



## B.Sc. Honours/ Honours with Research in Botany Semester-II

(NCrF Level- 4.5 First Year – Certificate in Botany)

### Semester -II

Course Category	<b>Multi-Disciplinary Course -2 (MDC -2)</b>
Title of the Course	<b>Pharmaceutical Products Theory</b>
Course Credit	<b>03</b>
Teaching Hours per Semester (15 week / 90 working days)	<b>45</b>
Total Marks	<b>50</b>

#### Course Objectives

On the completion of course, students are able to know:

1. Students will acquire knowledge and skills that are valuable in various sectors including pharmaceuticals, healthcare, research, and academia. It also fosters an appreciation for the potential of natural products in medicine and healthcare.
2. Understanding Pharmacognosy can aid in drug discovery and development. Students learn how to identify and evaluate natural compounds for their potential use as medicines or as leads for drug development.
3. Students learning about the processing of herbal raw materials gain insights into various crucial aspects that contribute to the preparation, preservation, and utilization of medicinal plants for therapeutic purposes.
4. Student can learn the appropriate techniques for drying and storing herbal materials to maintain their potency, prevent spoilage, and minimize contamination.
5. Students studying these traditional systems of medicine will delve deeper into these principles, understanding diagnosis, treatment approaches, medicinal preparations, lifestyle recommendations, and the holistic philosophies that form the basis of each system's practice.

1	Employability/Entrepreneurship/Skill Development પર કેન્દ્રિત થયેલ છે કે નહિ?	Yes				
2	Value added Courses Imparting Transferable and Life Skillsના ગુણો ધરાવે છે?	No				
3	Major	No	Minor	No		
	Skill Enhancement Courses	No	Ability Enhancement Courses	No		
	Value Added Courses	No	Exit/ Vocational Courses	No		
4	Holistic Education	No	<b>Multidisciplinary</b>	<b>Yes</b>	Interdisciplinary	No
5	દિવ્યાંગ માટે વિષય અંતર્ગત આનુસાંગિક જોગવાઈ કરાયેલ છે ?				No	
6	New India Literacy Programme (NILP) મુજબનો વિષય છે?				No	
7	Swayam પ્લેટફોર્મ પરના MOOC વિષય પર આધારિત આ વિષય છે ?				No	



8	ઇન્ડીયન નોલેજ સીસ્ટમ (IKS) પર આધારિત વિષય છે ?	No
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Unit No.	Topics	Hours	Marks
1	<b>Introduction of Pharmacognosy</b> 1.1. Definition of Pharmacognosy. 1.2. Scope of Pharmacognosy. 1.3. Source of drugs: Plants, Animals, Marine, Mineral and Microorganisms.	9	10
2	<b>Drugs and its classification</b> 2.1. Introduction to Organized Drugs. 2.2. Introduction to Unorganized drugs. 2.3. Classification of crude drugs (Alphabetical, Morphological, Taxonomical, Biological and Chemical)	9	10
3	<b>Herbs as raw material</b> 3.1. Definition of herb. 3.2. Herbal medicine – (Phudino, Bramhi and Bhangro) 3.3. Selection of herbal material. 3.4. Processing of herbal raw materials: Collection of crude drugs, harvesting of crude drugs, Garbling of crude drugs, Drying of crude drugs, Packaging of crude drugs, Storage of crude drugs.	9	10
4	<b>Indian systems of medicine</b> 4.1. Basic principles involved in Ayurveda, Unani and Homeopathy. 4.2. Common Indian drug sources: 4.2.1. Oil yielding plants – Nagod, Nilgiri 4.2.2. Dye yielding plants – Heena, Kesudo 4.2.3. Gum yielding plants – Neem, Baval	9	10
5	<b>Medicinal Plants for Wellness</b> 5.1. Usage of plants for wellness of respiratory disease – Ardusi, Tulsi. 5.2. Usage of plants for wellness of gastrointestinal disease – Kariyatu, Harde. 5.3. Usage of plants for wellness of dermatological disease – Turmeric, Chandan. 5.4. Usage of plants for wellness of cancer disease – Kuvarpathu, Barmasi. 5.5. Scope and future of medicinal plants.	9	10
	<b>Total</b>	<b>45</b>	<b>50</b>

### Reference Books:

1. Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R. (2005). Biology. Tata McGraw Hill, Delhi.
2. Agnes Arber (1999). Herbal plants and Drugs. Mangal Deep Publications.
3. V. Singh D. K. Jain P. C. Pande (2010) A Text Book of Botany: Angiosperms, Rastogi Publications-Meerut.



