTURE AND ASSEMBLY OF PHARMACY**

The organization and assembler pharmacies established, with the assent of the President of the Republic of the provisions:

1. Article 44 of Law 5607/32 and paragraph 5 of Article 4 of Law 1963/1991<sup>[26]</sup>
2. The No. 404/1992 Opinion of the State Council upon proposal of the Minister of Health, Welfare and Social Security

#### *ARTICLE 1*

At the pharmacy:<sup>[9]</sup>

1. Performed all kinds quoted by doctors, dentists, midwives and vets recipes
2. Retailed medicines, pharmaceutical products and pharmaceutical substances, and generally the species listed in alpha-q cases of paragraph 2 of Article 2 of Law 1316/83, as amended by Article 1 of Law 1965/1991, except those with decision EOF exclude the jurisdiction of pharmacies as well as species that are permitted by other provisions of laws or decisions. Also generic types of medical, cosmetics, dietary products, milk and cereal formulas, sanitary infants, pregnant women, cosmetic, orthopedic equipment and machinery, medical instruments, machines and devices are sold freely in pharmacies.

The pharmacies can sell veterinary medicines, but in this case one must have extra space for keeping and selling these products, which must be prominently displayed in capital letters, by the words "veterinary medicines". The sale in pharmacies foreign objects not covered by the above paragraphs 1 and 2 shall be prohibited<sup>[9]</sup>

## *ARTICLE 2*

1. The façade of the store pharmacies necessarily placed within illuminated panels, cross green color, the center of which there may be an illustration of the complex medicinal pot and snake.<sup>[9]</sup>
2. Pharmacists are required to wear white shirts and the upper left side of this, a mark (tag) by name and their status. Also white coats are required for licensed pharmacy technicians, with their name and their status.<sup>[9]</sup>

## *ARTICLE 3*

1. The pharmacies must necessarily have<sup>[17]</sup>
  - a. Current Greek Pharmacopoeia.
  - b. Tariffs on medicines.
  - c. The book copying recipes (recipes), which copied the same day special recipes drugs (crossed recipes), as well as recipes hardcore at the discretion of the pharmacist, who runs the pharmacy. Where compliance with the pharmacy computer system, the above recipes can be entered into a computerized form stamped by the relevant Department or Directorate of Health Supervising Authority.
  - d. Paper trainees and graduates students of Pharmacy.
  - e. Pharmacy student book, showing the movement of students in pharmacy(the date of withdrawal, the student performance and diligence, in the opinion of the pharmacy responsible management of the pharmacy).
  - f. Book Workshop for biographical manufactured at a time, and stockpile medicines, according to Greek Pharmacopoeia, if listed there, or otherwise in accordance with the teachings of science if they do not appear in the Greek Pharmacopoeia.
  - g. Booklets drug for the indication of such motion.
  - h. Scientific Library, the main books of which are appointed by decision of the Board of the Panhellenic Pharmaceutical Association .

2. The books mentioned in the previous paragraph must be certified prior to their use by the department or the Department of Health Supervising Authority<sup>[17]</sup>

#### ARTICLE 4

Each pharmacy shall be equipped with<sup>[17]</sup>

##### 1. Drugs

- Those defined by the National Drug drugs, chemicals, and dragees, Greek Pharmacopoeia.
- Sufficient quantities of proprietary formulations and antibiotics, hormonal, analgesic, therapeutic serums and other current drugs to meet the needs of the public in relation to the population density of the area, the frequency of this a day and nights and general traffic enforcement recipes .
- Pure oxygen in metal cylinders, ready for use, with all the necessary components
- The monopoly of the State lawfully circulating Narcotics drugs, in quantities specified each time the Minister of Health, Welfare and Social Security.
- Various products for health care purposes, such as syringes, thermometers, enemas, heating pads, ice packs, catheters, devices transfusion, needle injections.

The existence of these species in sufficient quantity and variety will always controlled both Tata initial inspection of the pharmacy, and during periodic inspections by the competent organs of inspection Ministry of Health, Welfare and Social Security<sup>[28]</sup>

##### 2. Equipment and utensils

- a. At least 2 scales, after the necessary channels, the decimal system. A fragile for weighing small quantities, with vulnerability 5 mm of a gram and one less vulnerability to weigh larger quantities of up to 20 grams. Also a balance for weighing substances, liquids and solids, and in quantities, exceeding kilo.
- b. Porcelain mortar, tongs, spatula, pans, funnels, volumetric pipes, tubes, filters and generally every pot, so that it can fulfill its intended purpose seamlessly.
- c. Electric refrigerator.

d. Safe, on a permanent basis and skilled weight or built iron gear box, which is insured in both cases, security keys or combination of letters or numbers, for storing drugs, which is solely responsible licensed pharmacist.<sup>[28]</sup>

#### ARTICLE 5

Prohibited the existence and operation of pharmacies within chemical or microbiological laboratories, optical parts, unless by special permission<sup>[9]</sup>

#### ARTICLE 6

1. The windows of the pharmacy shall be of good construction and appearance.
2. Existing drugs in the pharmacy must be kept in display cabinets or drawers of this in a way that ensures their good storage.
3. The chemical and drugs stored in appropriate containers, the outer surface of which will be indicated Greek or Latin name of the content product. The storage of chemical drugs and drug must be in accordance with the specifications laid down in the Greek Pharmacopoeia.
4. The drugs listed in the following list must be placed in a separate cabinet, carefully.  
*Note: I know that some names of substances are not in traditional Latin language, but there is an original text from list of Kaponis.*<sup>[9]</sup>

1. Acidum aceticum
2. Acidum arsenicosum
3. Acidum hydrochloricum
4. Acidum nitricum
5. Acidum sulfuricum
6. Adrenalinum
7. Aether
8. Apomorphinum hydrochloricum
9. Aqua laurocerasi
10. Aqua phenolata (Aq. carbolica)
11. Argentum nitricum
12. Atropinum sulfuricum



