

## In the Name of God

### Islamic Republic of Iran Ministry of Health and Medical Education Deputy Ministry for Education

## Pharmacy Degree: Doctor of Pharmacy (PharmD)

#### Total Course Credits

- General Courses: 24
- Basic Courses: 58
- Specialized Courses: 103
- Practice experience (training courses): 18
- Thesis: 8

#### Program Description

Doctor of Pharmacy (PharmD) is one of major fields of the medical sciences established to meet the needs of the society.

Pharmaceutical professionals are expected to have sufficient general knowledge in different areas of pharmaceutical sciences to meet pharmacy-related needs of the society at different levels as described below.

The specific objectives are as follows:

- a) To meet the general educational, professional, and research needs in the field of pharmacy to better understand pharmaceutical sciences and better serve to the needs of the society.
- b) To achieve scientific capabilities in the area of research and study in pharmaceutical sciences.

#### Admission Requirements

PharmD is a grade where students will get into this field by taking part in a national countrywide universities entrance exam after they get their high school diploma. Those who will get the minimum required marks, they will be admitted to this field.

#### Expected Competencies at the End of the Program

##### General Competencies\*

##### Specific Competencies and Skills

- At the end of the program learners will be competent in the following skills:
  - To work as a responsible and professional pharmacist everywhere needed from public to hospital or industry
  - To do study and research in the field
  - To take a role in pharmaceutical management, marketing, policy and regulatory aspects, etc.
  - To work in the pharmaceutical and related industries (food, cosmetics, hygienic, biological products, etc.)
- To be able to teach general theoretical and practical courses in the field

#### Educational Strategies, Methods and Techniques\*

##### Student Assessment (Methods and Types)

###### a) Methods of the assessment

Residents will be evaluated by the following methods:  
Written, Verbal, OSLE, OSCE, Logbook

###### b) Types of the assessment

Formative and Summative

**Tables of the Courses**

**Table 1. General Courses**

Code	Course Name	Number of Credits	Hours			Prerequisite or Concurrent Courses
			Theoretical	Practical	Total	
1	Two Courses from Islamic Theories Courses*	4	68	-	68	-
2	One course from Islamic Ethics Courses*	2	34	-	34	-
3	One Course from Islamic Revolution of Iran Courses*	2	34	-	34	-
4	One Course from Islamic History and Civilization Courses*	2	34	-	34	-
5	One Course from Islamic Sources Courses*	2	34	-	34	-
6	Persian Literature	3	51	-	51	-
7	General English	3	51	-	51	-
8	Sports 1	1	-	34	34	-
9	Sports 2	1	-	34	34	8
10	Family and Population Planning	2	34	-	34	-
11	Islamic and Iranian culture and civilization	2	34	-	34	-
<b>Total</b>			<b>24</b>			

\*Note: Completing these courses is according to the titles of Islamic Education General Courses (the following table), ratified on meeting 542 of the Supreme Council of the Cultural Revolution dated 2004/07/13.

	Sub-discipline	Course Code	Course Title	Credits	Hours			Prerequisite
					Theory	Practice	Total	
Islamic Education General Courses	1- Theoretic Fundamentals of Islam	011	Islamic Thought 1	2	34		34	
		012	Islamic Thought 2	2	34		34	
		013	Human in Islam	2	34		34	
		014	Social and Political Rights in Islam	2	34		34	
	2- Islamic Ethics	021	Philosophy of Ethics	2	34		34	
		022	Islamic Ethics	2	34		34	
		023	Ethics of Living	2	34		34	
		024	Practical Theosophy of Islam	2	34		34	
	3- Islamic Revolution	031	Islamic Revolution of Iran	2	34		34	
		032	Constitutional Laws of Islamic Republic of Iran	2	34		34	
		033	Political Thoughts of Imam Khomeini	2	34		34	
	4- Islamic History and Civilization	041	History of Islamic Culture and Civilization	2	34		34	
		042	Analytical History of Early Islam	2	34		34	
		043	History of Imamah	2	34		34	
	5- Islamic Resources	051	Quran Thematic Commentary	2	34		34	
		052	Nahj al-Balagha Thematic Commentary	2	34		34	
<b>Total</b>				<b>120</b>	<b>408</b>		<b>408</b>	

