

# DEVELOPMENTS OF PHARMACY EDUCATION IN TURKEY



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# Main Purposes of Pharmacy Education in Turkey

Train undergraduate and graduate students to be skilled in applying **multidisciplinary** knowledge needed by the pharmaceutical industry as well as hospital and private pharmacy by focusing on following courses.

- a- Basic sciences
- b- Professional Sciences
- c- Technological Sciences
- d- Elective courses



During the training of the students;

**knowledge** of basic and professional information such as pharmaceutical resources (natural, semi-synthetic and synthetic), pharmaceutical production, the effects of therapeutic drugs and toxicity of compounds is given constantly updated.



We know that therapeutics are very important in almost every aspect of science and healthcare.

Also, we teach subjects by realising that; depending on the technological developments in the pharmaceutical industry pharmacist role changing and a new task including informing patients is becoming increasingly important.



# Brief History of Pharmacy Education in Turkey

Pharmaceutical education and training activities can be examined in two periods;

## 1. In the Ottoman period it is possible to mention 6 schools.

Mekteb-i Tıbbiye-i Mülkiye-i Şahane (Sivil Tıp Okulu),	1867
Mekteb-i Tıbbiye-i Adliye-i Şahane (Askeri Tıp Okulu),	1839
Mekteb-i Tıbbiye-i Mülkiye-i Şahane (Sivil Tıp Okulu),	1867
Haydarpaşa Askeri Sağlık Okulu,	1876
Merkezi Türkiye Koleji, Gaziantep,	1876
Şam Tıbbiye Okulu, Şam,	1903
Eczacı Yüksek Okulu,	1908



## 2. In the Republican period (after 1923)

- ▶ In the initial years of the Turkish Republic, Pharmacist institution was a part of the medical school in İstanbul until 1933. Then School of Pharmacy was a part of Science Faculty until 1944.
- ▶ In 1962 with approval of the Ministry of Education, Faculty of Pharmacy of, İstanbul University was founded which was known as School of Pharmacy. It is the first Pharmacy Institution in Turkey.



But the first Faculty of Pharmacy in Turkey was founded in Ankara University in 1960



- ▶ In Turkey;
- ▶ Pharmacy education and teaching was 2 years before 1850 than increased to 3 years.
- ▶ In 1938 it was accepted as 4 years and than in 2005 the Pharmacy education was accepted as 5 years as in Europe.

# Pharmacy Faculties in Turkey Today

1. Ankara University, Faculty of Pharmacy, 1960,
2. İstanbul University, Faculty of Pharmacy, 1962,
3. Hacettepe University, Faculty of Pharmacy, 1971,
4. Ege University, Faculty of Pharmacy, 1974,
5. Gazi University, Faculty of Pharmacy, 1982,
6. Marmara University, Faculty of Pharmacy 1982,
7. Anadolu University, Faculty of Pharmacy, 1982,
8. Atatürk University, Faculty of Pharmacy, 1997,
9. Mersin University, Faculty of Pharmacy, 2000,
10. İnönü University, Faculty of Pharmacy, 2001,
11. Erciyes University, Faculty of Pharmacy 2003,
12. Karadeniz Teknik University, Faculty of Pharmacy 2003,
13. **Yeditepe** University, Faculty of Pharmacy, **2001,**
14. **Yeni Yüzyıl** University, Faculty of Pharmacy **2010**
15. **Bezm-i Alem Vakıf** University, Faculty of Pharmacy **2010**
16. **İstanbul Medipol** University, Faculty of Pharmacy **2010**
17. **Kemerburgaz** University, Faculty of Pharmacy **2012**



## 14 New Pharmacy Faculty is going to start its education soon

- \*Adıyaman University
- \*Afyon Kocatepe University
- \*Ağrı İbrahim Çeçen University
- \*Başkent University
- \*Bülent Ecevit University
- \*Cumhuriyet University
- \*Çukurova University
- \*Dicle University
- \*Erzincan University

- \*Mevlana University
- \*Süleyman Demirel Uni.
- \*Trakya University
- \*Katip Çelebi University
- \*Yüzüncü Yıl University