13. Chloralum hydratum
14. Chloroformium
15. Coffeinum
16. Cresolum
17. Cuprum sulfuricum
18. Emetinum
19. Ergotimum (Extractum secale cornutum)
20. Extractum belladonnae
21. Extractum ipecacuanhae fluidum
22. Extractum strychni
23. Folium belladonnae
24. Formaldehydum
25. Hydrargyrum
26. Hydrargyrum benzoicum
27. Hydrargyrum bichloratum
28. Hydrargyrum bijodatum
29. Hydrargyrum chloratum
30. Hydrargyrum jodatum
31. Hydrargyrum oxycyanatum
32. Hydrargyrum oxydatum
33. Hydrargyrum praecipitatum album
34. Hydrargyrum hydrochloricum
35. Iodoformium
36. Iodum
37. Kalium hydricum
38. Kalium hypermanganicum
39. Kreosotum
40. Natrium arsenicum
41. Natrium casodylicum

42. Natrium hydricum
43. Nitroglycerinum solutum (Trintirin 1%)
44. Novocainum
45. Oleum sinapis
46. Phenacetinum
47. Phenolum
48. Physostigminum salicylicum
49. Pilocarpinum hydrochloricum
50. Plumbum aceticum
51. Podophyllum
52. Pulvis ipecacuanhae
53. Quajacolum liquidum
54. Santoninum
55. Scopolaminum hydrobromicum
56. Secale cornutum
57. Semen strychni
58. Sparteinum sulfuricum
59. Strophantinum
60. Strychninum nitricum
61. Theobrominum
62. Tinctura belladonnae
63. Tinctura croci
64. Tinctura digitalis
65. Tinctura strychni
66. Veratrinum
67. Zincum chloratum
68. Zincum phosphoratum
69. Zincum sulfuricum
70. Zincum valerianicum

5. The proprietary and standard pharmaceutical formulations stored at drugstore, according to the teachings of science and the manufacturer's instructions on the packaging thereof. <sup>[28]</sup>

#### *ARTICLE 7*

1. The pharmacy must satisfy all terms and conditions of the Sanitary Rules for water supply, drainage, plumbing, etc.

2. In addition, drugstore additions must be an appropriate bank (bench) for the execution of recipes <sup>[28]</sup>

3. The pharmacy in this lab has an independent space, main use of which is for worktable galenic drugs and various pharmaceutical packaging and is armed with a sink and additions drawers. Kept in laboratory chemicals, stocks drugs, reagents and instruments and utensils used for the preparation of these products. The laboratory shall have a device for heating substances. Prohibited the use of laboratory equipment, and the installation therein of objects foreign to the laboratory needs of the pharmacy. <sup>[28]</sup>

4. The drugstore and pharmacy laboratory must be kept clean and in perfect order <sup>[28]</sup>

#### *ARTICLE 8*

1. Prescriptions of doctors practicing medicine legally in Greece, performed mandatory only in operating pharmacies. <sup>[28]</sup>

2. Each recipe must bear the name printed details of the physician's specialty, address and telephone number, as well as the date of, signature and stamp <sup>[17]</sup>

3. Recipes in which appears greater dose than indicated in the pharmacopoeia maximum allowable dose therapy, are performed only if the indicated dose prescription is outlined by the doctor and is in this respect: after signing a new doctor. In case of doubt as to the authenticity of the prescription, the type of drug administered and the amount thereof, the pharmacist is required before performing this, to contact the doctor and if you do not find a place to dose does not exceed the maximum from that specified in the pharmacopoeia or grant the quoted formulation, or in the lower content of active substance, form, with the obligation to always promptly notify the doctor who issued it. If the prescription is illegible or if the pharmacist reasonably suspects that an error was

made in the pension, he has to be the performance of the consulting physician who issued it.

4. When dispensing the insured and those members of the government and insurance organizations and funds, apply additional and specific conditions with these of the contract, as long as they are not inconsistent with the provisions hereof <sup>[28]</sup>

#### *ARTICLE 9*

Prescriptions performed by a licensed pharmacist or his successor achievements. The chemist who has performed the prescribed signs, stamps it with his own seal . <sup>[28]</sup>

#### *ARTICLE 10*

The provisions adopted by this decree obligations imposed on pharmacies operated by the entry into force of this decree. Exceptionally licensees - responsible of operating pharmacies, pharmacists are required to comply with in paragraph 1 of article 2 of this obligation and the obligations of Paragraph 2 and 4 of Article 4 of Law 1963/1991, up 31.12.1993 <sup>[28]</sup>

### **3.3 WORK IN PHARMACEUTICALS**

In Greece are active 150 wholesalers. Therefore correspond to 1.35 per 100000 inhabitants wholesalers. Of the 150 pharmaceutical wholesalers, the 123 are private and 27 are cooperative. Whilst private wholesalers operate either locally or nationally, and the co-operating locally serving the needs of their members. Market shares between private pharmaceutical wholesalers and cooperatives in balance and vary slightly depending on the source of data. Total employment is estimated at 2.500 employees. The large number of pharmaceutical warehouses in Greece, due to: <sup>[52]</sup>

- In sufficient revenues associated not so much with the margin but the volume and value of sales, since in a market with expanded pharmaceutical expenditure.
- Parallel exports.
- That trends in the European market (in this case we are talking about mergers and acquisitions) come to our country with a time delay.

Parallel exports are a key source of profits for drug wholesalers. However, this practice depends both on external factors (eg exchange rates, pricing schemes in other EU countries) and other obstacles faced by pharmaceutical companies that do not want their sales fall in third markets, due to low prices of formulation Greece. Important parameters of successful operation of the wholesale drug companies are mainly the expansion of the customer base (to offset the risk in cases of late payment from pharmacies), the completeness of drug available, prompt service pharmacies, providing good prices and discounts and the potential for greater credit.