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**Semester- II**

Course Category	<b>Multi -Disciplinary Course Practical (MDC-2)</b>
Title of the Course	<b>Pharmaceutical Products Practical</b>
Course Credit	<b>01</b>
Teaching Hours per Semester (15 Week/ 90 Working days)	<b>30</b>
Total Marks	<b>25</b>

**Course Outcomes - COs**

On completion of the course, students are able to know:

1. Pharmacognosy practical offer students a hands-on learning experience focused on the study of medicinal plants and natural sources of drugs.
2. Students learn to identify medicinal plants based on their morphological features, such as leaves, flowers, roots, and fruits. This skill is crucial in understanding the diversity of plant species used in medicine.

1	Employability/Entrepreneurship/Skill Development પર કેન્દ્રિત થયેલ છે કે નહિ?	<b>Yes</b>				
2	Value added Courses Imparting Transferable and Life Skills નાગુણો ધરાવે છે?	No				
3	Major	No	Minor	No		
	Skill Enhancement Courses	No	Ability Enhancement Courses	No		
	Value Added Courses	No	Exit/ Vocational Courses	No		
4	Holistic Education	No	<b>Multidisciplinary</b>	<b>Yes</b>	Interdisciplinary	No
5	દિવ્યાંગ માટે વિષય અંતર્ગત આનુસાંગિક જોગવાઈ કરાયેલ છે ?	No				
6	New India Literacy Programme (NILP) મુજબનો વિષય છે?	No				
7	Swayam પ્લેટફોર્મ પરના MOOC વિષય પર આધારિત આ વિષય છે ?	No				
8	ઇન્ડિયન નોલેજ સીસ્ટમ (IKS) પર આધારિત વિષય છે ?	No				



<b>Pr. No.</b>	<b>Practical</b>
1	To study plants used as herbal medicine - Phudino, Bramhi, Bhangro
2	To study and identify plant for oil products as per theory.
3	To study and identify plant for dye products as per theory.
4	To study and identify plant for gum products as per theory.
5	To study the medicinal plants used in wellness of respiratory disease (as per theory).
6	To study of medicinal plants used in wellness of Gastrointestinal disease (as per theory).
7	To study of medicinal plants used in wellness of dermatological disease (as per theory).
8	To study of medicinal plants used in wellness of Cancer disease (as per theory).
9	To study local medicinal plants flora by field visit.
10	Submission of project/ field report.

### **Reference Books:**

1. Kokte, Practical Pharmacognosy, Vallabh Prakashan, Pune.



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<b>SAURASHTRA UNIVERSITY RAJKOT</b>				
<b>Practical Skeleton: Multi-Disciplinary Course-2 (MDC-2)-: Pharmaceutical Products practical</b>				
<b>Time: - 3 hours</b>		<b>Date: -----</b>		
			<b>Total Marks: - 25</b>	
<b>Q-1</b>	<b>Identify and describe the specimen “A” used as Herbal medicine.</b>			<b>3M</b>
	<b>X</b>		<b>Y</b>	
	<b>A.</b>		<b>A.</b>	
<b>Q-2</b>	<b>Identify and describe the specimen “B” used as Oil and Dye yielding plants.</b>			<b>3M</b>
	<b>X</b>		<b>Y</b>	
	<b>B.</b>		<b>B.</b>	
<b>Q-3</b>	<b>Identify and describe the specimen “C” used as Gum, Respiratory and Gastrointestinal disease plants.</b>			<b>3M</b>
	<b>X</b>		<b>Y</b>	
	<b>C.</b>		<b>C.</b>	
<b>Q-4</b>	<b>Identify and describe the specimen “D” used as Dermatological and Cancer disease plants.</b>			<b>3M</b>
	<b>X</b>		<b>Y</b>	
	<b>D.</b>		<b>D.</b>	
<b>Q-5</b>	<b>Journal.</b>			<b>3M</b>
<b>Q-6</b>	<b>Viva-voce</b>			<b>10M</b>

**Instructions:**

- Certified journal is must and minimum requirement to appearing for semester end practical examination.
- Should have at least 75% attendance in practical sessions during the semester.
- Time duration: **3 Hours.**