

# Doctor of Philosophy Program in Research and Development in Pharmaceuticals

## International Program

**1. Degree Program** : Doctor of Philosophy Program in Research and Development in Pharmaceuticals

**2. Degree Offered** : Doctor of Philosophy Program (Research and Development in Pharmaceuticals)  
: Ph.D. (R&D Pharmaceuticals)

**3. Objectives**

The objectives of the Doctor of Philosophy Program in Research and Development in Pharmaceuticals are to produce graduates with high level of academic in pharmaceutical products. Those who graduate from the program will have the following skills:

3.1 Able to plan and manage research effectively, to create knowledge in pharmaceutical products, and to solve the problems base on scientific processes.

3.2 Able to initiate and discuss an idea under the possible situation and develop learning and thinking process by themselves.

3.3 Able to distribute knowledge to public and work compatibly with other people.

**4. Curriculum**

The Doctor of Philosophy Program in Research and Development in Pharmaceuticals has four types of curriculum. The curriculums without coursework are the program type1 (1) and type1 (2). The curriculums with coursework are the program type2 (1) and type2 (2).

**4.1 Total number of credits of the program**

Type1 (1)	72 credits
Type1 (2)	48 credits
Type2 (1)	72 credits
Type2 (2)	48 credits

**4.2 Program Structure**

**Type 1 (1)** For a B.Sc. (Pharm.) graduate or equivalent degree based on the discretion of The Doctor of Philosophy in Research and Development Program Committee.

Compulsory courses (audit)	as appropriate
Dissertation	72 credits
Total	72 credits

**Type 1 (2)** For a Masters graduate in pharmaceutical Sciences of equivalent degree based on the discretion of The Doctor of Philosophy in Research and Development Program Committee.

Compulsory courses (audit)	as appropriate
Dissertation	48 credits
Total	48 credits

**Type 2 (1)** For a B.Sc. (Pharm.) graduate or equivalent degree based on the discretion of The Doctor of Philosophy in Research and Development Program Committee.

Compulsory courses (audit)	10 credits
Elective courses	14 credits
Dissertation	48 credits
Total	72 credits

**Type 2 (2)** For a Masters graduate in pharmaceutical Sciences of equivalent degree based on the discretion of The Doctor of Philosophy in Research and Development Program Committee.

Compulsory courses (audit)	10 credits
Elective courses	2 credits
Dissertation	36 credits
Total	48 credits

There may be additional basic courses required as appropriate without credit counted toward the programs in order to prepare students before entering the program

Students in both types of the curriculum are required to pass the Qualifying Examination for assessing if the student can proceed to arranging the dissertation topics. The Qualifying Examination is also for assessing knowledge of the students in the Research and Development in Pharmaceuticals. Adherence to the Regulation of Khon Kaen University on Graduate Level Education, 2001, Section 7 Item 36.5 and 36.6 or the newly modified Regulations of Khon Kaen.

## 5. Courses

### 5.1 Compulsory courses for Program Type1 (1), 1(2), 2(1), and 2(2).

#### Compulsory Courses group 1

*621991 Seminar 1	1(1-0-3)
*362992 Seminar 2	1(1-0-3)
*621993 Seminar 3	1(1-0-3)
621996 Dissertation	72 credits
621997 Dissertation	48 credits
621998 Dissertation	48 credits
621999 Dissertation	36 credits

\*Note: The program without coursework or program type1(1) and 1(2) take there courseworks without counting the credits.

Compulsory courses group 2

The program without coursework or program type1(1) and type 1(2) have to take coursework in this group without counting the credits.

The program with coursework or program type 2(1) and 2(2) needs a total of 7 credits of 3 following subjects.

617811	Technical Writing and Presentation in Pharmaceutical Sciences	1(1-0-4)
621811	Application of Statistics in Pharmaceutical Research	3(2-3-2)
621812	Instrument Analysis	3(2-3-6)

**5.2 Elective courses**

621830	Advanced Medicinal Chemistry	3(3-0-6)
621831	Synthesis of Organic Medicinal Agents	3(3-0-6)
621832	Spectroscopy in Medicinal Chemistry	3(3-0-6)
621833	Techniques in Medicinal Chemistry	3(3-0-6)
627834	Drug Discovery from Natural Resources	3(2-3-4)
621835	Natural Products for Health	3(3-0-6)
621836	Drug and Xenobiotic Metabolism	3(3-0-6)
621837	Cell Culture in Pharmaceutical Sciences	3(2-3-6)
621838	Biotechnology in Pharmaceutical Sciences	3(2-3-6)
621839	Biological Matrices and Trace Analysis	3(2-3-6)
621840	Consideration for Pharmacy Research	3(3-0-6)
621841	Selected Topics in Pharmaceutical Molecular Genetics	3(3-0-6)
621842	Development of Drug Delivery System	4(4-0-8)
621843	Pharmacokinetics for Drug Formulation Development	2(2-0-6)
621844	Production Process Development	3(3-0-9)
621845	Development of Pharmaceutical Excipients	2(1-3-4)
621846	Drug Stability Influencing Formulation Development	3(3-0-4)
621994	Special Problem in Research and Development in Pharmaceuticals	3(3-0-6)

The student also enrolls in other subjects, which are equivalent to graduate level of Khon Kaen University or other University, with permission of The Doctor of Philosophy in Research and Development of Pharmaceuticals Program Committee.

