**TEACHING PLAN: Economic Botany (Dr. Santosh Joshi)**

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|---|---|---|---|---|---|
| **SCHOOL: (SOBAS) SCHOOL OF BASIC & APPLIED SCIENCES** | | | **ACADEMIC SESSION: 2024** | | **FOR STUDENTS' BATCH: B.Sc. Bio Semester VI** |
| **1** | **Course code** | **BOT-304** | | | |
| **2** | **Course Title** | **Economic Botany** | | | |
| **3** | **Credits** | **3** | | | |
| **4** | **Learning Hours** | | **Contact Hours** | **38** | |
| | | | **Practical Teaching** | **30** | |
| | | | **Project, Tutorial and Assessment** | **22** | |
| | | | **Total hours** | **90** | |
| **5** | **Course Objective** | 1.Learn the concept of origin of crops.<br>2.Learn the major food crops, methods of cultivation and their economic importance.<br>3.Learn the important medicinal plants.<br>4.Study the economic uses of crops that produce food, fibers, timber and spices.<br>5.Learn about the medicinal plants in India.<br>6.Learn about energy plantation and bio-fuels. | | | |
| **6** | **Course Outcomes** | After completing the course, the students will be able to:<br>. 1.Know the criteria of geological distribution of crops.<br>. 2.Determine the trend of migration of crops globally.<br>. 3.Know different methodologies for crop cultivation and their values.<br>. 4.Know the types of major traditional crops in India and their utility in mankind.<br>. 5.Know the economic importance of medicinally plants.<br>. 6.Determine the significance of energy plantation. | | | |

**THEORY**

| Unit | Title & Contents | Number of Hours | Learning outcome | Course Outcome |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| **Unit 1:** | Vavilov's centres of origin of crop plants, Origin, distribution, botanical description, brief idea of cultivation and economic uses of the following: Food plants: cereals (rice, wheat and maize), pulses ( gram, arhar and pea), vegetables ( potato, tomato and onion). | 10 | Know aboutthe basics Taxonomy of plants | CO1 & CO 2 |
| **Unit 2:** | Origin, distribution, botanical description, brief idea of cultivation and economic uses of the following: Fibers: cotton, jute and flax. Oils: Groundnut, mustard, sunflower and coconut. | 10 | Study the important characters of classification in plants | CO1, CO2 & CO3 |
| **Unit 3:** | Morphological description, brief idea of cultivation and economic uses of the following: Spices: coriander, ferula, ginger, turmeric, cloves; Medicinal plants: *Cinchona, Rauwolfia, Atropa, Opium, Cannabis, Azadirachta, Withania*. | 10 | Identify plants according to their usefulness | CO4 & CO 5 |
| **Unit 4:** | Botanical description, processing and uses of: Beverages: tea and coffee; Rubber: Hevea; Sugar: sugarcane; General account and sources of timber; energy plantations and bio-fuels | 10 | Identify plants according to their usefulness | CO5 & CO6 |
| | **Augmentation done** | NA | | |

**Portions for Sessional examination**

| **I - Sessional Exam** | **II- Sessional Exam** | **III- Sessional Exam** | **Re-Sessional Exam** |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Unit 1,2 | NA | NA | Unit 1 2 3,4 |

| Chapter No. | Title & Contents of the chapter | After completion of the chapter the student shall be able to | Skills and Competency Developed | Course Outcome |
|---|---|---|---|---|
| | **Augmentation done** | NA | | |

**Portions for sessional examination**

| I- Sessional Exam | II- Sessional Exam | III- Sessional Exam | Re-Sessional Exam |
|---|---|---|---|
| Unit 1 | NA | NA | Unit 1,2,3,4 |

**Assessment of course outcomes:**

| Assessment method | Course outcomes in Percentage | | | | | |
|---|---|---|---|---|---|---|
| | CO1 | CO2 | CO3 | CO4 | CO5 | CO6 |
| Unit Test | √ | √ | √ | √ | √ | |
| Sessional Examination | | | | | | |
| Pre-final Exam | | | √ | √ | √ | √ |
| Assignment | √ | √ | √ | √ | √ | √ |
| Others Specify | | | | | | |

**Course Outcomes-Program Outcomes mapping**

| COs | Program Outcomes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **CO1** | √ | √ | | | √ | | | √ | √ | | **5** |
| **CO2** | √ | √ | | | √ | | | √ | √ | | **5** |
| **CO3** | √ | | √ | | √ | √ | | √ | √ | | **6** |
| **CO4** | √ | | √ | | √ | √ | | √ | √ | √ | **7** |
| **CO5** | √ | √ | √ | | √ | √ | | √ | √ | √ | **8** |
| **CO6** | | | √ | | | | | | | | 1 |
| **Total** | **5** | **3** | **3** | | **5** | **3** | | **5** | **5** | | |

