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|----------------------|-----------------------------------------------|
| <b>Branch Name:</b>  | <b>Bachelor of Pharmacy</b>                   |
| <b>Program Code:</b> | <b>PH101</b>                                  |
| <b>Course Name:</b>  | <b>Introduction to Pharmacognosy (Theory)</b> |
| <b>Course Code:</b>  | <b>1BP105T</b>                                |

**Teaching and Examination Scheme:**

| Teaching Scheme (Hours per week) |          |           |        | Evaluation Scheme (Marks) |                       |             |
|----------------------------------|----------|-----------|--------|---------------------------|-----------------------|-------------|
| Lecture                          | Tutorial | Practical | Credit | Theory (T)                |                       | Total Marks |
|                                  |          |           |        | Continuous Assessment     | University Assessment | Theory      |
| 3                                | -        | NA        | 3      | 30                        | 45                    | 75          |

**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 (CO):**

| CO No. | Upon successful completion of this course, the students will be able to:                                  |
|--------|-----------------------------------------------------------------------------------------------------------|
| 1      | Describe the historical development, classification, and scope of Pharmacognosy.                          |
| 2      | Explain cultivation, processing, and conservation techniques for medicinal plants.                        |
| 3      | Apply quality evaluation methods to crude drugs using organoleptic, microscopic, and chemical parameters. |
| 4      | Identify primary and secondary metabolites with their therapeutic relevance.                              |
| 5      | Recognize traditional systems of medicine and commonly used phyto-therapeutic agents.                     |

**Subject Contents:**

| Unit. No. | Topic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Total Hours (45 hours) | Weight (%) |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------|
| 1         | <b>Fundamentals of Pharmacognosy</b> <ul style="list-style-type: none"> <li>Definition, history, present status, scope and development of pharmacognosy.</li> <li><b>Sources of drugs:</b> Plants, animals, microbial, marine, mineral and plant tissue culture.</li> <li><b>Historical milestones in drug discovery:</b> Morphine, quinine, aspirin, warfarin, penicillin, cephalosporin, taxol and artemisinin.</li> </ul> <b>Introduction to different herbal / traditional pharmacopoeias:</b><br>Indian Pharmacopoeia, British Herbal Pharmacopoeia, United States Pharmacopoeia – Herbal Medicines and Dietary Supplements, Ayurvedic Pharmacopoeia of India, Unani Pharmacopoeia of India and American | 10                     | 23         |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |    |    |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|
|   | Herbal Pharmacopoeia.<br><b>Official and non-official; codified and non-codified drugs.</b><br>Classification of crude drugs: alphabetical, morphological, taxonomical, chemical, pharmacological and chemotaxonomic classification along with their merits and limitations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |    |    |
| 2 | <b>Cultivation, Collection, Processing and Storage of Drugs of Natural Origin</b> <ul style="list-style-type: none"> <li>• Methods of plant cultivation and Good Agricultural and Collection Practices (WHO / GAP / GCP guidelines) for medicinal plants.</li> <li>• Factors influencing cultivation, collection and storage of medicinal plants.</li> <li>• Plant hormones and their applications in cultivation of medicinal plants.</li> <li>• Application of polyploidy, mutation and hybridization concepts with reference to secondary metabolites.</li> <li>• Ex-situ and in-situ conservation and strategies for value addition of medicinal plants.</li> <li>• Role of eco-pharmacognosy in sustainable conservation of endangered medicinal plants such as kutki and chirata.</li> </ul> | 8  | 17 |
| 3 | <b>Quality Control of Drugs of Natural Origin (WHO Guidelines)</b> <ul style="list-style-type: none"> <li>• Adulteration of drugs of natural origin. Evaluation of drugs using organoleptic, microscopic (qualitative and quantitative), physical, chemical and biological methods.</li> <li>• 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.</li> </ul>                                                                                                                                                                                                           | 8  | 17 |
| 4 | <b>Introduction to Metabolites of Plant Origin</b> <ul style="list-style-type: none"> <li>• Definition and general properties of plant metabolites.</li> <li>• Primary and secondary metabolites such as carbohydrates, proteins, lipids, alkaloids, glycosides, flavonoids, tannins, terpenoids, volatile oils and resins.</li> </ul> <b>Traditional Systems of Medicine</b> <ul style="list-style-type: none"> <li>• Basic principles of treatment of diseases in different systems of medicine including AYUSH and TCM.</li> <li>• Types of dosage forms in AYUSH medicines.</li> <li>• Role of pharmacognosy in allopathy and traditional systems of medicine such as AYUSH and TCM.</li> </ul>                                                                                                | 12 | 27 |
| 5 | <b>Phyto-therapeutic Agents</b><br>Biological source, major constituents and uses of the following classes of drugs: <ul style="list-style-type: none"> <li>• Adaptogens and Immunomodulators: Ashwagandha, Tulsi, Amla</li> <li>• Hepatoprotectives: Milk thistle, Kutki</li> <li>• Cardiovascular drugs: Garlic, Arjuna</li> <li>• Antidiabetics: Gymnema, Fenugreek</li> <li>• Anti-inflammatory and analgesics: Turmeric, Boswellia</li> <li>• CNS drugs: Brahmi</li> <li>• Antimicrobial and antivirals: Giloy, Neem, Andrographis</li> <li>• Gastrointestinal drugs: Psyllium</li> <li>• Dermatological agents: Aloe</li> <li>• Drugs used in women's health: Chasteberry, Shatavari</li> <li>• Respiratory drugs: Vasaka</li> </ul>                                                         | 7  | 16 |



1. Online Swayam/NPTEL: [https://onlinecourses.nptel.ac.in/e-learning/preview/noc26\\_ch75](https://onlinecourses.nptel.ac.in/e-learning/preview/noc26_ch75)