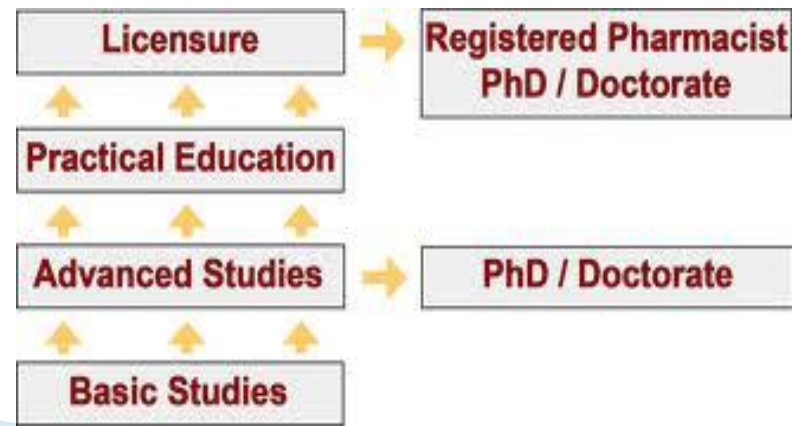
## ▶ Pharmacy Education in Turkey

- ▶ Pharmacy Faculties in Turkey started to work in harmony with the European Union countries started in the early 90's with the permission of free movement of Health personnel in Europe, on the basis of the directives of the European Union dated 16 March 1981.



# Core Curriculum of Faculty of Pharmacies in Turkey

- ▶ Plant and animal Biology
- ▶ Physics
- ▶ General and inorganic chemistry, Organic chemistry
- ▶ Analytical chemistry,
- ▶ Pharmaceutical chemistry
- ▶ General and applied Biochemistry, Clinical Biochemistry
- ▶ Anatomy and Physiology, medical terminology
- ▶ Microbiology
- ▶ Pharmacology and Pharmacotherapy
- ▶ Pharmaceutical technology
- ▶ Toxicology
- ▶ Pharmacognosy
- ▶ laws and professional ethics.



- ▶ **For preparing 5 year programme in Turkey**
- ▶ Core Curriculum was prepared by taking in to account of the programmes of the European Union countries.
- ▶ Also public health and family planning were also added to the core curriculum program.
- ▶ Finally the contents of mandatory courses in the curriculum were updated carefully.



- ▶ In the Pharmacy Faculties education is given to students to cultivate them to work in the different areas of pharmacy.
- ▶ In addition to the new profession of “clinical pharmacy” education program, including advance subjects in medicine, compulsory and elective theoretical courses, laboratory and internship applications are added in to the curriculum.
- ▶ Basic theoretical and practical information of natural and synthetic drugs production is given based on a wide range of drug and patient-oriented education.



Due to the very close relationship of pharmacists with public,

- ▶ psychology,
- ▶ behavioral sciences,
- ▶ pharmaceutical law–basic principles of law
- ▶ accounting classes
- ▶ different cultural courses

are also included in to the new 5 year curriculum



- ▶ Directives of Pharmaceutical Services of Pharmacists are given with a law (85/432/EEC) in Turkey
- ▶ **expected service from pharmacist are:**
- ▶ Preparation of pharmaceutical forms of medicinal products.
- ▶ Manufacturing and testing Medicinal Products .
- ▶ Preparation of medicinal products in pharmacies open to the public, also testing, storage and supply.
- ▶ Preparation of medicinal products in hospitals, also testing, storage and distribution.
- ▶ Providing information and advice about medicinal products.



- also pharmacy education must give necessary knowledge and skills:
- sufficient information of the ingredients used in the manufacture of drugs and medicines,
- sufficient information about the pharmaceutical technology and physical, chemical, biological and microbiological testing of Medicinal products,
- sufficient information about the effects of toxic compounds, metabolism and the use of medicinal products,
- Pharmacy practice–related information about laws and other conditions





- **During the updating the 5 year Program**
- International Pharmaceutical Federation (**FIP**) and Vancouver Declaration of the World Health Organization (**WHO**) in 1997 were taken into account.
- In this report, «the role of Pharmacists to meet the needs of future drugs and using the drug in an accurate way, and services provided by Pharmacists» are described.