**Table 2. Basic Courses**

Code	Course Name	Number of Credits		Hours		Number of Credits	Prerequisite or Concurrent Courses
		Theoretical	Practical	Theoretical	Practical		
01	Mathematics	3	-	51	-	3	-
02	Physics in Pharmacy (Theory)	2	-	34	-	2	-
03	Physics in Pharmacy (Practical)	-	1	-	34	1	-
04	General Chemistry, Theory	4	-	68	-	4	-
05	General Chemistry, Practical	-	2	-	64	1	-
06	Molecular Biology and Genetics	2	-	34	-	2	-
07	Anatomy (Theory and Practical)	1	0.5	17	17	1.5	-
08	Histology (Theory and Practical)	1	0.5	17	17	1.5	-
09	Analytical Chemistry (Theory)	2	-	34	-	2	General Chemistry
10	Analytical Chemistry (Practical)	-	2	34	-	2	General Chemistry
11	Organic Chemistry 1 (Theory)	3	-	51	-	3	General Chemistry
12	Organic Chemistry 1 (Practical)	-	1	34	-	1	General Chemistry
13	Organic Chemistry 2 (Theory)	3	-	51	-	3	Organic Chemistry 1
14	Organic Chemistry 2 (Practical)	-	1	-	34	1	Organic Chemistry 1
15	Fundamental Biochemistry (Theory)	3	-	51	-	3	-
16	Fundamental Biochemistry (Practical)	-	1	-	34	1	-
17	Physiology 1	4	-	64	-	4	Anatomy
18	Physiology 2 (Theory)	4	-	64	-	4	Physiology 1, Concurrent with Biochemistry
19	Physiology 2 (Practical)	-	1	-	1	1	Physiology 1, Concurrent with Biochemistry
20	First Aids and an Introduction to Medical Equipment	1	1	17	34	2	-
21	Microbiology (Theory)	3	-	51	-	3	Molecular Biology and Genetics
22	Microbiology (Practical)	-	1	-	34	1	Molecular Biology and Genetics
23	Virology	1	-	17	-	1	Simultaneously with Microbiology
24	Parasitology and Mycology (Theory)	3	-	51	-	3	Molecular Biology and Genetics
25	Parasitology and Mycology (Practical)	-	1	-	34	1	Molecular Biology and Genetics
26	Immunology (Theory)	3	-	51	-	3	Microbiology, Parasitology and Mycology
27	Immunology (Practical)	-	1	-	34	1	Microbiology, Parasitology and Mycology
28	Health Care Principles	1	-	17	-	1	-

<b>Total</b>	<b>44</b>	<b>14</b>	<b>58</b>
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Note1: Practical courses are not offered before Theoretical courses.

Note2: Theoretical and practical courses are offered simultaneously. In case that these courses are not taken in the same semester, theoretical courses are prerequisite to theoretical ones.

**Table 3. Specialized Courses**

Code	Course Name	Number of Credits		Hours		Number of Credits	Prerequisite or Concurrent Courses
		Theoretical	Practical	Theoretical	Practical		
29	Psychology*	2	-	34	-	2	-
30	Sociology and Anthropology*	2	-	34	-	2	-
31	Clinical Biochemistry	2	-	34	-	2	Fundamental Biochemistry
32	Medicinal Plants (Theory)	2	-	34	-	2	-
33	Medicinal Plants (Practical)	-	1	-	34	1	-
34	Pharmacognosy1	2	-	34	-	2	Medicinal Plants
35	Pharmacognosy- 2 (Theory)	3	-	51	-	2	Pharmacognosy 1
36	Pharmacognosy 2 (Practical)	-	2	-	68	2	Pharmacognosy 1
37	Ethics in Pharmacy	1	-	17	-	2	-
38	Medicinal Chemistry 1	3	-	51	-	3	Organic Chemistry and Pharmacology
39	Medicinal Chemistry 2	3	-	51	-	3	Medicinal Chemistry 1
40	Medicinal Chemistry 3	3	-	51	-	3	Medicinal Chemistry 2
41	Pharmacology 1	4	-	68	-	3	Physiology 2 and Fundamental Biochemistry
42	Pharmacology 2 (Theory)	4	-	68	-	4	Pharmacology 1
43	Pharmacology 2 (Practical)	-	1	-	34	1	Pharmacology 1
44	Toxicology (Theory)	2	-	34	-	2	Pharmacology 2
45	Toxicology (Practical)	-	2	-	68	2	Pharmacology 2
46	Poisoning Control	2	-	34	-	42	Toxicology, Pharmacology, First Aid
47	Physical Pharmacy 1	2	-	34	2	2	Mathematics and concurrently with Pharmaceutics 3
48	Physical Pharmacy 2	2	-	34	-	2	Physical Pharmacy 1
49	Pharmaceutics 1 (Introduction)	2	-	34	-	2	-
50	Pharmaceutics 2 (Solids) - Theory	3	-	51	-	3	Pharmaceutics 1
51	Pharmaceutics 2 (Solids) - Practical	-	1	-	34	1	Pharmaceutics 1
52	Pharmaceutics 3 (Liquids and Injectables) - Theory	3	-	51	-	3	Pharmaceutics 1
53	Pharmaceutics 3 (Liquids and Injectables) - Practical	-	1	-	34	1	Pharmaceutics 1
54	Pharmaceutics 4 (Semi-solids) - Theory	2	-	34	-	2	Pharmaceutics 1
55	Pharmaceutics 4 (Semi-solids) - Practical	-	1	-	34	1	Pharmaceutics 1
56	Pharmaceutics 5 (Novel systems) - Theory	2	-	34	-	2	Pharmaceutics 4
57	Pharmaceutics 5 (Novel systems) - Practical	-	1	-	34	1	Pharmaceutics 4
58	Cosmetics	2	-	34	-	2	Pharmaceutics 4
59	Pharmacotherapy 1	3	-	51	-	3	Pharmacology, Physiology
60	Pharmacotherapy 2	3	-	51	-	3	Pharmacotherapy 1
61	Pharmacotherapy 3	3	-	51	-	3	Pharmacotherapy
62	Pharmacoeconomics	2	-	34	-	2	Mathematics
63	Technical English	2	-	34	-	2	General English
64	Pharmaceutical and	2	-	34	-	2	Technical English

