

*R. E. Society's*  
**R. P. Gogate College of Arts & Science and  
R. V. Jogalekar College of Commerce  
(Autonomous), Ratnagiri**



**Department of Botany  
UG Programme 2024-25  
Syllabus for F.Y.B.A.  
Semester I and II**

**R. P. Gogate College of Arts and Science and R. V. Jogalekar College of Commerce  
(Autonomous), Ratnagiri  
Board of Studies in Botany  
Syllabus for F.Y.B.A(O.E.) effective from the year 2024-25**

## Under Choice Based Credit System (CBCS)

Name of Programme	<b>B.A.</b>
Level	UG
No of Semesters	06
Year of Implementation	2024-25
Programme Specific Outcomes (PSO)	<b>Students will be able to</b> <ol style="list-style-type: none"><li>1. Cultivate the medicinal plants.</li><li>2. Set up a nursery of medicinal plants.</li><li>3. Start sales and marketing of herbal medicines.</li><li>4. Process prescribed medicinal plants and their parts.</li></ol>
Relevance of PSOs to the local, regional, national, and global developmental needs (200 words)	The students, after completion of the course will be able to understand the need of medicinal plant knowledge for sustainable development. The students will be able to promote the importance of prescribed medicinal plants. Students will be able to analyze the local and regional use of medicinal plants. It will inculcate skill regarding the cultivation of medicinal plants.

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The performance of the learners shall be evaluated into two parts. The learner's performance shall be assessed by Internal Assessment with 40% marks in the first part and by conducting the Semester End Examinations with 60% marks in the second part. **The allocation of marks for the Internal Assessment and Semester End Examinations are as shown below-**

**A) Internal Assessment: 40 % (40 Marks)**

Sr. No.	Particulars	Marks
1.	<b>One Periodical Class Test / Online Examination</b>	<b>20</b>
2.	<b>Assignments</b>	<b>20</b>
	Question Paper Pattern for Periodical Class Test/ Online Examination: Maximum Marks: 20 Duration: 40 Minutes Long answer questions/ Multiple Choice Questions	

**B) Semester End Examination: 60% (60 Marks)**

Duration: The examination shall be of 2 hour duration. Question Paper Pattern

1. There shall be three questions.
2. All questions shall be compulsory with internal options.
3. Questions may be subdivided into sub-questions a, b, c... and the allocation of marks depends on the weightage of the unit.

**Standard of Passing**

The learner to pass a course shall have to obtain a minimum of 40% marks in aggregate for each course where the course consists of Internal Assessment and Semester End Examination. The learner shall obtain minimum of 40% marks (i.e. 16 out of 40) in the Internal Assessment and 40% marks in Semester End Examination (i.e. 24 out of 60) separately, to pass the course and minimum of Letter Grade "P" in the project component, wherever applicable to pass a particular semester. A learner will be said to have passed the course if the learner passes the Internal Assessment and Semester End Examination together.

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**Performance grading**

**Letter grades and grading points:**

<b>Semester GPA / Program CGPA Semester/Program</b>	<b>% of Marks</b>	<b>Alpha-Sign/Letter Grade Result</b>
<b>9.00-10.00</b>	<b>90.0-100</b>	<b>O (Outstanding)</b>
<b>8.00 ≤ 9.00</b>	<b>80.0 ≤ 90.0</b>	<b>A+ (Excellent)</b>
<b>7.00 ≤ 8.00</b>	<b>70.0 ≤ 80.0</b>	<b>A (Very Good)</b>
<b>6.00 ≤ 7.00</b>	<b>60.0 ≤ 70.0</b>	<b>B+ (Good)</b>
<b>5.50 ≤ 6.00</b>	<b>55.0 ≤ 60.0</b>	<b>B (Above Average)</b>
<b>5.00 ≤ 5.50</b>	<b>50.0 ≤ 55.0</b>	<b>C (Average)</b>
<b>4.00 ≤ 5.00</b>	<b>40.0 ≤ 50.0</b>	<b>P (Pass)</b>
<b>Below 4.00</b>	<b>Below 40</b>	<b>F (Fail)</b>
<b>Ab (Absent)</b>	<b>-</b>	<b>Absent</b>