Also, the development of personal relationships with pharmacists is a key feature of their operation.<sup>[49]</sup>

The major problems of the industry for the high competition due to oversupply, causing an adjustment and thus shrinking the already low profit margins. The pressure exerted by pharmaceutical companies to grant one credit short 20-25 days and also limited quantities of drugs to avoid conducting parallel trade is very high. In addition, delays in the repayment of debts from pharmacies (up to 8 months), which implies high demands on working capital<sup>[52]</sup>

### **3.4 EMPLOYMENT IN PUBLIC OR PRIVATE CLINIC**

Under the current law the pharmacy of each hospital only works with the pharmacy department and even mandatory, should match one pharmacist per 150 beds. In Greece work about 300 hospital pharmacists. Indeed, recent years have seen segregation in hospital and clinical pharmacists (another important unit of primary health care, with medical staff ranging from 15 to 45 people of various specialties). Under the law, trafficking drugs must be made by the pharmacist. However, the staffing of health centers do not always include pharmacist<sup>[49]</sup>

### **3.5 EMPLOYMENT IN THE PHARMACEUTICAL INDUSTRY**

The industry consists of about 350 pharmaceutical companies (Industrial & commercial and industrial) with 50 of them being Greek interests. These companies manufacture or distribute more than 6500 pharmaceutical and employ about 15000 employees. Businesses stand to subsidiaries of major pharmaceutical companies worldwide, domestic pharmaceutical companies to domestic and foreign representatives

of pharmaceutical companies (GDPA, 1998). The first focused on the disposal of pharmaceuticals imported from companies in the group to which they belong and are highly dependent on the business and strategic moves of their parent. In contrast, the latter produce overwhelmingly generics and original compositions on behalf of foreign companies and their own research. Finally, the third category distributes domestically pharmaceuticals foreign companies having exclusive contracts concluded with them. <sup>[41]</sup>

Basic channel distribution of medicines are wholesalers and pharmacies (75% share), while the other channel distribution are hospitals (25% share). In 2009 the value of the domestic market at ex-factory prices rose to 5.85 billion euros, an increase of 4.8% from the previous year. Public pharmaceutical expenditure incurred pension funds amounted to 5.1 billion in 2009. The total market size of the drug rose in the period 2000-2009 with a CAGR of 14.1% <sup>[41]</sup>

Pharmaceutical companies argue that the steady growth of the industry is the main factor that shapes the negative health profile of the Greek (smoking, obesity, etc.) and the aging of the population, which influences the demand for drugs and paraphernalia items. This view is rather one-dimensional and explains only a small degree of increased pharmaceutical spending as we will see below. Certainly in 2010, pharmaceutical companies saw their revenues to fall by at least 12.6% . <sup>[41]</sup>

This decrease is a result, primarily, of the successive reductions in drug prices incurred during the year.

The value of domestic production of drugs, from 30 domestic production units, roughly 1 billion euros in 2009, following double-digit average annual growth rate in recent years. Nevertheless, the trade balance in the pharmaceuticals sector worsens year by year. It is characteristic that in 2007 imports of medicines risen to 3.35 billion while exports barely reached 950 million, increasing the gap to 2.4 billion euros (Annual Report of the Greek Statistical Service,2011). Of the total imports of drugs, 82% come from countries of the EU and the remaining 18% coming from non-EU countries. The 25 EU countries absorb 92% of exports of drugs in Greece. Germany is the most important partner both in exports and imports. At this point it is interesting to note that in 1987 the share of domestically produced and packaged drugs was 80.6% of the total market, with these rates to be completely inverted as seen from the data we have comparing it up here <sup>[41]</sup>.

The research activity is observed as very poor. It is characteristic that the amount invested in 2009 did not exceed 85 million (less than 1.5% of turnover when Sweden made investments amounting to 875000000 euros 28.8% of turnover). This figure looks even smaller when one considers that 35 to 40% of the revenue of drug companies cover administrative costs and cost of sales of the products. According to representatives of the industry, the major problems faced by companies are <sup>[41]</sup>.

- High debts NHS (hospital costs), valued at 3 billion euros and is related to debts of up to 4 years.
- Parallel trade is carried on by the wholesalers to the markets of northern European markets.
- Adversely affect the fact that the main customers of the pharmaceutical, the wholesalers, faced with increasing difficulty in collecting their claims from pharmacies, both because of competition and because of late payment by the State.

At international level, two factors will play an important role and will change the landscape of the industry and the domestic market within the next year. First, the expiry of patents on a number of drugs that have very large market share, giving a significant living space to generic drugs. <sup>[41]</sup> Secondly, the shift from conventional medication for biomedical and pharmaceutical seem pharmaceutical research have exhausted the potential breakthroughs in conventional medicine. So there rearrangements expressed by many mergers and acquisitions, partnerships with research centers to conduct original research, investments in biotechnology, production assignments to other companies (outsourcing) and expand its activities in neighboring areas <sup>[41]</sup>.

### **3.6 OTHER BUSINESS OUTLOOK**

Pharmacists have the opportunity of employment in the following areas of professional activity <sup>[49]</sup>

- Manufacturing and Control immunobiological products. This Friday serums, vaccines and substances such as interferon.
- Cosmetics Industry. Is-counter industry, in which the pharmacist is important.

- State administration. Pharmacists are employed by the Ministry of Health, the Directorate of Pharmacy, Department of Drug and health center pharmacies as auditors.
- Pension Funds as auditors.
- Military Pharmacists - Armed Forces.
- As faculty members at academic institutions.
- Pharmaceutical Research in Government and Research Centers.



## **CHAPTER IV**

### *Survey between foreign students of pharmacy in Charles University*

This part of the thesis is focused on survey whose aim is, gathering information from foreign students about their experience in universities abroad, especially at Charles University. The questionnaire focuses on the discipline of the faculty, professional perspective, pharmacists and identifies the preferences and desires of students.

#### **4.1 METHODOLOGICAL PART**

The specific selection criteria for this research were students attending to Charles University, Faculty of Pharmacy in Hradec Králové and being foreigners. The duration of this work was approx. one year and started on April of 2012.

##### **4.1.1 CHARACTERISTICS OF QUESTIONNAIRE**

Questionnaire formula which is given in the Appendix, was new created. It is consisted of 12 questions. The answers are in multiple choice form but students had the opportunity to complete their own words in some questions.

