

Course Code	Title	Credits
USBO403	CURRENT TRENDS IN PLANT SCIENCES I	2 Credits (45 lectures)
<p><u>Unit I : Horticulture and Gardening Introduction to Horticulture:</u> Branches of Horticulture <u>Gardening:</u></p> <ul style="list-style-type: none"> • Locations in the garden- edges, hedges, lawn, flower beds, avenue, water garden (with names of two plants for each category). Focal point. • Types of garden <ul style="list-style-type: none"> ○ Formal and informal gardens ○ National Park: Sanjay Gandhi National Park. ○ Botanical Garden: Veer Mata JijabaiUdyan (Victoria Garden). 		15 Lectures
<p><u>Unit II : Biotechnology</u></p> <ul style="list-style-type: none"> • Introduction to plant tissue culture <ul style="list-style-type: none"> ○ Laboratory organization and techniques in plant tissue culture ○ Totipotency ○ Organogenesis ○ Organ culture – root cultures, meristem cultures, anther and pollen culture, embryo culture. • R-DNA technology- <ul style="list-style-type: none"> ○ Gene cloning ○ Enzymes involved in Gene cloning ○ Vectors used for Gene cloning. 		15 Lectures
<p><u>Unit III : Biostatistics and Bioinformatics</u></p> <ul style="list-style-type: none"> • Biostatistics: <ul style="list-style-type: none"> ○ The chi square test. ○ Correlation – Calculation of coefficient of correlation. • Bioinformatics ○ Information technology: History and tools of IT, Internet and its uses. 		15 Lectures

- 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	