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<b>Nomenclature of the Course</b>	<b>OE: Medicinal plants of konkan- I</b> <b>OE: कोकणातील औषधी वनस्पती - I</b>
<b>Class</b>	F.Y.B.A.
<b>Semester</b>	01
<b>Course Code</b>	USOEBOT101
<b>No. of Credits</b>	04
<b>Nature</b>	Theory
<b>Type</b>	OE (Open Elective)

**Course Outcomes:**

**Students will be able to understand :-**

**विद्यार्थ्यांना हे समजेल:-**

**CO1 :** The utility of plants as medicines

**CO1:** औषध म्हणून वनस्पतींची उपयुक्तता

**CO2 :** The preparation of basic herbal medicinal products

**CO2:** मूलभूत हर्बल औषधी उत्पादनांची तयारी

**CO3 :** The idea of cultivation practices

**CO3:** लागवडीच्या पद्धतींची कल्पना

**CO4 :** The storage, packaging and marketing of herbal medicines

**CO4:** हर्बल औषधांची साठवणूक, पॅकेजिंग आणि विपणन

**CO5:** To understand the morphology and use of prescribed plant and plant products

**CO5:** निर्धारित वनस्पती आणि वनस्पती उत्पादनांचे आकारविज्ञान आणि वापर

**Syllabus:**

<b>Unit No.</b>	<b>Unit Title</b>	<b>Sub titles (Learning Points)</b>
1	<b>General aspects of Medicinal Plants</b> <b>औषधी वनस्पतींचे सामान्य पैलू</b>	<ul style="list-style-type: none"> <li>● Introduction to Indian system of medicine</li> <li>● भारतीय औषध प्रणालीचा परिचय</li> <li>● Morphology of a flowering plant</li> <li>● फुलांच्या वनस्पतींचे आकृतिविज्ञान</li> <li>● Introduction to plant parts used in medicine: root, stem, leaves, bark, flowers, fruit, seeds, etc.</li> </ul>

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		<ul style="list-style-type: none"> <li>• औषधात वापरल्या जाणाऱ्या वनस्पतींच्या भागांचा परिचय: मूळ, देठ, पाने, साल, फुले, फळे, बिया इ.</li> <li>• Cultivation and harvesting practices.</li> <li>• लागवड, मशागत आणि कापणीच्या पद्धती</li> <li>• Role in human health.</li> <li>• मानवी आरोग्यामध्ये भूमिका</li> <li>• Contribution of national research laboratories like CDRI, CIMAP, NBRI, etc in medicinal plant research.</li> <li>• औषधी वनस्पतींच्या संशोधनात CDRI, CIMAP, NBRI, इत्यादीसारख्या राष्ट्रीय संशोधन प्रयोगशाळांचे योगदान.</li> </ul>
2	<p><b>Introduction of medicinal plants found in Konkan</b></p> <p><b>कोकणात आढळणाऱ्या औषधी वनस्पतींचा परिचय</b></p>	<p>Cultivation practices, chemical composition, extraction, and uses of Medicinal plants:-</p> <p><b>लागवडीच्या पद्धती, रासायनिक रचना, निष्कर्षण आणि औषधी वनस्पतींचे उपयोग :-</b></p> <p><i>Catharanthus roseus (सदाफुली), Aloe vera (कोरफड), Ocimum sanctum (तुळस), Piper longum (पिंपळी), Cymbopogon citratus (गवती चहा), Rauwolfia serpentina (सर्पगंधा), Tinospora cordifolia (गुळवेल), Strychnos nux-vomica (काजरा), Acorus calamus (वेखंड), Curcuma longa (हळद), Garcinia indica (कोकम), Plumbago zeylanica (पांढरा चित्रक), Abrus precatorius (गुंज), Hemidesmus indicus (सारिवा), Holarrhena pubescens (पांढरा कुडा)</i></p> <ul style="list-style-type: none"> <li>•</li> </ul>
3	<p><b>Use of medicinal Plants</b></p> <p><b>औषधी वनस्पतींचा वापर</b></p>	<ul style="list-style-type: none"> <li>• <b>Plant Parts Used as source of Lotion and Ointments:</b> Identification and utilization of Korphad (<i>Aloe vera</i>), Methi (<i>Trigonella foenumgraecum</i>), Zendu (<i>Calendula officinalis</i>), Kadu Nimb (<i>Azadirachta indica</i>)</li> <li>• <b>लोशन आणि मलमांचा स्रोत म्हणून वापरण्यात येणारे वनस्पतींचे भाग:</b> कोरफड (<i>Aloe vera</i>), मेथी (<i>Trigonella foenumgraecum</i>), झेंडू (<i>Calendula officinalis</i>), कडू निंब</li> </ul>

