

UNIVERSITY OF MUMBAI

No. UG/11 of 2017-18

CIRCULAR:-

The Principals of the affiliated Colleges in Science and the Directors of recognized Science Institutions concerned are hereby informed that in continuation syllabi relating to Bachelor of Science degree Course (S.Y.B.Sc) passed by the Academic Council at its meeting held on 26/2/2015, vide item No. 4.33 and proposal received from Chairperson, Board of Studies in Botany has been accepted by the Academic Council at its meeting held on 11th May, 2017 vide item no. 4.215 and that in accordance therewith, the revised syllabus as per the (CBCS) for S.Y.B.Sc Paper – III (Sem - III) Programme in the Course of Botany, which is available on the University's website (www.mu.ac.in) and that the same has been brought into force with effect from the academic year 2017-18.

MUMBAI – 400 032

२३ July, 2017


REGISTRAR

To,

The Principals of the affiliated Colleges in Science and the Directors of Recognized Institutions concerned.

A.C/4.215/11.05.2017

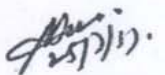
No. UG/ 11 -A of 2017

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२३ July, 2017

Copy forwarded with compliments for information to :-

- 1) The Co-ordinator, Faculty of Science,
- 2) The Offg. Director, Board of Examinations and Evaluation,
- 3) The Chairperson, Board of Studies in Botany,
- 4) The Director of Board of Studies Development,
- 5) The Professor-cum-Director, Institute of Distance and Open Learning.
- 6) The Co-Ordinator, University Computerization Centre.


REGISTRAR

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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 <ul style="list-style-type: none"> • 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: <i>Saraca asoca, Polyalthia longifolia</i> <i>Terminalia arjuna, Terminalia tomentosa</i> <i>Bacopa monnieri, Centella asiatica</i> <i>Abrus, Glycyrrhiza</i> <i>Phyllanthus amarus (Bhuiamla)</i> 		15 Lectures
Unit 2: Forestry and Economic Botany <ul style="list-style-type: none"> • 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
Unit 3: Industry based on plant products <ul style="list-style-type: none"> • Aromatherapy- Introduction, Uses with few examples. Jojoba, lemon, jasmin • Botanical and nutraceuticals -<i>Spirulina, Vanillin, Garcinia indica/ Garcinia cambogia, Chlorella</i>, and <i>Kale</i>. • Enzymes industry: Cellulases, Papain, Bromelain • Biofuels. 		15 Lectures

	Semester III USBOP3	Cr 1
PRACTICAL - Paper III CURRENT TRENDS IN PLANT SCIENCES I		
1	Study of <i>Phyllanthus amarus</i> <i>Saraca asoka</i> <i>Bacopa monieri</i>	
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	

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	