



Laureate Institute of Pharmacy

(An Autonomous Institute of Pharmacy and Off-campus Research Center of H.P.T.U)

NAAC Accredited 'A' Grade and Recognized u/s 2(f) of UGC act 1956

Affiliated to Himachal Pradesh Technical University, Hamirpur

V.P.O Kathog, Tehsil-Jwalamukhi, Distt. Kangra, H.P-176031

CO-PO MAPPING

Programme Name		Branch	
Course Name		Semester/Year	
Course code		Session	
Course credit		Lectures/week	Tutorial/week
NHEQF Level		SDG	
Course pre-requisite			
Course coordinator			

COURSE OBJECTIVES


COURSE OUTCOMES (COs)

Students should be able to:

CO number	CO description
CO 1	
CO 2	
CO 3	

PROGRAM OUTCOMES (POs)

PO number	PO description	PO number	PO description
PO 1	Pharmacy Knowledge	PO 7	Communication & Interpersonal Skills
PO 2	Problem Analysis, Critical Thinking and Evidence-Based Decision Making	PO 8	Leadership, Management & Entrepreneurship
PO 3	Pharmaceutical Skills & Practice	PO 9	Pharmacist & Society
PO 4	Modern Tools, AI & Digital Competence	PO 10	Environment and sustainability
PO 5	Research & Innovation	PO 11	Life-Long Learning & Professional Development
PO 6	Professional Ethics & Human Values		


Director Cum Principal
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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEOs for B. Pharmacy

The Bachelor of Pharmacy (B. Pharm) programme aims to prepare graduates with strong knowledge of pharmaceutical sciences, practical skills, professional ethics, and a commitment to patient care and public health. The graduates of the programme are expected to achieve the following Programme Educational Objectives (PEOs):

PEO 1: Graduates will be able to apply fundamental knowledge of pharmaceutical sciences to work effectively in pharmacy practice, pharmaceutical industry, research, and related healthcare fields.

PEO 2: Graduates will be able to demonstrate practical skills in drug formulation, manufacturing, pharmaceutical analysis, quality control, and pharmacy practice.

PEO 3: Graduates will be able to use scientific reasoning and problem-solving skills to address challenges related to medicines, drug development, and patient care.


PEO 4: Graduates will be able to practice pharmacy with ethical responsibility, good communication, teamwork, and concern for patient safety and public health.

PEO 5: Graduates will be able to pursue continuous learning and professional development to keep pace with advances in pharmaceutical sciences and healthcare.

PEOs for Pharm. D

PEO 1: Pharm. D. Graduates will be competent professional pharmacist who will utilize and practice professional principles of Pharm. D. in self-practice, hospitals, government and non-government organizations, academics, research institutions and corporate sector.

PEO 2: Pharm. D. Graduates will sustain continual professional development through lifelong learning activities and work for development of field that includes creation, absorption and adoption of new knowledge and tools.


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PEO 3: Pharm. D. Graduates will have knowledge to support the pharmaceutical industries, in their economic development, legal and regulatory prospective of drug approvals at national and international level and will be able to address social and economic challenges of the nation.

PEO 4: Pharm. D. Graduates will be successful in higher education in Pharm. D., if pursued.

PEO 5: Pharm. D. Graduates will have leadership skills with high level of integrity for team building and also have ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary team with positive attitude.

PEOs for M. Pharmacy

PEO 1: M. Pharmacy Graduates will possess in-depth and advanced knowledge in their chosen branch of pharmaceutical sciences.

PEO 2: M. Pharmacy Graduates will contribute effectively to collaborative and multidisciplinary scientific research through self-management and teamwork to achieve shared goals.

PEO 3: M. Pharmacy Graduates will demonstrate the ability to identify business opportunities, foster entrepreneurship, and serve as reliable resources for industry, research, consultancy, and training collaborations.

PEO 4: M. Pharmacy Graduates will exhibit strong logical thinking, intellectual curiosity, and a sustained inclination toward research and development.

PEO 5: M. Pharmacy Graduates will be equipped with leadership qualities and entrepreneurial skills to excel as future pharmacy professionals.