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		<p>(<i>Azadirachta indica</i>) यांची ओळख आणि वापर</p> <ul style="list-style-type: none"> <li>● <b>Plant Parts Used as source of Oil:</b> Lavang (<i>Syzygium aromaticum</i>), Kadu Nimb (<i>Azadirachta indica</i>), Naral (<i>Coccus nucifera</i>), Nilgiri (<i>Eucalyptus</i> sp.)</li> <li>● <b>तेलाचा स्रोत म्हणून वापरण्यात येणारे वनस्पतींचे भाग:</b> लवंग (<i>Syzygium aromaticum</i>), कडू निंब (<i>Azadirachta indica</i>), नारळ (<i>Coccus nucifera</i>), निलगिरी (<i>Eucalyptus</i> sp.)</li> <li>● <b>Plant Parts Used as source of Surgical Fibres, Sutures and Dressings:</b> Identification and utilization of Kapus (<i>Gossypium</i> sp.), Jute (<i>Corchorus capsularis</i>), Bana (<i>Musa</i> sp.)</li> <li>● <b>सर्जिकल तंतू, सिवने आणि ड्रेसिंगचा स्रोत म्हणून वापरले जाणारे वनस्पतींचे भाग:</b> कापूस (<i>Gossypium</i> sp.), ज्यूट (<i>Corchorus capsularis</i>), केळी (<i>Musa</i> sp.) यांची ओळख आणि वापर</li> </ul>
4		<p><b>Educational visit to herbal medicine factory/small processing unit/ medicinal agriculture field and submission of project report. (At least 01)</b></p> <p>हर्बल औषध कारखाना/लहान प्रक्रिया युनिट/औषधी कृषी क्षेत्राला शैक्षणिक भेट आणि प्रकल्प अहवाल सादर करणे. (किमान ०१)</p>

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**Prescribed Text/s (If any):**

- Hand Book of Ayurvedic Medicines, National Institute of Industrial Research, Delhi 7 Panda H.
- CSIR – Cultivation and Utilization of Medicinal Plants
- *Ayurved ka Pran: Vanoshadhi vigyan* by Brahmvarchas, Vedmata Gayatri Trust, Shaktikunj Haridwar 2004
- Herbal Drug Industry, Chaudhry R. D., Eastern Publication
- Cultivation and Utilization of Medicinal Plants, Atal and Kapoor, RRL Jammu Tavi. 1982
- Natural Products: A Lab Guide, Raphael Ikan, Academic Press, 1991, 2<sup>nd</sup> edition
- An Introduction to Medicinal Plants, Dutt Ashwin, Adhyayan Publishers and distributors, 2009, 1<sup>st</sup> edition

**Teaching Plan:**

<b>Unit No.</b>	<b>Unit Title</b>	<b>Teaching Methods</b>	<b>No. of Lectures</b>
<b>1</b>	<b>General aspects of Medicinal Plants found in konkan</b>	Chalk and talk, AV method	<b>18</b>
<b>2</b>	<b>Morphology and introduction of medicinal plants</b>	Chalk and talk, AV method	<b>18</b>
<b>3</b>	<b>Use of medicinal plants</b>	Chalk and talk, AV method	<b>18</b>
<b>4</b>	<b>Field visit</b>		<b>06</b>

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**Evaluation Pattern**

**A) Continuous Internal Evaluation: Maximum Marks:40 marks**

Method	Marks
Field report/ Assignments	20 marks
Internal evaluation test	20 marks

**B) Semester End Examination: Maximum Marks: 60  
Evaluation Pattern**

Question No. and Sub questions	Unit and sub unit (with number and title)	Type of Question	Marks
1 A	All units	MCQ	15
2 A	I	Long answer questions (Any 1 out of 2)	10
2 B	I	Answer in brief (Any 1 out of 2)	05
3 A	II	Long answer questions (Any 1 out of 2)	10
3 B	II	Answer in brief (Any 1 out of 2)	05
4A	III	Long answer questions (Any 1 out of 2)	10
4 B	III	Answer in brief (Any 1 out of 2)	05