	Medicinal Terminology						
65	Nutrition and Therapeutic Diets	3	-	51	-	3	Fundamental Biochemistry, Analytical Chemistry
66	Biopharmaceutics and Pharmacokinetics	3	-	51	-	3	Mathematics, Biostatistics, Pharmaceutics 5, Pharmacology 2
67	Biological Products	2	-	34	-	2	Immunology
68	Cell Culture	1	-	17	-	1	Pharmaceutical Biotechnology, Molecular Biology and Genetics
69	Microbial Control of Drugs (Theory)	2	-	34	-	2	Microbiology, Pharmaceutics 5
70	Microbial Control of Drugs (Practical)	-	1	-	34	1	Microbiology, Pharmaceutics 5
71	Physicochemical control of Drugs (Theory)	2	-	34	-	2	General Chemistry, Analytical Chemistry, Instrumental Analysis
72	Physicochemical Control of Drugs (Practical)	-	1	34	34	1	General Chemistry, Analytical Chemistry, Instrumental Analysis
73	Biostatistics (Theory)	2	-	34	-	2	Mathematics
74	Biostatistics (Practical)	-	1	-	34	1	Mathematics
75	Instrumental Methods of Analysis (Theory)	3	-	51	-	2	Analytical Chemistry, Organic Chemistry
76	Instrumental Methods of Analysis (Practical)	-	1	-	34	1	Analytical Chemistry, Organic Chemistry
77	Pharmaceutical Biotechnology	3	-	51	-	3	Molecular Biology and Genetics
<b>Total</b>		<b>89</b>	<b>14</b>			<b>103</b>	

\* " Psychology" and "Sociology and Anthropology" can be replaced by two other courses from the elective courses (Table 5)

**Table 4. Practice Experience and Thesis**

Code	Course Name	Number of Credits		Hours				Credits	Prerequisite or Concurrent Courses
		Theoretical	Practical	Theoretical	Practical	Practice experience	Advanced practice experience		
78	Community Pharmacy Introductory Practice Experience					102		2	Pharmacology 2
79	Hospital Pharmacy Introductory Practice Experience					102		2	Pharmacotherapy 3
80	Industrial Pharmacy Introductory Practice Experience					102		2	Pharmaceutics 1 to 4
81	Community Pharmacy Advanced Practical Experience						306	6	Pharmacotherapy 3; Community Pharmacy Introductory Practice Experience
82	Industrial or Hospital Pharmacy Advanced Practice Experience						306	6	Pharmacotherapy 3; Concurrent with Industrial Pharmacy Introductory Practice Experience
83	Thesis 1		2					2	140 Credits

								Completed
84	Thesis 2		2				2	
85	Thesis 3		4				4	
<b>Total</b>			8		6	12	26	

**Table 5. Elective Courses**

Code	Course Name	Number of Credits		Hours		Number of Credits	Prerequisite or Concurrent Courses
		Theoretical	Practical	Theoretical	Practical		
86	Organic Chemistry 3	3		51		3	
87	Medicinal Chemistry		1		34	1	
88	Instrumental Analysis Methods 2	2		34		2	
89	Radiopharmacy	2		34		2	Medicinal Chemistry and Pharmacology 2
90	Drug Control and Analysis	3			51	3	
91	Polymers and Applications in Pharmacy	2		34		2	
92	Pharmaceutics 6	2		34		2	
93	Biopharmaceutics and Pharmacokinetics		2		68	2	
94	Modeling in Pharmacokinetics	1	1	17	34	2	
95	Cosmetics		1		34	1	
96	Drugs and Toxicity Information Science	2		51		2	
97	Clinical Pharmacy	2		34		2	
98	Plant Cell Culture (Theory)	2		34		2	Pharmacognosy 2
99	Plant Cell Culture (Practical)		1	34		2	Plant Cell Culture (Theory)
100	Plant Chemistry	2		34		2	
101	Traditional Medicine and Supplementary Medicine	2		34		2	Pharmacognosy 1,2
<b>Total</b>						32	

Mohammad Abdollahi, PharmD, PhD  
Secretary of the Council for Pharmaceutical  
Education at all levels

*M. Abdollahi*

Seyed Mansour Razavi, MD  
Secretary of the Supreme Council  
for Medical Sciences Planning

*S. Razavi*

*Bagher Larijani*  
Bagher Larijani, MD  
Deputy for Education  
Ministry of Health and Medical Education