**Modes of delivery of courses**

| **Methodology** | **Code** |
|---|---|
| **Lecturing** | **a** |
| **Discussion** | **b** |
| **Group discussion** | **c** |
| Demonstration | d |
| Power point presentation | e |
| Tutorial class | f |
| **Assignment** | **g** |
| Remedial class | i |
| Industrial visit | k |
| Quiz | m |
| Others specify | o |

| **Assessment Method** | **Code** |
|---|---|
| **Viva** | **A** |
| **Continuous assessment** | **C** |
| **Unit test** | **D** |
| **Sessional exam** | **E** |
| **Assignments** | **G** |
| Others specify | H |

| **Teaching Aids used** | **Code** |
|---|---|
| **Marker & board** | **I** |
| **Power point** | **II** |
| **Videos** | **III** |

| | |
|---|---|
| Posters | IV |
| Charts | V |
| Others specify | VIII |

**List of prescribed text books from University Syllabus**

| Sl No | Title of the book | Author/s | Edition, Year of Publication | Publisher | No. of copies available in the library |
|---|---|---|---|---|---|
| 1 | Economic Botany in Tropics, 2nd edition | Kocchar, S.L. | 1998 | MacMillan India Ltd., New Delhi | 5 |
| 2 | A Textbook of Economic Botany | Sambammurthy, A.V.S.S. And Subramanyam, N.S | 1989 | Wiley Eastern Ltd., New Delhi. | 5 |
| 3 | Hills Economic Botany | Sharma, O.P. | 1996 | Tata McGraw Hill Co. Ltd., New Delhi. | 5 |
| 4. | Economic Botany- Plants in Our World | Simpson, B.B. and Conner-Ogorzaly, M. | 1986 | McGraw Hill, New York. | - |

**List of text books for Augmented Syllabus**

| Sl No | Title of the book | Author/s | Edition, Year of Publication | Publisher | No. of copies available in the library |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |

**List of Reference text books from University Syllabus**

| Sl No | Title of the book | Author/s | Edition, Year of Publication | Publisher | No. of copies available in the library |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |

**List of Journals / Articles / Dissertations**

| Sl No | Title of the book | Author/s | Edition, Year of Publication | Publisher | No. of copies available in the library |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |

**List of URLs / Blogs / Other e-Sources**

| Sl No | Title of the book | Author/s | Edition, Year of Publication | Publisher | Web-address |
|---|---|---|---|---|---|
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |
| 7 | | | | | |
| | | | | | |
| 8 | | | | | |
| 9 | | | | | |

**Questions**

**Unit-1**

| Sl No | Question | Max Marks | Related course outcome |
|---|---|---|---|
| 1 | What are the different centers of origin of crops according to Vavilov's? | 10 | CO 1 & CO2 |
| 2 | Mention crops of Indian origin. | | CO 1 & CO2 |
| 3 | Write the botanical discrption of Wheat and Rice Crops. | | CO 1 & CO2 |
| 4 | Describe the cultivation methodologies of cereal crops with example | | CO 1 & CO2 |
| 5 | Describe some vegetables of Indian origin. | | CO 1 & CO2 |

**Unit 2**

| Sl No | Question | Max Marks | Related course outcome |
|---|---|---|---|
| 1 | Describe some fiber yielding plants. | 10 | CO 2 &CO3 |
| 2 | Give a detailed account on Cotton. | | CO 2 &CO3 |
| 3 | What are oil yielding crops? Describe any oil yielding crop. | | CO 2 &CO3 |
| 4 | What are the economic importance of fiber and oil yielding plants? | | CO 2 &CO3 |

**Unit 3**

| Sl No | Questions | Max Marks | Related course outcome |
|---|---|---|---|
| 1 | Give economic importance of some medicinally important plants. | 10 | CO 4 &CO5 |
| 2 | Describe five medically important plants | | CO 4 &CO5 |
| 3 | Give morphological description and economic importance of any two spices | | CO 4 &CO5 |
| 4. | Give the medicinal values of *Opium, Cannabis, Azadiracta and Withania*. | | CO 4 &CO5 |
| 5. | Give a detailed account on *Rawolfia sominifera*. | | CO 4 &CO5 |

**Unit 4**

| Sl No | Questions | Max Marks | Related course outcome |
|---|---|---|---|
| 1. | Write down the uses of Beverages. | 10 | CO 5 & CO6 |
| 2. | Discuss the source of timber in India. | | CO 5 & CO6 |

| | | | |
|---|---|---|---|
| 3. | Botanical description, processing and uses of Beverages. | | CO 5 & CO6 |
| 4. | Explain the processing of sugarcane and Rubber. | | CO 5 & CO6 |
| 5. | Give general account and sources of bio-fuels | | CO 5 & CO6 |

| S.No | Classification | Name of the students |
|---|---|---|
| | **Slow learners (less than 50 %)** | Nisha |
| | **Actions taken** | |
| 1 | Remedial teaching | **yes** |
| 2 | Questions for practice | **yes** |
| 3 | Special guidance beyond college hour | **yes** |
| 4 | Trace out physical and mental problems if any | |
| 5 | Encourage even for small achievement | **yes** |
| 6 | Giving memory tip | |
| 7 | Review time to time | **yes** |
| | | |

| S.No | Classification | Name of the students |
|---|---|---|
| | **Average learners (51-75 %)** | Pooja, Seemon, Chirag |
| | **Actions taken** | |
| 1 | Motivate students | **yes** |
| 2 | Audio-visual aids | |
| 3 | Create confidence level in their interest areas | **yes** |
| 4 | Mind map | |

**Feedback on Curriculum**

Formats have been developed for the following stakeholders

1. Present / Current students
2. Students just passing out (Exit Interview)
3. Alumni
4. Parents
5. Industry based supervisors
6. Placement (campus recruiters)
7. Departmental Advisory Board