The first three questions refer to the basic respondent information: sex, age and geographic area of residence. Fourth question asks about the city that student studies at the moment. The fifth and the sixth question refer to the decision of students to get into career of pharmacist. Furthermore, in seventh, eighth and ninth question the respondent answered why he decided to study abroad, how he got know about Charles University and if he is pleasant with his current university. The next two inquiries, ask their opinion for Charles University and last but not least chose one statement that characterized them. The students answered anonymously.

Before the main survey we prepared a short pilot study and we made basic evaluation of it. After evaluation we made only some small changes in questionnaire.

### **4.1.2 DATA COLLECTION**

The survey involved foreign students of Pharmacy School who attended or still attend to Charles University, Faculty of Pharmacy in Hradec Králové. We wanted to ensure that the sample is composed of an equal number of segments of boys and girls. This happened in order to require an objective measurement.

The questionnaire was created by using a program on Internet and more specifically google (<https://docs.google.com>). After creating the formula, which was saved as pdf document it was sent on March 2013 to 80 students, 40 girls and 40 boys through mail and private message on Facebook. From 80 students that received the questionnaire, 61 of them responded to it. Return of questionnaire was 76,25 %.

### **4.1.3 EVALUATION OF THE SURVEY**

After collection of data we converted primary database from Internet to secondary database in Microsoft Excel and made it clear. Then we used pure secondary database for evaluating of answers of respondents.

Finally some tables were created with software Microsoft Excel in order to describe the results of the research work more clearly. Also the use of complex statistical analysis was not required.

## **4.2 PRACTICAL PART**

Practical part is divided into chapters where are responsible for evaluation of 12 questions in the questionnaire. Evaluation includes also tables with numbers of replies to a question for convenience of processing. The data in the tables are migrated from Excel database and percentage of it is in a common format to two decimal places.

### **4.2.1 CHARACTERISTICS OF RESPONDENTS**

The respondents to this research work were 61 students that used to study or continue studying pharmacy in Charles University. The number of the boys answered the questions was 29 and the number of the girls was 32 (see Tab. 1). Their age is mostly between 18 and 24 years old but also between 25 and 30. In addition to this, two of them are older than 30 years old (see Tab. 2). Their origin is mostly from Greece and Cyprus but also from Canada, India, Moldavia, Nigeria, Spain, Norway, Turkey and United States (see Tab. 3).

Tab. 1: Distribution of students according their sex

<b>Sex</b>	<b>Number</b>	<b>%</b>
Male	29	47,54
Female	32	52,46
<b>Total</b>	<b>61</b>	<b>100,00</b>

Tab. 2: Distribution of students according their age

<b>Age</b>	<b>Number</b>	<b>%</b>
18-24	47	77,05
25-30	12	19,67
30+	2	3,28
<b>Total</b>	<b>61</b>	<b>100,00</b>

Tab. 3: Geographic are of residence of males and females

<b>Residence</b>	<b>Male</b>		<b>Female</b>	
	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>
Greece	22	36,06	20	32,78
Cyprus	3	4,91	6	9,83
Moldavia	1	1,63	1	1,63
Norway	2	3,28	0	0
India	0	0	1	1,63
Canada	0	0	1	1,63
United States	0	0	1	1,63
Spain	1	1,63	0	0
Nigeria	0	0	1	1,63
Turkey	1	1,63	0	0
<b>Total</b>	<b>30</b>	<b>49,14</b>	<b>31</b>	<b>55,76</b>

## 4.2.2 RESULTS OF SURVEY

### QUESTION 4

In this question students were asked to answer in which city they study pharmacy at the moment. From the participants 32 (52,46 %) study in Hradec Králové (Czech Republic), 21 (34,42 %) in Brno (Czech Republic), 3 (4,92) in Sofia (Bulgaria), 2 (3,28 %) in Bratislava (Slovakia) and 1 (1,64 %) studies in each of the following cities: Iasio (Romania), Sunderland (United Kingdom) and Vancouver (Canada).

### QUESTION 5

Students in question 5 answered if anyone of their parents or relatives is a pharmacist. A number of 44 (72,13 %) respondents answered yes and a number of 17 (27,87 %) respondents answered no.

### QUESTION 6

In this question students were about to answer why they decided to become pharmacists. 14 (22,95 %) of them answered that they can have a job with mobility, stability and flexibility, 14 (22,95 %) answered that they want to help people, 6 (9,84 %) that would like to be a highly respected member of their community and 21 (34,43 %) that their parents recommended them on this.

It was also answered by 1 (1,64 %) for each case that: teachers/friends advised him on this; future is uncertain due to crisis in Greece; has a pharmacy, had interest in Pharmacy emanating from a very young age; would like to participate in drug development; and last but not least the reasons are professional rehabilitation, high salary, helping people and earning the knowledge how to "treat and protect" himself and his beloved.

### QUESTION 7

In this question students answered why they decided to study pharmacy abroad. 32 (52,46 %) answered that could not study in Greece, 20 (32,79 %) would like to get know a new country, 2 (3,28 %) of them referred the cost as a reason which means that in their countries studies are more expensive or the way of life is more expensive and there was 1(1,64) % respondent for each of the following reasons: couldn't study in Moldavia, couldn't study in Norway, there is a better environment and education for a

student plus the experience of living abroad, both inability to study in Greece and to get know a new country, didn't succeed in her country , had relatives there, wanted to study in a different country.

#### QUESTION 8

In question 8 students answered how they learnt about possibility to study in Faculty of Pharmacy of Charles University. 32 (52,46 %) was informed by a friend, 17 (27,87 %) by internet, 8 (13,11 %) by press and there was 1 (1,64 %) for each of the following statements : by agency, by doctor, by office, by excel company in Moldavia.

#### QUESTION 9

The students in question 9 answered what they find to be good at their current faculty. 16 (26,23 %) find studies interesting, 14 (22,95 %) find the quality of studies high, 13 (21,31 %) find professors friendly, 9 (14,75 %) like students life 4 (6,56 %) students admit that have good colleagues, 2 (3,28 %) find nothing good and 1 (1,64 %) state each of the followng: like it because of easy exams, like professors plus the facilitation in terms and rules of the university, like facilities. The following Tab. 4 combines question 4 with question 9 to realize better the situation that exists. The number of all students on Tab.4 is equal to 61, so is obvious that numbers are verified.

