

Appendix D

Program Learning Outcomes

Table 1 The objectives of the program comparison between current and revising program

Objectives of the Current Program	Objectives of the Revising Program
1. Possess moral, ethics and professional ethics, including ethics for human research and research code of conduct	1. Possess moral, ethics and professional ethics, including ethics for human research and research code of conduct
2. Possess high level of capability to conduct researches, innovation and clinical pharmacy practice	2. Possess knowledge that is relevant to clinical pharmacy research and practice.
3. Possess cognitive skill in searching, analyzing, synthesizing and integrating knowledge in managing and solving patient's drug-related problem effectively and contemporarily.	3. Possess cognitive skills in searching, analyzing, synthesizing relevant information and effectively conducting research, creating innovation to solve drugs related problems and advance clinical pharmacy research and practice.
4. Express opinions, be academic and professional leader, possess creative ideas, social responsibility, interpersonal and interactive skills	4. Express opinions, be academic and professional leader, possess creative ideas, social responsibility, interpersonal and interactive skills
5. Possess appropriate communication skill and informative technology utilization for various groups in both academic and professional sectors.	5. <i>Possess appropriate communication skill and informative technology utilization for various groups in both academic and professional sectors along with ability to use information technology to analyze and present research data effectively.</i>

Table 2 Relationship between objectives of the revising program and program learning outcomes

Objectives of the Revising Program	Program Learning Outcomes*				
	PLO1	PLO2	PLO3	PLO4	PLO5
1. Possess moral, ethics and professional ethics, including ethics for human research and research code of conduct			/		
2. Possess knowledge that is relevant to clinical pharmacy research and practice.	/				
3. Possess cognitive skills in searching, analyzing, synthesizing relevant information and effectively conducting research, creating innovation to solve drugs related problems and advance clinical pharmacy research and practice.	/	/		/	/
4. Express opinions, be academic and professional leader, possess creative ideas, social responsibility, interpersonal and interactive skills			/		
5. Possess appropriate communication skill and informative technology utilization for various groups in both academic and professional sectors along with ability to use information technology to analyze and present research data effectively.			/	/	

* PLO1 Inter-relate pharmacotherapy principles to practices

PLO2 Analyze drug-related problems or disease problems, develop solutions and justify professional decisions

PLO3 Demonstrate moral, ethics and professional ethics in accordance to social norm and professional standard along with personal accountability in executing professional decisions, leadership, communication and application of knowledge and skills

PLO4 Appraise and critically evaluate published information and present it in written or oral format using appropriate information technology technique

PLO5 Create innovation of clinical pharmacy research

Table 3: Standard domains of learning outcome and Program Learning Outcomes

Domains	Standard Learning Outcomes (TQF)	Program Learning Outcomes				
		PLO1	PLO2	PLO3	PLO4	PLO5
Morality and Ethics	1.1 Possess moral ethics according to professional ethics and respect patient's right of pharmacy council			/		
	1.2 Comply to rules and regulations of the organizations			/		
	1.3 Be honest to data searching and research presenting according to ethics			/		
Know ledge	2.1 Explain principle and advanced theory in clinical pharmacy and other related subjects	/				
Intellectual Development	3.1 Think critically and systematically	/	/		/	/
	3.2 Interpret, analyse, integrate, synthesize, design information for identifying, solving and preventing drug-related problems	/	/		/	/
	3.3 Interpret, analyses, synthesize design information for clinical pharmacy research	/	/		/	/
	3.4 Synthesize novel knowledge in clinical pharmacy	/	/		/	/
Interpersonal Relationship and Responsibility	4.1 Effectively communicate with others			/		
	4.2 Be discipline, punctual and responsible for themselves, group work and society			/		
	4.3 Assist and facilitate group activities as a team leader and member			/		
Math, Communication, IT Skills	5.1 Possess good performance in computer skill or related software			/	/	
	5.2 Be effective in oral and written Communication, using proper presentation format			/	/	
	5.3 Perform appropriate searching skill for pharmaceutical, medical or other field information			/	/	

Table 4 Learning and Assessment Strategies for Program Learning Outcomes Evaluation