World Health Organization

- This report also suggest,
- The new developments in the field of medicine and pharmaceutical training programs in biotechnology, molecular biology, gene therapy, stem cells,
- Apart from that, the students get elective courses according to the their own interests in consultation with a faculty member and prepare a research project
- Internship program for at least 6 months, including pharmacies, hospitals or pharmaceutical industry.



- ▶ As a result of these studies ,pharmacy education was increased to 5 years in 2005. In addition to the core curriculum courses within the first 4 years, there is a internship programme in a *public Pharmacy*, *Hospital Pharmacy* or *Pharmaceutical Industry* as well as elective courses.



- ▶ At the mandatory 6 months internship, they find opportunity to use applications of theoretical information.
- ▶ They developed their skills by applying information learned and this helps them to be ready and prepared to work.



- ▶ **The «internship programmes» of Pharmacy Faculties of Turkey are usually 4 terms.**
- ▶ First one is done end of 2nd year,
- ▶ second one is done end of 3rd year,
- ▶ third one is done end of 4th year during summer term and
- ▶ fourth one is done during 1st or 2nd term of 5th year.
- ▶ Moreover the faculties that have “Applicational Pharmacies” give internship opportunities to the students.



▶ **Academic staff and student numbers in  
**TURKEY** in year 2012-2013**

- ▶ **Prof.: 258**
- ▶ **Assoc. Prof.: 122**
- ▶ **Assist. Prof..150**
- ▶ **Total: 530**
- ▶ **students: 7718**
- ▶ **number of students per faculty member: 14.56**



UNIVERSITY	STAFF			STUDENT NUMBER		
	Prof.	Assoc. Prof	Assis. Prof.	Under graduate	Master	PhD
Anadolu University Faculty of Pharmacy	18	11	22	725	129	82
<b>Ankara University Faculty of Pharmacy</b>	<b>53</b>	<b>12</b>	<b>5</b>	<b>903</b>	<b>71</b>	<b>93</b>
Atatürk University Faculty of Pharmacy	3	2	9	321	42	22
Ege University Faculty of Pharmacy	30	16	18	847	41	47
Erciyes University Faculty of Pharmacy	4	2	10	287	17	15
Gazi University Faculty of Pharmacy	39	16	5	650	161	113
Hacettepe University Faculty of Pharmacy	43	21	5	590	50	70
İnönü University Faculty of Pharmacy	3	3	7	285	15	9
İstanbul University Faculty of Pharmacy	22	17	12	1070	81	72
Karadeniz Teknik University Faculty of Pharmacy	3	1	6	109	15	3
Marmara University Faculty of Pharmacy	16	10	21	730	163	50
Mersin University Faculty of Pharmacy	3	7	7	302	22	6
Yeditepe University Faculty of Pharmacy	5	1	9	351	74	22
Yüzüncü Yıl University Faculty of Pharmacy	-	-	2	-	1	-
Yeni Yüzyıl University Faculty of Pharmacy	7	2	4	192	Yok	-
Bezmialem University Faculty of Pharmacy	1	-	7	123	Yok	7
Medipol University Faculty of Pharmacy	3	-	-	174	-	-
Kemerburgaz University Faculty of Pharmacy	5	1	1	59	Yok	-
<b>Toplam</b>	<b>258</b>	<b>122</b>	<b>150</b>	<b>7718</b>	<b>882</b>	<b>611</b>

Pharmacy education and practice have developed rapidly worldwide in the past few years. This has prompted a re-evaluation of pharmaceutical education in Turkey.

## **As a result;**

If you want a pharmacist degree, you'll need to prepare for an intense 5 years of study. Before you apply for a course of study at a pharmacist school, also prepare yourself to face several challenges





TRUST ME, I'M A  
**PHARMACIST**  
Rx

Thank you

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