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PROGRAM SPECIFIC OUTCOMES (PSOs)

PSOs for B. Pharmacy

PSO no.	PSO Description
PSO 1	Graduates will acquire strong foundational knowledge in the formulation of conventional and innovative pharmaceutical dosage forms, their dispensing techniques, and recent developments in pharmaceutical product development.
PSO 2	Graduates will develop the capability to design, perform, and interpret analytical studies and reports used in pharmaceutical industries during drug discovery, formulation development, and manufacturing processes.
PSO 3	Graduates will gain comprehensive knowledge of the laws regulating various aspects of pharmacy, building a solid understanding of professional ethics and legal responsibilities in pharmacy practice.

PSOs for Pharm. D

PSO no.	PSO Description
PSO 1	Pharm. D. Graduates would be able to perform prescription writing, their analysis, preparation and maintenance of documentation and clinical data management.
PSO 2	Pharm. D. Graduates would be able to provide patient counselling, ADRs monitoring, therapeutic drug management and other clinical data reports.
PSO 3	Pharm. D. Graduates would be able to assist physician in hospitals or clinics for improved pharmacotherapy and improved patient compliance.

PSOs for M. Pharmacy (Pharmaceutics)

PSO no.	PSO Description
PSO 1	Post Graduates will be able to design, develop, and evaluate conventional and novel drug delivery systems (e.g., nanoparticles, liposomes, transdermal systems) using principles of pharmaceutics, biopharmaceutics, and pharmacokinetics.
PSO 2	Post Graduates will demonstrate expertise in preformulation studies, formulation development, scale-up, and optimization of pharmaceutical dosage forms using modern tools such as Quality by Design (QbD), DoE, and regulatory guidelines.
PSO 3	Post Graduates will be capable of conducting independent research, interpreting scientific data, and applying pharmaceutics knowledge in academia, pharmaceutical industries, and regulatory environments while adhering to ethical and quality standards.

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PSOs for M. Pharmacy (Pharmacology)

PSO no.	PSO Description
PSO 1	Post Graduates will be able to apply advanced knowledge of pharmacodynamics, pharmacokinetics, and toxicology to understand drug action, mechanisms, and therapeutic applications in both preclinical and clinical settings.
PSO 2	Post Graduates will be capable of designing, conducting, and interpreting in vitro and in vivo pharmacological experiments using modern techniques, animal models, and analytical tools while adhering to ethical and regulatory standards.
PSO 3	Post Graduates will be able to contribute to drug discovery and development by evaluating efficacy, safety, and toxicity of new and existing drug molecules, and by interpreting regulatory guidelines for pharmacological and toxicological studies.

PSOs for M. Pharmacy (Pharmaceutical Analysis)

PSO no.	PSO Description
PSO 1	Post Graduates will be able to apply advanced analytical techniques such as chromatography, spectroscopy, and hyphenated methods for the qualitative and quantitative analysis of pharmaceutical substances, ensuring accuracy, precision, and regulatory compliance.
PSO 2	Graduates will demonstrate the ability to develop, optimize, and validate analytical methods in accordance with international guidelines (e.g., ICH, USP), ensuring reliability, reproducibility, and suitability for drug development and quality control.
PSO 3	Graduates will be capable of interpreting regulatory requirements, conducting research in pharmaceutical analysis, and contributing to drug quality assurance, stability studies, and documentation in compliance with global regulatory standards.


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PEO -PSO Mapping

PSOs	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5
PSO 1					
PSO 2					
PSO 3					

Yes or No

PO-PSO Mapping

PSOs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11
PSO 1											
PSO 2											
PSO 3											

(0-No correlation,1- Low Correlation, 2-Moderate Correlation,3-High Correlation)

PO-PEO Mapping

POs	PEO 1	PEO 2	PEO 3	PEO 4	PEO 5
PO 1					
PO 2					
PO 3					
PO 4					
PO 5					
PO 6					
PO 7					
PO 8					
PO 9					
PO 10					
PO 11					

(0-No correlation,1- Low Correlation, 2-Moderate Correlation,3-High Correlation)

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CO-PO/PSO MAPPING

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2	PSO 3	Assesment's Type*
CO 1	3	2		-											F/S
CO 2	3	2		-											
CO 3	3	2		-											
CO 4	2	2		-											
CO 5	2	2		-											
CO 6	2	3		2											
Average mapping (M)	2.5	2.16		0.33											

(3 = High correlation, 2 = Medium correlation, 1= Low correlation) between CO and PO/PSO

*Type of Assessment [Formative (F) or summative (S) or both (F/S)]

Note

Formative assessment: Formative assessment is an ongoing, low-stakes process used during instruction to monitor student learning and provide immediate feedback. It helps teachers identify comprehension gaps early to adjust teaching methods, while allowing students to understand their strengths and weaknesses. These assessments are typically ungraded and focus on improvement rather than final evaluation.