### 5.3 Dissertation

<b>Type 1(1)</b>	For graduates with a BSc. (Pharm.) degree or equivalent
611996	Dissertation 72 credits
<b>Type 1(2)</b>	For graduates with a Master degree in Pharmaceutical Sciences or equivalent
611997	Dissertation 48 credits
<b>Type 2(1)</b>	For graduates with a BSc. (Pharm.) degree or equivalent
611998	Dissertation 48 credits
<b>Type 2(2)</b>	For graduates with a Master degree in Pharmaceutical Science or equivalent
611999	Dissertation 48 credits

The dissertation may proceed as research collaboration between Khon Kaen University and International universities in cooperation with the national research development network known as Cooperation research Network (CRN), or MUA-PED project for collaborative Ph.D. in Pharmacy Program, or through an international collaboration such as the US-Thai Consortium for the Development of Pharmacy Education of Thailand and academic collaboration between Khon Kaen University and other universities internationally.

## 6. Class Schedule

### 6.1 The Program without work or the Program type 1

#### Year 1

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 1</b>			
621991	Seminar 1	Credits not counted	Credits not counted
621996	Dissertation	9	-
621997	Dissertation	-	9
	Total	9	9
	Collective total number of credits	9	9

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 2</b>			
621992	Seminar II	Credits not counted	Credits not counted
621996	Dissertation	9	-
621997	Dissertation	-	9
	Total	9	9
	Collective total number of credits	18	18

**Year 2**

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 1</b>			
621993	Seminar 3	Credits not counted	Credits not counted
621996	Dissertation	9	-
621997	Dissertation	-	9
	Total	9	9
	Collective total number of credits	27	27

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 2</b>			
621996	Dissertation	9	-
621997	Dissertation	-	9
	Total	9	9
	Collective total number of credits	36	36

**Year 3**

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 1</b>			
621996	Dissertation	9	-
621997	Dissertation	-	6
	Total	9	6
	Collective total number of credits	45	42

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 2</b>			
621996	Dissertation	9	-
621997	Dissertation	-	6
	Total	9	6
	Collective total number of credits	54	48

**Year 4**

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 1</b>			
6219996	Dissertation	9	-
	Total	9	-
	Collective total number of credits	63	48

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 2</b>			
621996	Dissertation	9	-
	Total	9	-
	Collective total number of credits	72	48

**6.2 The Program with coursework or Program type 2****Year 1**

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 1</b>			
617811	Technical Writing and Presentation in Pharmaceutical Sciences	1	1
621811	Application of Statistics in Pharmaceutical Research	3	3
621812	Instrument Analysis	3	3
621xxx	Electives	3	3
	Total	10	10
	Collective total number of credits	10	10

Code	Subject	Type1(1) Credits	Type 1(2) Credits
<b>Semester 2</b>			
621991	Seminar 1	1	1
621xxx	Electives	9	-
	Total	10	1
	Collective total number of credits	20	19

**Year 2**

Code	Subject	Type2(1) Credits	Type 2(2) Credits
<b>Semester 1</b>			
621992	Seminar II	1	1
621xxx	Electives	3	-
621998	Dissertation	6	-
621999	Dissertation	-	8
	Total	10	9
	Collective total number of credits	30	28

Code	Subject	Type2(1) Credits	Type 2(2) Credits
<b>Semester 2</b>			
621993	Seminar III	1	1
621998	Dissertation	8	-
621999	Dissertation	-	8
	Total	9	9
	Collective total number of credits	39	37

**Year 3**

Code	Subject	Type2(1) Credits	Type 2(2) Credits
<b>Semester 1</b>			
621998	Dissertation	9	-
621999	Dissertation	-	6
	Total	9	6
	Collective total number of credits	48	43

Code	Subject	Type2(1) Credits	Type 2(2) Credits
<b>Semester 2</b>			
621998	Dissertation	9	-
621999	Dissertation	-	6
	Total	9	6
	Collective total number of credits	57	49

**Year 4**

Code	Subject	Type2(1) Credits	Type 2(2) Credits
<b>Semester 1</b>			
621998	Dissertation	8	-
	Total	8	-
	Collective total number of credits	65	49

Code	Subject	Type2(1) Credits	Type 2(2) Credits
<b>Semester 2</b>			
621998	Dissertation	8	-
	Total	8	-
	Collective total number of credits	73	49