Tab.4: Interests of students studying at faculties in current cities at the moment.

Cities	Interesting studies	Quality of studies	Friendly Professors	Students Life	Colleagues	None	Other
Brno	3	2	9	4	0	0	3
Hradec Kralove	12	11	3	1	3	2	0
Sofia	0	0	0	3	0	0	0
Sunderland	0	0	0	0	1	0	0
Iasio	0	0	0	0	0	0	1
Bratislava	1	0	1	0	0	0	0
Vancouver	1	0	0	0	0	0	0

#### QUESTION 10

In this question students answered if they are satisfied with Charles University. Most of them were disappointed. More specifically 41 (67,21 %) answered no and only 20 (32,79 %) answered yes.

#### QUESTION 11

In question 11 students are asked to answer which are the factors that affected their decision to change university. 23 (37,70 %) were disappointed with professors, 9 (14,75 %) answered that the reason was prerequisites in subjects, 2 (3,28 %) selected both the above answers, 2 (3,28 %) answered that the reason was money, 3 (4,92 %) selected all the above, 1 (1,64 %) have not changed yet, 1 (1,64 %) answered that the reason was his self failure of not being able to follow the ways of Charles University and inability of the authority (Mrs Hana Krinklerova, Dean and many teachers).

#### QUESTION 12

In last question the students had to choose one from three statements. 34 (55,74 %) of them state that studying pharmacy is a lot of hard work, 18 (29,50 %) answered that studying pharmacy crosses many disciplines and 9 (14,75 %) that working in retail pharmacy is monotonous.

Results of survey are discussed together with first three chapters in following part of diploma thesis.

## **5. DISCUSSION**

Europe has around 4000 higher education institutions, with almost 19 millions students and 1.5 million staff. Some European Universities are amongst the best in the world, but overall potential is not used to the full. Curricula are not always up-to-date, not enough young people go to University after finishing school and not enough adults have ever attended University. European Universities often lack the management tools and funding to match their ambitions. Governments and higher education institutions are looking for ways to creating better conditions for Universities.

### **5.1 COMPARISON OF THE CZECH AND GREEK SYSTEM OF EDUCATION OF PHARMACISTS**

To compare Czech and Greek system of education of pharmacists is necessary to know that the Czech school system has four degrees:

- Preschools (from 2 to 5 years old)
- Elementary (from 6 to 15 years old)
- High schools, grammar schools, colleges and training colleges
- Universities

The higher education system in the Czech Republic offers three types of programs - Bachelor's, Master's and Doctoral. The principal requirement for entering a Bachelor's degree or a full Master's degree in pharmacy is the completion of a full secondary general education with a school-leaving examination. Admission to Doctoral studies depends on the successful completion of a Master's degree programme. Entry requirements are determined, in accordance with the law, by the dean of the faculty.

In the Czech Republic, there are two Universities which provide an education in the field of pharmacy. These are the Charles University in Prague with its Faculty of Pharmacy in Hradec Králové and University of Veterinary and Pharmaceutical Sciences Brno. These generate Pharmacists, with the degree Magister.

The course of study at the faculties of pharmacy takes five years at present. Foreign students can study either in Czech or in English language. The tuition fee for the undergraduate studies amounts to 6800 euros per year (at Charles University) for students wishing to be taught only in English. The public University studies for Czech

and Slovak students are nowadays for free but the new government is taking steps to make it defrayable.

During the fifth year of studies, students go through a six-month training in community or hospital pharmacies. The studies are accomplished by passing the final state examination and defense of the graduation thesis. The student will acquire the title of Magister (Mgr.). The graduate is a highly qualified and skilled health care professional. He has got a deep knowledge of drugs, adjuvants, pharmaceutical technology and analysis of drugs.

Greece and Czech Republic are members of European Union, which means that legislation of EU is valid for both of them. In field of pharmacists the most important Directive 2005/36/EC on the recognition of professional qualifications <sup>[5]</sup> is compulsory. Both countries similar way fulfilled requirements on the education of pharmacists, their activities in professional life and in lifelong learning.

## **5.2 DISCUSSION TO RESULTS OF SURVEY**

All 61 participants study pharmacy at the moment in Hradec Kralove, Brno, Iasio, Sofia, Sunderland, Vancouver and Bratislava. It is also remarkable that most of them were advised by their parents to study pharmacy and their parents are not pharmacists. Also, most of the students admitted that decided to follow pharmacy studies because they would like to have job mobility and help other people.

In addition to this they were asked to answer what they like most in their faculties. Most of them and especially students of Brno find their professors really friendly and on the other hand students of Hradec Kralove find their studies very interesting. Additionally is not only the quality of studies important for one student but also the environment of the faculty in which he studies.

More specifically 67,21 % answered that were not satisfied with Charles University and have changed faculty. The main reason was disappointment with behaviour of teachers. There is also one student who answered that is not satisfied with Charles University but still studies there. This maybe means that some students could study at a University without being pleasant with it, just because they find the quality of studies high or their parents advised them on this decision.



## 6. CONCLUSION

The profession of pharmacy serves and facilitates as one of the most important roles in the promotion of health and the healing process. The pharmacist oversees and monitors the safety of drugs administration, the recommended dosages, treatment regimens and has an important advisory role for the patient.

Over time, the pharmaceutical profession has been a highly esteemed profession that attracts new people because of its occupational and wage potential. The Pharmaceutical Departments in Greece require a high rating, in the annual national exams, which forces many students to study at Universities of neighbouring countries, which do not require any special criteria. Studies in Pharmacy school focus areas of Pharmacognosy, Pharmacology and Pharmaceutical Technology. Graduates have a wide range of knowledge in areas such as identification, analysis and manufacture of pharmaceutical molecules and formulations. Simultaneously, the existing post-graduate programs aim to provide additional knowledge, skills and contribute to the research process.

