GANPAT UNIVERSITY

FACULTY OF PHARMACY

Programme	Bachelor of Pharmacy	Branch/Spec.	General
Semester	I	Version	3.0.0.0
Effective from Academic Year	2026-27	Effective for the Batch admitted in	July 2026
Course Code	BP105T	Course Name	Introduction to Pharmacognosy (Theory)

Scheme	Teaching Scheme (Per week)					Examination Scheme (Marks)			
	L	TU	P	TW	Total		CE	SEE	Total
Credit	3	0	0	--	3	Theory	30	45	75
Hours	3	0	0	--	--	Practical	-	-	-

Pre-requisites	Nil / Basic knowledge of Chemistry and Biology

COURSE OBJECTIVES

The objectives of this course are to:
1. Explain the origin, history, and classification of natural drugs.
2. Understand cultivation and conservation methods for medicinal plants.
3. Study quality control and evaluation of crude drugs.
4. Study primary and secondary metabolites with their therapeutic relevance
5. Introduce traditional systems of medicine and phyto-therapeutic agents.

Course Outcomes

On successful completion of the course, the students will be able to:

CO1	Describe the historical development, classification, and scope of Pharmacognosy.
CO2	Explain cultivation, processing, and conservation techniques for medicinal plants.
CO3	Apply quality evaluation methods to crude drugs using organoleptic, microscopic, and chemical parameters.
CO4	Identify primary and secondary metabolites with their therapeutic relevance.
CO5	Recognize traditional systems of medicine and commonly used phyto-therapeutic agents.

Theory Syllabus

Unit	Content	Hrs.
I	Fundamentals of Pharmacognosy • Definition, history, present status, scope and development of pharmacognosy. • Sources of drugs: Plants, animals, microbial, marine, mineral and plant tissue culture. • Historical milestones in drug discovery: Morphine, quinine, aspirin, warfarin, penicillin, cephalosporin, taxol and artemisinin. • Introduction to different herbal/traditional pharmacopoeias: Indian Pharmacopoeia, British Herbal Pharmacopoeia, USP – Herbal Medicines, Ayurvedic Pharmacopoeia of India, Unani Pharmacopoeia of India and American Herbal Pharmacopoeia. • Official and non-official; codified and non-codified drugs. Classification of crude drugs: alphabetical, morphological, taxonomical, chemical, pharmacological and chemotaxonomic classification with merits and limitations.	10

II	Cultivation, Collection, Processing and Storage of Drugs of Natural Origin • Methods of plant cultivation and Good Agricultural and Collection Practices (WHO/GAP/GCP guidelines) for medicinal plants. • Factors influencing cultivation, collection and storage of medicinal plants. • Plant hormones and their applications; application of polyploidy, mutation and hybridization concepts. • Ex-situ and in-situ conservation and strategies for value addition of medicinal plants. • Role of eco-pharmacognosy in sustainable conservation of endangered medicinal plants such as kutki and chirata.	08
III	Quality Control of Drugs of Natural Origin (WHO Guidelines) • Adulteration of drugs of natural origin. • Evaluation of drugs using organoleptic, microscopic (qualitative and quantitative), physical, chemical and biological methods. • Physicochemical parameters: extractive values, moisture content, foreign organic matter, ash values, bitterness value, foaming index, haemolytic potential, swelling index, viscosity, optical rotation, refractive index, acid value and saponification value. • DNA barcoding.	08
IV	Introduction to Metabolites of Plant Origin and Traditional Systems of Medicine • Definition and general properties of plant metabolites. Primary and secondary metabolites: carbohydrates, proteins, lipids, alkaloids, glycosides, flavonoids, tannins, terpenoids, volatile oils and resins. • Traditional Systems of Medicine: Basic principles of treatment in different systems including AYUSH and TCM. Types of dosage forms in AYUSH medicines. • Role of pharmacognosy in allopathy and traditional systems of medicine such as AYUSH and TCM.	12
V	Phyto-therapeutic Agents • Biological source, major constituents and uses of the following classes of drugs: • Adaptogens and Immunomodulators: Ashwagandha, Tulsi, Amla • Hepatoprotectives: Milk thistle, Kutki • Cardiovascular drugs: Garlic, Arjuna • Antidiabetics: Gymnema, Fenugreek • Anti-inflammatory and analgesics: Turmeric, Boswellia • CNS drugs: Brahmi • Antimicrobial and antivirals: Giloy, Neem, Andrographis • Gastrointestinal drugs: Psyllium • Dermatological agents: Aloe • Drugs used in women's health: Chasteberry, Shatavari • Respiratory drugs: Vasaka	07

Text Books

1. Evans, W.C. Trease and Evans Pharmacognosy. 16th ed. London: W.B. Saunders & Co.
2. Tyler, V.E., Brady, L.R. and Robbers, J.E. Pharmacognosy. 9th ed. Philadelphia: Lea & Febiger.
3. Wallis, T.E. Textbook of Pharmacognosy. London: J. & A. Churchill Ltd.

Reference Books

4. World Health Organization (2002). WHO traditional medicine strategy 2002–2005. Geneva: WHO.
5. World Health Organization (1998). Quality control methods for medicinal plant materials. Geneva: WHO.
6. World Health Organization (2003). WHO guidelines on GACP for medicinal plants. Geneva: WHO.

ICT / MOOCs Reference

7. NPTEL – Pharmacognosy and Phytochemistry
8. WHO Traditional Medicine resources (apps.who.int)

Mapping of CO with PO and PSO:	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PEO1	PEO2	PEO3	PEO4	PEO5
CO1	2	-	-	-	1	3	3	1	3	-	2	3	-	-	-	1
CO2	2	2	3	-	2	3	1	2	-	3	1	3	2	2	2	2
CO3	2	3	3	-	3	3	-	-	2	-	1	3	2	1	-	2
CO4	1	-	1	-	3	2	-	-	2	-	1	2	2	1	1	2
CO5	2	1	1	-	2	1	-	1	2	-	1	3	2	2	2	2