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<b>Nomenclature of the Course</b>	<b>OE:Medicinal plants of konkan - II</b>
<b>Class</b>	FY.B.Sc.
<b>Semester</b>	02
<b>Course Code</b>	USOEBOT20
<b>No. of Credits</b>	04
<b>Nature</b>	Theory
<b>Type</b>	OE(Open Elective)

**Course Outcomes:**

**Students will be able to understand :-**

- CO1** :The utility of plants as medicines  
**CO2** :The preparation of basic herbal medicinal products  
**CO3** : The idea of cultivation practices  
**CO4** :The storage, packaging and marketing of herbal medicines  
**CO5** :To work with individual plant and plant products

**Syllabus:**

<b>Unit No.</b>	<b>Unit Title</b>	<b>Subtitles (Learning Points)</b>
1	<b>Phytochemistry and Pharmacology</b> वनस्पती रसायनशास्त्र आणि औषधनिर्माणशास्त्र	<b>Phytochemical and Pharmacological aspects and uses of following medicinal plants:</b> खालील औषधी वनस्पतींचे रासायनिक आणि औषधीय पैलू आणि उपयोग : <ul style="list-style-type: none"> <li>● <i>Andrographis paniculata</i> (काळमेघ),</li> <li>● <i>Bacopa monnieri</i> ( जल ब्राह्मी/ नीरब्राह्मी),</li> <li>● <i>Centella asiatica</i> (मंडुकपर्णी),</li> <li>● <i>Curcuma longa</i> (हळद),</li> <li>● <i>Momordica charantia</i> (कारले),</li> <li>● <i>Ocimum sanctum</i> (तुळस),</li> <li>● <i>Phyllanthus niruri</i> (भुईआवळी),</li> <li>● <i>Tinospora cordifolia</i> (गुळवेल)</li> <li>● <i>Withania somnifera</i> (अश्वगंधा)</li> </ul>
2	<b>Important Indian Medicinal Plants</b> महत्त्वाच्या भारतीय औषधी वनस्पती	<b>Plant parts used as source of powder:</b> पावडरचा स्रोत म्हणून वापरण्यात येणारे वनस्पतींचे भाग: Identification and utilization of Avala (आवळा) ( <i>Embelica officinalis</i> ), Behada (बेहाडा) ( <i>Terminalia bellerica</i> ), Hirada (हिरडा) ( <i>Terminalia chebula</i> ), Halad (हळद) ( <i>Curcuma longa</i> ), Lasun (लसूण) ( <i>Allium sativum</i> ), Karale (कारले) ( <i>Momordica charantia</i> ), Jambhul (जांभूळ) ( <i>Syzygium cumini</i> ), Methi (मेथी) ( <i>Trigonella foenumgraecum</i> ), Dalchini (दालचिनी) ( <i>Cinnamomum</i> )