The studies in Pharmaceutical Schools prepare the student for his or her introduction into the labor market, while providing the necessary scientific knowledge and experience. The Pharmacy graduate can work as a retail pharmacist in private or public clinic, a pharmaceutical wholesaler, research or auditor of the insurance funds.

In this diploma thesis has been described the system of education of pharmacists in Greece and their vocational employment. Furthermore, it is given much information about legislation, authorities and professional organizations in Greece in field of pharmacy. By comparison of situation between Greece and Czech Republic there are not principal differences.

On the basis of survey between Greek and foreign students of pharmacy who attended the Faculty of Pharmacy of Charles University in Czech Republic were established following recommendation to improve satisfaction of all participants. The most important is getting to know each other and communicate in order to realize expectations of all and then convert them to realistic ideas.

## 7. REFERENCES

1. Aristotle University of Thessaloniki, Department of Pharmacy. Guide of Pharmacy (GoP). Pharmaceutical Association of Thessaloniki. Thessaloniki: University Press, 2012. Available at: <http://www.fsth.gr>. Accessed: [27.3.13]
2. Aristotle University of Thessaloniki, Department of Pharmacy. Undergraduate and postgraduate program. Thessaloniki, 2013. Available at: [<http://www.pharm.auth.gr>]. Accessed: [19.3.13]
3. Bernard, L. and Marilyn, J. F. Conflict of Interest in Medical Research, Education, and Practice. Editors; Committee on Conflict of Interest in Medical Research, Education, and Practice; Institute of Medicine Press, 2009, pp. 353, 401
4. Chatzistefanidis, T.: History of Modern Education from 1821 to 1986. Athens: Papadimas Publications, 1986, pp.22-23
5. Directive 2005/36/EC of the European Parliament and of the Council. On the recognition of professional qualifications (Text with EEA relevance). Official Journal of the European Union, L 255/22, 2005. Available at: [[eur-lex.europa.eu](http://eur-lex.europa.eu)]. Accessed at: [21.3.13]
6. Frank, A. G.: Kapitalismus und Unterentwicklung in Lateinamerika. Frankfurt am Main, 1969, pp.53
7. Hadjimanolis, E.: Schule und Entwicklung. Ein Beitrag zur Schul, Analyse und Entwicklungsstrategie dargestellt am Beispiel Griechenland. Berlin: Grote, 1972, pp.17
8. Ioannidou, M.: Courses pharmacy law and ethics, University Notes, Athens, University of Athens School of law, University Publications, 1998, pp. 17,18,19,24,25,26
9. Kaponis, P.: Compendium Pharmaceutical Legislation, Volume I and II, 2nd Edition. Athens, Publications: Pharmaceutical World, 2005, pp.68-74,89-97,102 of Volume I and pp.35-48, 54-67 of Volume II
10. Kaponis, P. Pharmaceutical Law, Volume I, University of Athens. Athens, Sakkoulas Publications, 2008, pp.227-245, 291-302
11. Labica, G.: De l'égalité :Propositions inchoatives pour une enquête sur les idéologies dans le mode de production capitaliste. Dialectiques, 1-2, Paris:Narsil, 1973, pp.3-4

12. Lambrakis, N. and Pagani. A.: The education of Greek women during the Ottonian period Sarioleio Foundation: University of Athens. Athens, School of Philosophy: University Publications, 1988, pp.42-43
13. Leigh, A. O. The Learning Healthcare System. Consensus Study. Institute of Medicine of the National Academies, National Academies Press, 2007.
14. Leonidas. S.: The Bavarian influence on Greek Education in the XIX century. Vienna, University of Vienna, Publications of Vienna University, 1976, pp.13
15. Nikolinakos, M. and Legewie, C.: Europäische Peripherie: Zur Frage der Abhängigkeit des Mittelmeerraumes von Westeuropa. Meisenheim am Glan, 1975
16. Papageorgiou, M.: Elements of Pharmaceutical Legislation. Athens: P.F.S. Publications, 1995, pp.138,144,147,148
17. Pharmaceutical Association of Thessaloniki. Legislation, information and updates. Thessaloniki, 2013. Available at: [<http://www.fsth.gr>]. Accessed: [24.3.13]
18. Pharmaceutical Association of Athens. Legislation, information and updates. Athens, 2013. Available at: [<http://www.fsa.gr>]. Accessed: [24.3.13]
19. Republic of Greece. Article 7 of Law 1985. Co-location of Pharmacies. In Government Gazette, of Republic of Greece, Volume 64A'. Athens, 1985. Available at: [<http://www.ypakp.gr>] Accessed: [24.3.13]
20. Republic of Greece, Articles 8 and 14 of Law 1988. Co-location of Pharmacies. Government Gazette of Republic of Greece Volume 271A' Athens, 1988. Available at: [<http://www.ypakp.gr>] Accessed: [24.3.13]
21. Republic of Greece. Article 11 of Law 1316/1983, paragraph 1b. Assessment and reassessment per form and content of the medicinal product in order for it to be classified in therapeutic group according to the applicable procedure. In: Government Gazette of Republic of Greece, Volume 1316/1983. Athens, 1983. Available at: [<http://www.ypakp.gr>] Accessed: [24.3.13]
22. Republic of Greece. Article 22 of Law 1483/1984. Timeouts operating of pharmacies, etc. In: Government Gazette of Republic of Greece, Volume 153A'. Athens, 1984. Available at: [<http://www.ypakp.gr>]
23. Republic of Greece. Article 58 of Law 1339/1985. Licenses to establish and operate pharmacies and pharmaceutical warehouses. In: Government Gazette of Republic of Greece. Athens, 1985. Available at: [<http://www.ypakp.gr>]