Summative assessment: Summative assessment is the evaluation of student learning, knowledge, and proficiency at the conclusion of an instructional period, such as a unit, course, or semester. It is high-stakes, geared toward assigning final grades, measuring, or certification against standards. Common examples include final exams, final projects, portfolios, and standardized tests


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CO ATTAINMENT

The target (P) may be 60% (first division) or as per the requirements of the course and program. Further, the target remains same for direct and indirect assessments

	CO ATTAINMENT CALCULATION			
	Direct Attainment (DA)			Indirect Assessment (IA)
	Continuous Internal Assessment (CIA)	External Assessment (ESE)	Course Exit Survey	
	ST 1	ST 2		
Number of students who have scored more than the target (P) (Target is 60%)	p	p	p	p
Percentage of students who have achieved the target = $(P/N)*100$ (N is the number of students who appeared in the exam)	$(P/N)*100$	$(P/N)*100$	$(P/N)*100$	$(P/N)*100$
Attainment Level (3 for >80%, 2 for >70%, 1 for > 60%)	a	b	c	d
Attainment based on internal assessment (CIA) = Average of (a and b);				
Direct CO Attainment Level (DA) = 40% CIA + 60% ESE (c)				
Indirect CO Attainment Level (IA) (based on Exit Survey (d))				
80% of DA				
20% of IA				
CO Attainment Level (COA) = 80 % DA+ 20 % IA;				


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Indirect Assessment/Course exit survey can be performed by faculty using self-designed format/Questionnaire (For example)

Sample 1: Course Outcome exit survey for students by course coordinator

Course outcome	1 (Low)	2 (Moderate)	3 (High)
CO1 Explain the fundamental concepts of innovation, entrepreneurship, and the structure and role of the startup ecosystem in economic and social development			3
CO2 Identify and analyze problems, market gaps, and opportunities using ideation tools, market research techniques, and feasibility analysis.			3
CO3 Design and validate an innovative solution by developing a minimum viable product (MVP) using lean startup principles and customer feedback			3

$$\text{Average (A)} = (3+3+3)/3 = 3$$

Sample 2: Course Contents exit survey for course coordinator by students

Questions	1 (Low)	2 (Moderate)	3 (High)
Quality of the discussed course content			3
Relevance of the textbook to this course			3
Lectures were well organized and clear			3
Lectures were presented at a reasonable pace		2	
Lectures stimulate you intellectually			3
Assignment/lab experiment procedures clearly explained		2	
Doubts were cleared in lectures		2	
Sufficient usage of audio/visual aids		2	

$$\text{Average (B)} = (3+3+3+2+3+2+2+2)/8 = 2.5$$

- Average of **A and B** = $(3+2.5)/2 = 2.75$ (C)
- The survey should be conducted for each student
- Percentage of students with average score (C) of **1.8 or higher**
- Attainment Level (d) (3 for >80%, 2 for >70%, 1 for > 60%)


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Example

Roll Number	Indirect assessment		Average of A and B (C)
	A	B	
1	3	2.5	2.75
2			3
3			3
4			1.5
5			3
6			3
7			3
8			3
9			3
10			1.8

Percentage of students with average score (C) of 1.8 or higher = $(9/10) \times 100 = 90\%$

Attainment Level (d) (To be filled in CO attainment calculation) = 3

(3 for >80%, 2 for >70%, 1 for > 60%)

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PO/PSO ATTAINMENT

PO/PSO attainment = (COA x M/3)

Note:-

For Average Mapping value (M) for each PO and PSO, refer CO-PO/PSO Mapping Table.

Attainment level will be calculated for each PO and PSO

Course Coordinator

HOD


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