PROPOSED SYBSC SYLLABUS FOR ACADEMIC YEAR 2017-18

| Course Code | Title | Credits |
|--|---|----------------------------|
| USBO303 | CURRENT TRENDS IN PLANT SCIENCES I | 2 Credits (45 lectures) |
| Unit1: Pharmacognosy and phytochemistry Introduction to pharmacopoeia Indian pharmacopoeia, Indian Herbal Pharmacopoeia and Ayurvedic Pharmacopoeia Study of Monograph from pharmacopoeia Secondary Metabolites: Sources, properties, uses and adulterants, regional and seasonal variations Adulterants: Saraca asoca, Polyalthia longifolia Terminalia arjuna, Terminalia tomentosa Bacopa monnieri, Centella asiatica Abrus, Glycyrrhiza Phyllanthus amarus (Bhuiamla) | | 15 Lectures |
| Unit 2: Forestry and Economic Botany Forestry: Outline of types of forest in India Forestry: Agro-forestry, Urban forestry, organic farming, Silviculture Economic Botany: Types of fibers: Jute and cotton, Current trends in Fiber industries Spices and condiments: Saffron and cardamom Commercial market of spices | | 15 Lectures |
| Aromathera Jojoba, le Botanical an <i>Garcinia can</i> | y based on plant products py- Introduction, Uses with few examples. emon, jasmin d nutraceuticals - <i>Spirulina, Vanillin, Garcinia indica/</i> <i>nbogia, Chlorella,</i> and <i>Kale.</i> dustry: Cellulases, Papain, Bromelain | 15 Lectures |

SimaPillari

Dr. Seema Pillai I/C PRINCIPAL SMT. DEVKIBA MOHANSINHJI CHAUHAN COLLEGE OF COMMERCE & SCIENCE, SILVASSA



| | Semester III USBOP3 PRACTICAL - Paper III CURRENT TRENDS IN PLANT SCIENCES I | Cr 1 |
|---|---|------|
| 1 | Study of <i>Phyllanthus amarus</i> | |
| | Saraca asoka | |
| | Bacopa monieri | |
| 2 | Study of biodiversity | |
| | (Visit to National Park/ Botanical Garden) | |
| | Sources of : Fibres & Paper | |
| | Spices & condiments | |
| | Preparation of herbal cosmetics (Face pack/ De-tanning cream) | |
| 3 | Estimation of crude fibre in cereals & their products | |
| | | |
| 4 | Preparation & evaluation of probiotic foods | |
| 5 | Evaluation of nutraceutical value of mushroom/ wheat germ | |
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| Course Code | Title | Credits | |
|--|---|----------------------------|--|
| USBO403 | CURRENT TRENDS IN PLANT SCIENCES I | 2 Credits (45 lectures) | |
| | | (+5 10000105) | |
| Unit I : Horticulture and Gardening Introduction to Horticulture: Branches of Horticulture Gardening:15 Lecture• Locations in the garden- edges, hedges, lawn, flower beds, avenue, water garden (with names of two plants for each category). Focal point.15 Lecture• Types of garden o Formal and informal gardens o National Park: Sanjay Gandhi National Park. o Botanical Garden: Veer Mata JijabaiUdyan (Victoria15 Lecture | | | |
| Garden). <u>Unit II : Biotechnology</u> | | 15 Lectures | |
| • Introdu | | | |
| Labor culture | | | |
| | | | |
| Totip Organ | | | |
| o Org | an culture – root cultures, meristem cultures, her and pollen culture, embryo culture. | | |
| | R-DNA technology- | | |
| ○ Gene cloning | | | |
| Enzymes involved in Gene cloning Vectors used for Gene cloning. | | | |
| | 157 | | |
| Unit III : Biostatistics and Bioinformatics | | 15 Lectures | |
| Biostatistics: O The chi square test. | | | |
| o (| Correlation – Calculation of coefficient of correlation. | | |
| | prmatics \circ Information technology: History and | | |
| | IT, Internet and its uses. | | |

Introduction to Bioinformatics- goal, need, scope and limitation
 Aims of Bioinformatics: Data organization, Tools of Bioinformatics- tools for web search, Data retrieval tools- Entrez,
 BLAST
 Bioinformatics programme in India.

Semester III USBOP3 Cr 1 PRACTICAL - Paper III CURRENT TRENDS IN PLANT SCIENCES I

Horticulture

- 1 Study of five examples of plants for each of the garden locations as prescribed for theory
- 2 Preparation of garden plans formal and informal gardens
- 3 Bottle and dish garden preparation.

Biotechnology

- 4 Various sterilization techniques
- 5 Preparation of Stock solutions, Preparation of MS medium.
- 6 Seed sterilization, callus induction
- 7 Regeneration of plantlet from callus.
- 8 Identification of the cloning vectors pBR322, pUC 18, Ti plasmid.

Biostatistics and Bioinformatics

- 9 Chi square test
- 10 Calculation of coefficient of correlation
- 11 Web Search Google, Entrez.
- 12 BLAST