24. Republic of Greece, Presidential Decree No. 142/89. In: Government Gazette of Republic of Greece, Volume 106. Athens, 1989. Available at:[ <http://www.ypakp.gr>] [21.3.13]
25. Republic of Greece. Presidential Decree Article 41 of Law No. 1892/90.. Working time. In Government Gazette of Republic of Greece, Volume 205A'. Athens, 1990. Available at:[ <http://www.ypakp.gr>] [21.3.13]
26. Republic of Greece. Circular Clarification. In: Government Gazette of Republic of Greece, Volume 138A'. Athens, 1991. Available at:[ <http://www.ypakp.gr>] [21.3.13]
27. Republic of Greece. Law No 1963/91. Establishment and operation of pharmacy, amending and supplementing the Government Gazette of Pharmaceutical Regulatory and other Provisions. In: Government Gazette of Republic of Greece, Volume 138A'. Athens, 1991. Available at: [<http://www.ypakp.gr>] [21.3.13]
28. Republic of Greece. Presidential Decree of Law No. 312, Article 44. Organization and formation of pharmacy. In: Government Gazette of Republic of Greece, Volume 300A'. Athens, 1992. Available at: [<http://www.ypakp.gr>] [21.3.13]
29. Republic of Greece. Presidential Decree of Law No 327. Code of ethics of pharmacy. In: Government Gazette of Republic of Greece, Volume 157, 1993. Available at: [<http://www.ypakp.gr>] [21.3.13]
30. Republic of Greece. Article 4 of Law No 1963/99. Provisions, relating to medical care: Revised provision. In: Government Gazette of Republic of Greece, Volume 343B'. Athens, 1999. Available at: [<http://www.ypakp.gr>] [21.3.13]
31. Republic of Greece. Article 21 of Law 1384/98. Provisions relating to medical care. In: Government Gazette of Republic of Greece, Volume 362A'. Athens, 1998. Available at: [<http://www.ypakp.gr>] [24.3.13]
32. Republic of Greece. Law No 3463/01. Defining work building small scale. In: Government Gazette of Republic of Greece, Volume 114. Athens, 2001. Available at: [<http://www.ypakp.gr>] [24.3.13]
33. Republic of Greece. Greek pharmaceutical code of conduct. In: Government Gazette of Republic of Greece, Volume 145. Athens, 2001. Available at:[ <http://www.ypakp.gr>] [24.3.13]
34. Republic of Greece. Tables of overnight accommodation of pharmacies. In: Government Gazette of Republic of Greece, Volume 153. Athens, 2002. Available at: [<http://www.ypakp.gr>] [24.3.13]

35. Republic of Greece. Amending and supplementing pharmaceutical legislation. In: Government Gazette of Republic of Greece, Volume 926. Athens, 2004. Available at: [<http://www.ypakp.gr>] Accessed at [21.3.13]
36. Republic of Greece. Ministerial Decision 48238/B7. Postgraduate Studies in the School of Pharmacy. In: Government Gazette Republic of Greece, Volume 412B'. Athens, 2004. Available at: [<http://www.ypakp.gr>] Accessed at [24.3.13]
37. Republic of Greece, Reform of Medical Care System. In: Government Gazette of Republic of Greece, Volume 3457. Athens, 2006. Available at: [<http://www.ypakp.gr>] Accessed at [21.3.13]
38. Republic of Greece, Ministry of Education. Census Results – Statistical Educational data of 2006. Athens, 2006. Available at [[archive.minedu.gov.gr](http://archive.minedu.gov.gr)]. Accessed at: [21.3.13]
39. Republic of Greece, Ministry of Education. Census Results – Statistical Educational Data of 2007. Athens, 2006. Available at: [[archive.minedu.gov.gr](http://archive.minedu.gov.gr)]. Accessed at: [21.3.13]
40. Republic of Greece. Law No. 3879, Development of Lifelong Learning and other provisions. In: Government Gazette of Republic of Greece, Volume 163A', 2010. Available at: [<http://www.ypakp.gr>] Accessed at [21.3.13]
41. Republic of Greece, Annual report of the Greek Statistical Office for the year 2011. Athens: National Printing Office, 2011. Available at: [<http://www.statistics.gr>]. Accessed at: [29.3.13]
42. Republic of Greece. Joint Ministerial Decision. A 127175/H. Foundation for Youth and Lifelong Learning Admin. In: Government Gazette of Republic of Greece, Volume 2508. Athens, 2011. Available at: [<http://www.ypakp.gr>] Accessed at [21.3.13]
43. Republic of Greece. General Secretariat for Lifelong Learning: Annual Report on Lifelong Learning. Athens: National Printing Office, 2012. Available at: [<http://www.statistics.gr>]. Accessed: [19.3.13]
44. Republic of Greece. Institute of Lifelong Learning and Professional Development Pharmacist (ILLPDP). Objectives and aims of ILLPDP. Available at: [<http://www.ideeaf.gr>]. Accessed: [21.3.13]
45. Republic of Greece, Youth of Foundation and Lifelong Learning. Athens, 2013. Available at [<http://www.inedivim.gr/>]. Accessed at [21.3.13]

46. Tripodis, N.: Ideological influences in special physical education in Greece in the 20th century. Doctoral dissertation, University of Athens. Athens: Publications of University of Athens, 2005, pp.64-67
47. Tsoukalas, K.: Dependence and reproduction: The social role of educational mechanisms in Greece. Athens: Foundation Publications, 1985, pp.19-22
48. University of Athens, Department of Pharmacy. Undergraduate and postgraduate program, 2013. Available at: [<http://www.pharm.uoa.gr>]. Accessed: [20.3.13]
49. University of Athens, Department of Pharmacy: Guidebook Department of Pharmacy (GDPA), Athens: University Publications, 1998, pp.45-58
50. University of Patras, Department of Pharmacy. Undergraduate and postgraduate, 2013. Available at: [<http://www.pharmacy.upatras.gr/>]. Accessed: [19.3.13]
51. University of Patras, Department of Pharmacy. Decision of the Senate of the University of Patras. Patras, 2011. Available at [<http://www.pharmacy.upatras.gr>]. Accessed at: [21.3.13]
52. University of Patras, Department of Pharmacy. Guidebook Department of Pharmacy (GDPP), Patras: University Publications, 2000. Available at: [<http://www.pharmacy.upatras.gr>] Accessed at: [21.3.13]

## 8. APPENDIX - Questionnaire for survey

135/13 Questionnaire

Επιμέριση αυτής της φόρμας

### Questionnaire

The aim of this research is to capture the opinion of pharmacy's students. The questionnaire focuses on the discipline of the faculty, professional perspective, pharmacists and identifies the preferences and desires of students.

