

UNIVERSITY OF MADRAS
B.Sc. DEGREE PROGRAMME IN PLANT BIOLOGY
AND PLANT BIOTECHNOLOGY
SYLLABUS WITH EFFECT FROM 2023-2024

SKILL ENHANCEMENT COURSES SEC 5
***ENTREPRENEURIAL SKILL**

ENTREPRENEURIAL OPPORTUNITIES IN BOTANY

Title of the Course		ENTREPRENEURIAL OPPORTUNITIES IN BOTANY					
Paper Number		Skill Enhancement-5					
Category	Elective	Year	II	Credits	2	Course Code	239S3B
		Semester	III				
Instructional Hours per week		Lecture		Tutorial		Lab Practi ce	Total
		2		-		-	2
Pre-requisite		To understand the concept of Entrepreneurial Opportunities in Botany.					
C1	To enable students to understand about establishment of various ventures after graduates in Botany using medicinal plants, Biotechniques and marketing of bioproducts.						
C2	To create a mindset among students to start their own companies for income generation.						
C3	The students may understand about various fields of botany.						
C4	To develop the concept of Entrepreneurial Opportunities in Botany.						
C5	Describe the new strategies to describe marketing and business management strategy.						
Course outcomes: On completion of this course, the students will be able to: CO	Programme Outcomes						
1. Relate to how various fields of botany could be understood with an entrepreneurial	K1						

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approach.	
2. Explain the concept of Entrepreneuria 1 Opportunities in Botany.	K2
3. Make of the knowledge gained to start new venture using Plant tissue culture and plant products for commercial exploitations	K3
4. Decipher effective ways of making bioproducts like organic acids, solvents, beverages, enzymes, antibiotics, mushrooms, biogas and etc.	K4
5. Develop new strategies to describe marketing and business management strategy including the role of IPR and bioethics regulations for licensing.	K5 & K6
UNIT	CONTENTS
I	INTRODUCTION TO ENTREPRENEURSHIP Introduction to Entrepreneurship, Scope and identification of new ventures using

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	plant resources, Mechanism of product selection and commercialization, General concept about the Govt. formalities, rules & regulation, Entrepreneurship skill development.
II	TOOLS AND TECHNIQUES Production of commercially viable plants through Plant tissue culture technique, Production of secondary metabolites, solvents, organic acids, beverages, enzymes, antibiotics.
III	NEW VENTURE CREATION Production of Biofertilizers, Vermicompost, Establishment of medicinal, herbal and zodiac gardens, Terrace & Kitchen garden, Spirulina and Azolla cultivation, Mushroom cultivation, Bonsai, Bouquet making, Terrarium.
IV	PRODUCT DEVELOPMENT AND COMMERCIALIZATION Product commercialization and business strategy, Dyes, Cosmetics and Perfumes, Gums, Resins & Latex, Areca Leaf Plates, cups & bags, Jute Products.
V	BIO-BUSINESS PLANS, IPR AND BIOETHICS Marketing and Business management strategy, Bank loan, Intellectual property rights, Patent laws - Bioethics and current legal issues, Marketing and public perceptions in product development – Technology licensing and branding concerns.
Extended Professional Component (is a part of internal component only, Not to be included in the External Examination question paper)	Questions related to the above topics, from various competitive examinations UPSC / TRB / NET / UGC – CSIR / GATE / TNPSC /others to be solved (To be discussed during the Tutorial hour)
Skills acquired from this course	Knowledge, Problem Solving, Analytical ability, Professional Competency, Professional Communication and Transferrable Skill

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Recommended Texts	<ol style="list-style-type: none"> 1. Gurinder Shahi. 2004. Bio-Business in Asia: How countries Can Capitalize on the Life Science Revolution, Pearson Prentice Hall, New Delhi, India. 2. Karthikeyan, S. and Arthur Ruf. 2009. Biobusiness, MJP Publications. Chennai, India. 3. Richard Oliver. 2000. The coming Biotech age: The Business of Biomaterials, McGraw Hill Publications, New York, USA. 4. Adams, C.R. Banford, K.M. and Early, M.P. 1993. Principles of Horticulture. 5. Sathe, T.V. 2004. Vermiculture and Organic farming, Daya Publishers.
Reference books	<ol style="list-style-type: none"> 1. Robin Lowe and Sue Marriott 2009. Enterprise: Entrepreneurship and Innovation: Concepts, Contexts and Commercialization, Routledge Publisher, London, UK. 2. Peter F. Drucker, 2009. Innovation and Entrepreneurship, Harper Collins Publisher, New York, US. 3. Russell, T. 2012. Nature Guide: Trees: The world in your hands (Nature Guides). Mukherjee D. Gardening in India, Oxford IBH publishing co, New Delhi. 4. Kumar, N. 1997. Introduction to Horticulture, Rajalakshmi Publications, Nagercoil. 5. Webster, J and Weber, R. 2007. Introduction to Fungi, 3rd Ed. Cambridge University Press, Cambridge
Web sources	<ol style="list-style-type: none"> 1. https://www.brainkart.com/article/Entrepreneurial-Botany_38321/ 2. https://www.youtube.com/watch?v=hnBla1FfcLo 3. https://www.slideshare.net/krishnashah5891004/ram-power-point-presentation 4. http://www.brainkart.com/article/Economically-Useful-Plants-and-Entrepreneurial-Botany_38301 5. https://www.ebooks.com/en-us/subjects/gardening/ 5. https://www.amazon.in/Preservation-Techniques-Publishing-Technology-Nutrition-ebook/dp/B00RXCXB3Q

Mapping with Programme Outcomes:

COs	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	3	1	1	2	1	2	2	1	2
CO 2	3	3	2	2	3	1	2	3	1	2

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CO 3	2	2	3	1	2	2	1	3	2	1
CO 4	3	3	1	2	3	2	3	3	2	3
CO 5	3	3	2	3	1	3	3	3	3	3

S-Strong (3)

M-Medium (2)

L-Low(1)