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		<p><i>verum</i>), Sarpgandha (सर्पगंधा) (<i>Rauwolfia serpentina</i>), Kali miri (काळी मिरी) (<i>Piper nigrum</i>), Ashwagandha (अश्वगंधा) (<i>Withania somnifera</i>), Isabgol/Sabja (इसबगोल/सब्जा) (<i>Plantago ovata</i>) यांची ओळख आणि वापर</p> <ul style="list-style-type: none"> <li>• <b>Plant parts used as source of juice/ decoction:</b> रस/ कढ्याचा स्रोत म्हणून वापरले जाणारे वनस्पतीचे भाग: Identification and utilization of Avala (आवळा) (<i>Emblica officinalis</i>), Aale (आले) (<i>Gingiber officinalis</i>), Kanda (कांदा) (<i>Allium cepa</i>), Tulas (तुळस) (<i>Ocimum sanctum</i>), Arjun (अर्जुन) (<i>Terminalia arjuna</i>), Kadu Nimb (कडुनिंब) (<i>Azadirachta indica</i>), Korphad (कोरफड) (<i>Aloe vera</i>), Jal Brahmi (जल ब्राह्मी) (<i>Bacopa monnieri</i>), Gulvel (गुळवेल) (<i>Tinospora cordifolia</i>), Shankpushpi (शंखपुष्पी) (<i>Evolvulus alsinoides</i>), Bel (बेल) (<i>Aegle marmelos</i>) यांची ओळख आणि वापर</li> </ul>
3	<p><b>Traditional System of Medicine &amp; Intellectual Property Rights</b> पारंपारिक औषध प्रणाली आणि बौद्धिक संपदा अधिकार</p>	<ul style="list-style-type: none"> <li>• Traditional System of Medicine (TSM) in India. Introduction, Concept and Principles of Ayurveda, Siddha, Unani and Homeopathy; Importance of TSM; Concept and Principles of Naturopathy and Tibetan Medicine; Concept of herbalism and its significance. Introduction to phyto-medicines and herbal raw materials. Local health traditions, ethnomedicines. भारतातील पारंपारिक औषध प्रणाली (TSM). आयुर्वेद, सिद्ध, युनानी आणि होमिओपॅथीचा परिचय, संकल्पना आणि तत्त्वे; TSM चे महत्त्व; निसर्गोपचार आणि तिबेटी औषधांची संकल्पना आणि तत्त्वे; वनौषधीची संकल्पना आणि त्याचे महत्त्व. वनस्पतिजन्य-औषधे आणि वनौषधी (हर्बल) कच्च्या मालाचा परिचय. स्थानिक आरोग्य परंपरा, पारंपारिक औषधे.</li> <li>• Intellectual property rights and TSM बौद्धिक संपदा अधिकार आणि TSM (भारतातील पारंपारिक औषध प्रणाली)</li> </ul>
4		<p><b>Educational visit to herbal medicine factory/small processing unit/ medicinal agriculture field and submission of project report. (At least 01)</b> हर्बल औषध कारखाना/लहान प्रक्रिया युनिट/औषधी शेती क्षेत्राला शैक्षणिक भेट आणि प्रकल्प अहवाल सादर करणे. (किमान ०१)</p>

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- Natural Products: A Lab Guide, Raphael Ikan, Academic Press, 1991, 2<sup>nd</sup> edition
- An Introduction to Medicinal Plants, Dutt Ashwin, Adhyayan Publishers and distributors, 2009, 1<sup>st</sup> edition

**Teaching Plan:**

Unit No.	Unit Title	Teaching Methods	No. of Lectures
1	<b>Phytochemistry and Pharmacology</b>	Chalk and talk, AV method	<b>08</b>
2	<b>Important Indian Medicinal Plants</b>	Chalk and talk, AV method	<b>08</b>
3	<b>Traditional System of Medicine &amp; Intellectual Property Rights</b>	Chalk and talk, AV method	<b>08</b>
4	<b>Field visit</b>		<b>06</b>

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**Evaluation Pattern**

**C) Continuous Internal Evaluation: Maximum Marks:40 marks**

Method	Marks
Field report/ Assignments	20 marks
Internal evaluation test	20 marks

**D) Semester End Examination: Maximum Marks: 60  
Evaluation Pattern**

Question No. and Sub questions	Unit and sub unit (with number and title)	Type of Question	Marks
1 A	All units	MCQ	15
2 A	I	Long answer questions (Any 1 out of 2)	10
2 B	I	Answer in brief (Any 1 out of 2)	05
3 A	II	Long answer questions (Any 1 out of 2)	10
3 B	II	Answer in brief (Any 1 out of 2)	05
4A	III	Long answer questions (Any 1 out of 2)	10
4 B	III	Answer in brief (Any 1 out of 2)	05

**R. P. Gogate College of Arts and Science and R. V. Jogalekar College of Commerce  
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Syllabus for F.Y.B.A(O.E.) effective from the year 2024-25**

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**Evaluation Pattern**

**C) Continuous Internal Evaluation: Maximum Marks:40 marks**

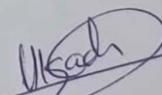
Method	Marks
Field report/ Assignments	20 marks
Internal evaluation test	20 marks

**D) Semester End Examination: Maximum Marks: 60**

**Evaluation Pattern**

Question No. and Sub questions	Unit and sub unit (with number and title)	Type of Question	Marks
1 A	All units	MCQ	15
2 A	I	Long answer questions (Any 1 out of 2)	10
2 B	I	Answer in brief (Any 1 out of 2)	05
3 A	II	Long answer questions (Any 1 out of 2)	10
3 B	II	Answer in brief (Any 1 out of 2)	05
4A	III	Long answer questions (Any 1 out of 2)	10
4 B	III	Answer in brief (Any 1 out of 2)	05

Date: 16/04/24  
Place: Ratnagiri

  
Signature

Chairperson and HoD