**Sex**

Male

Female

**Age**

18-24

25-30

30+

**Geographic area of your residence**

Greece

Cyprus

**In which city do you study pharmacy at the moment?**

Hradec Králové

Brno

Άλλο:

**Is anyone from your parents or relatives a pharmacist?**

Yes

No

**Why did you decide to become a pharmacist? How did you get into this career?**

I want to help people get well

I Can Have Job Mobility, Stability, and Flexibility

I Would Like to Be a Highly Respected Member of My Community

My parents advised/recommended me on this

My teachers/friends advised/recommended me on this

Άλλο:

**Why did you decide to study pharmacy abroad?**

I can't study in Greece

I get to know a new country

Άλλο:

**How did you get to know about possibility to study Pharmacy at Charles university?**

[https://docs.google.com/forms/d/11Y6AeP9n685dcvZ2ltpaMhm15Bz2mV/p/1uL\\_Mqo/viewform?start=openform](https://docs.google.com/forms/d/11Y6AeP9n685dcvZ2ltpaMhm15Bz2mV/p/1uL_Mqo/viewform?start=openform)

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135/13 Questionnaire

Internet

Friend

Press

Άλλο:

**What do you find to be good at your current faculty?**

Friendly professors and teachers

Student's life

Interesting study

High quality of study

Good colleagues

Άλλο:

**Are you satisfied with Charles university?**

Yes

No

**If not, then which are the factors that affected your decision to change university?**

Disappointment with professors

Prerequisites in subjects

Problems with colleagues

Language

Money

Άλλο:

**What do you think about following statements/ sentences?**

Studying Pharmacy is a lot of hard work

Work in retail pharmacy is monotonous

Studying Pharmacy crosses many disciplines

Μην υποβάλετε ποτέ κωδικούς πρόσβασης μέσω των Φορμών Google.

Μην υποβάλετε ποτέ κωδικούς πρόσβασης μέσω των Φορμών Google.

Μην υποβάλετε ποτέ κωδικούς πρόσβασης μέσω των Φορμών Google.

Αναφορά κακής χρήσης Όροι Παροχής Υπηρεσιών Πρόσβατοι όροι

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[https://docs.google.com/forms/d/11Y6AeP9n685dcvZ2ltpaMhm15Bz2mV/p/1uL\\_Mqo/viewform?start=openform](https://docs.google.com/forms/d/11Y6AeP9n685dcvZ2ltpaMhm15Bz2mV/p/1uL_Mqo/viewform?start=openform)

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**ABSTRACT**  
**SYSTEM OF EDUCATION OF PHARMACISTS IN GREECE**

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**Aim of study:** The aim of diploma thesis is to get current knowledge about system of education of pharmacists in Greece, their vocational employment and to shortly compare situation in this field in Greece with Czech Republic. A survey whose goal is the gathering of information from foreign students about their experience in universities abroad, especially at Charles University.

**Methods:** Data collection through appreciation of information and studying of literature. Questionnaire answered by 61 following students of pharmacy on March 2013.

**Results:** Studies in high school, entrance examination of students in University, undergraduate and postgraduate studies in discipline of pharmacy are the main characteristics of both educational systems. Comparison and report of differences between the studies in Greece and studies abroad. Importance of life-long learning for professional pharmacists. Students answered questionnaire are 47,54 % males and 52,46 % females, most of them 68,84 % are from Greece and 14,74% from Cyprus. 67,21 % are not satisfied with Charles University and 32,79 % are satisfied. Most of them 52,46 % study in Hradec Králové and 34,42 % in Brno.

**Conclusion:** Education and vocational employment of pharmacist in Greece cross many disciplines. There are not main differences between educational system in Greece and Czech Republic. The most important is getting to know each other and communicate in order to realize expectations of all and then convert them to realistic ideas.



## ABSTRAKT

### SYSTÉM VZDĚLÁVÁNÍ FARMACEUTŮ V ŘECKU

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**Cíl práce:** Cílem práce je získat znalosti o systému vzdělávání farmaceutů v Řecku, jejich pracovním uplatnění a stručné porovnání situace v této oblasti s Českou republikou. Dalším cílem je provést průzkum mezi zahraničními studenty o jejich zkušenostech se studiem farmacie v zahraničí, zejména na Univerzitě Karlově.

**Metodika:** Informace k teoretické části práce byly získány prostudováním vhodné literatury včetně elektronických informačních zdrojů. Průzkum byl proveden formou dotazníkového šetření v březnu 2013. Bylo zpracováno celkem 61 platných dotazníků.

**Výsledky:** Byly zpracovány následující oblasti. Studium na středních školách v Řecku, závěrečná maturitní zkouška sloužící pro přijetí na univerzity. Studium pregraduální i postgraduální farmaceutů v Řecku a jejich stručné srovnání se studiem v zahraničí i s Českou republikou. Význam celoživotního vzdělávání pro profesi farmaceuta. Dotazníkového šetření se zúčastnilo 47,54 % mužů a 52,46 % žen, většina z nich 68,84 % byla z Řecka a 14,74 % Kypru. Převážná část studovala farmacii v Hradci Králové a 34,42 % v Brně. Celkem 67,21 % studentů nebylo spokojeno se studiem na Karlově univerzitě, svou spokojenost vyjádřilo 32,79 %. Nejčastěji uváděným důvodem nespokojenosti bylo rozčarování z přístupu učitelů ke studentům.

**Závěr:** Byl podán přehled vzdělávacího systému farmaceutů v Řecku a jejich pracovního uplatnění. Při porovnání obou systémů vzdělávání v oblasti farmacie nebyly nalezeny zásadní rozdíly. Nejdůležitější doporučení z výsledků průzkumu mezi zahraničními studenty byla nezbytnost vzájemného poznání se, aby mohla být očekávání obou stran přetvořena do reálné varianty.