Program Learning Outcomes (PLOs)	Teaching and learning method	Assessment
1. Inter-relate pharmacotherapy principles to practices	1.1 Lecture 1.2 Experiential study at practice sites 1.3 Case study/ presentation 1.4 Assignment, Self studying, Active learning 1.5 Group discussion and participation	1.1 Midterm and final examination (MCQ. MEQ. oral examination) 1.2 Assignment, presentation, and/or report 1.3 Proposal defense, thesis defense, Qualifying examination (Ph.D.) 1.4 Observe behavior at practice site (i.e. miniCEX)
2. Analyze drug-related problems or disease problems, develop solutions and justify professional decisions	2.1 Experiential study at practice sites 2.2 Case study/ presentation 2.3 Assignment, Self studying, Active learning 2.4 Group discussion and participation	2.1 Observe behavior at practice site (i.e. miniCEX) 2.2 Midterm and final examination (MCQ. MEQ. oral examination) 2.3 Assignment, presentation, and/or report
3. Demonstrate moral, ethics and professional ethics in accordance to social norm and professional standard along with personal accountability in executing professional decisions, leadership, communication and application of knowledge and skills	3.1 Experiential study at practice sites 3.2 Case study/ presentation 3.3 Assignment, Self studying, Active learning 3.4 Group discussion and participation	3.1 Assessment from Behavioral observation in classroom/actual practice sites 3.2 Assignment of scores for ethics as part of student behavior assessment 3.3 Assessment from discussion and/or assigned questions or case study

Program Learning Outcomes (PLOs)	Teaching and learning method	Assessment
		<p>3.4 Observe behavior and student expression at practice site and presentation in classroom</p> <p>3.5 Evaluate from colleagues using questionnaires and/or interview</p> <p>3.6 Evaluate ability of choose mathematical analytical thinking and-information technology skills-from case study presentation and other assignment</p>
<p>4.Appraise and critically evaluate published information and present it in written or oral format using appropriate information technology technique</p>	<p>4.1 Experiential study at practice sites</p> <p>4.2 Case study/ presentation</p> <p>4.3 Assignment, Self studying, Active learning</p> <p>4.4 Group discussion and participation</p>	<p>4.1 Observe behavior at practice site (i.e. miniCEX)</p> <p>4.2 Midterm and final examination (MCQ. MEQ. oral examination)</p> <p>4.3 Assignment, presentation, and/or report</p> <p>4.4 Proposal defense, thesis defense, Qualifying examination (Ph.D.)</p> <p>4.5 Evaluate ability of choose mathematical analytical thinking and-information technology skills-from case study presentation and other assignment</p>

Program Learning Outcomes (PLOs)	Teaching and learning method	Assessment
5. Create innovation of clinical pharmacy research	5.1 Experiential study at practice sites 5.2 Case study/ presentation 5.3 Assignment, Self studying, Active learning 5.4 Group discussion and participation	5.1 Observe behavior at practice site (i.e. miniCEX) 5.2 Midterm and final examination (MCQ. MEQ. oral examination) 5.3 Assignment, presentation, and/or report 5.4 Proposal defense, thesis defense, Qualifying examination (Ph.D.)

Table 5 Relationship between courses of the revising program and program learning outcomes

Course Names		Credits	PLO1	PLO2	PLO3	PLO4	PLO5
1. Required Courses							
PYID 685	Research Methodology in Pharmacy I	2(2-0-4)	R	R	R	R	R
PYCP642	Clinical Pharmacy Research Creation and Design	2(2-0-4)	R	R	R	R	R
PYCP643	Experimental and Molecular Therapeutics	3(3-0-6)	R	R	R	R	R
PYCP648	Seminar in Clinical Pharmacy I	1(1-0-2)	P	P	P	P	P
PYCP649	Seminar in Clinical Pharmacy II	1(1-0-2)	P	P	P	P	P
PYCP650	Seminar in Clinical Pharmacy III	1(1-0-2)	P	P	P	P	P
PYCP666	Pharmaceutical Care I	3(3-0-6)	R	R	R	R	R
PYCP668	Clinical Pharmacy and Clerkship I	3(2-3-5)	P	P	P	P	P
2. Electives							
PYCP627	Therapeutic Drug Monitoring	3(3-0-6)	R	R	R	R	R
PYCP646	Applied Statistics for Pharmacy	3(3-0-6)	R	R	R	R	P
PYCP647	Advanced Pharmacotherapeutics	3(3-0-6)	R	R	R	R	R
PYCP651	Population Pharmacokinetics and Pharmacogenetics	2(2-0-4)	R	R	R	R	R

Course Names		Credits	PLO1	PLO2	PLO3	PLO4	PLO5
PYCP689	Pharmacotherapy in Geriatrics	3(2-3-5)	R	R	R	R	R
PYCP703	Pharmacovigilance	3(3-0-6)	R	R	R	R	R
PYCP704	Rational Drug Use	2(2-0-4)	R	R	R	R	R
PYCP667	Pharmaceutical Care II	3(3-0-6)	R	R	R	R	R
PYCP669	Clinical Pharmacy and Clerkship II	3(2-3-5)	P	P	P	P	P
3. Dissertation							
PYCP 799	Dissertation	48(0-144-0)	M	M	M	M	M
PYCP 669	Dissertation	36(0-108-0)	M	M	M	M	M

I = ELO is introduced & assessed

R = ELO is reinforced & assessed

P = ELO is practiced & assessed

M = Level of Mastery is assessed