Semester	Course Code	Course Category	Hours /Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	24UBOVAC1	Value Added Course - I	30	-	-	100	100
Course Title	**Entrepreneurial Botany**						

SYLLABUS		
Unit	**Contents**	**Hours**
I	*Spirulina* - Scope and importance. Morphology, cultivation, harvesting and post harvesting methods. Uses and their value added products.	6
II	Mushroom – *Pleutorus* – spawn selection and preparation. Mushroom bed preparation, harvesting and storage techniques. Mushroom uses and their value added products.	6
III	*Azolla* - Selection of species, pit preparation, multiplication, harvesting and post harvesting techniques and their uses.	6
IV	Drumsticks, banana and coconut and their value added products. Neutraceuticals. Bamboo and cane based products.	6
V	Role of organization and agencies: Understanding a market and assessment. Government schemes. Role of TIIC, DIC, NABARD, TANSIDCO and SARVODAYA. SWOC analysis. Business planning, export and import license.	6

Text Books(s):

1. Priya L, Jay BP, Abhyudaya S and Khodade H (2023). *Spirulina* Farming: A Practical Guide for Entrepreneurship. Book Saga Publications, Maharashtra, India. ASIN : B0BYF6N86S
2. Singh R and Singh UC (2011). Modern Mushroom Cultivation. Agrobios, Jodhpur, India. ISBN: 9788177542356

Reference Book(s):

1. Priya L, Kamal Kant P (2022). Botanical Entrepreneurship. Book Saga Publications, Maharashtra, India. ASIN :B09XHPKHK4
2. Sharma OP (2015). Plants for Human Welfare. Pragati Prakashan Educational Publishers, Meerut, India. ISBN: 935140444-7

Web Resources(s):

1. https://www.agrifarming.in/spirulina-training-centers-institutes-in-india
2. https://agritech.tnau.ac.in/farm_enterprises/Farm%20enterprises_%20Mushroom.html
3. http://tinyurl.com/y4f3amsp
4. http://coirboard.gov.in/?page_id=71
5. http://tinyurl.com/nhep8ucb

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Develop innovative ideas to exploit the economically useful macro and microorganisms for commercial purposes.	K3
CO2	Appraise the harvest and post-harvest technology for bioventure.	K3
CO3	Analyse and interpret the significance of value added products.	K4
CO4	Inculcate entrepreneurial values of botany for starting a new business.	K2
CO5	Recognize the importance of government agencies for entrepreneurship development.	K1

Course Coordinator: **Dr. N. Ahamed Sherif**

Abbreviations:

1. TIIC – Tamil Nadu Industrial Investment Corporation Limited
2. DIC – District Industries Centre
3. NABARD – National Bank for Agriculture and Rural Development
4. TANSIDCO – Tamil Nadu Small Industries Development Corporation Limited
5. SWOC – Strength Weakness Opportunities Challenges.

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
V	24UBOVAC2	Value Added Course - II	30	-	-	100	100
Course Title	**Organic Farming**						

SYLLABUS		
Unit	**Contents**	**Hours**
I	Concepts and principles of organic farming. Key indicators of sustainable agriculture, organic farming and climate change.	6
II	Input management: compost production, vermicomposting, Compost quality, Compost utilization and marketing.	6
III	Organic crop management: Plant protection measures, biopesticides, natural predators, cultural practices of field crops (rice and groundnut), horticulture (Mango) and plantation crops (Tea).	6
IV	Transition to organic agriculture - methods, Crop planning and rotation design for organic system, Integrated farming system and urban agriculture.	6
V	Quality of organic foods, natural source of antioxidants for health defence, Antioxidant capacity of fruits and vegetables. Organic food for human health, Standards of organic food and marketing.	6

*For Theory Core Course, wherever possible.

Activities:

- Preparation of Biocompost
- Preparation of Vermicompost
- Visit the organic farm nearby and get the practical exposure

Text Book(s):

1. Bansal M. 2020. Basics of Organic Farming. CBS publishers and distributors Pvt. Ltd, India, 1-270
2. Avi A and Batra V. 2023. Organic Farming in India: Evolution, Current Status and Policy Perspectives. Space and Culture, India, *11*(2), 18–34.

Reference Book(s):

1. Somasundaram E, Nandhini D.U and Meyyappan M. 2019. Principles of Organic Farming. New India Publishing Agency - Academic and Scientific Book Publishers, India, 1- 412.
2. Krishnamurthi K.K. 2016. Organic Agriculture for Sustainability, Notion Press, India, 1-384**.**

Web Resource(s)

1. https://nptel.ac.in/courses/126105014
2. https://agritech.tnau.ac.in/org_farm/orgfarm_introduction.html

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	**CO Statement**	**Cognitive Level (K-Level)**
CO1	Understand the principle importance of organic farming for sustainable agriculture	K2
CO2	Develop the various compost for organic agriculture	K3
CO3	Illustrate the plant protection measures for crop cultivation	K4
CO4	Evaluate the organic agricultural practices to enhance the crop productivity	K4
CO5	Analyse the quality of organic vegetables and fruits for human health	K3

Course Coordinator: **Dr. R. Radhakrishnan**

Semester	Course Code	Course Category	Hours / Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	24PBOVAC1	Value Added Course	30	-	-	100	100
Course Title	**GLOBAL CLIMATE CHANGE**						

Syllabus		
Unit	**Contents**	**Hours**
I	Global Environmental change issues. UNFCC, IPCC, Koyoto protocol, CDM, Carbon footprint, ecological footprint and role of trees for carbon sequestration.	6
II	Stratospheric ozone layer: Evolution of ozone layer; Causes of depletion and consequences; Effects of enhanced UV-B on plants, microbes, animals, human health and materials; Global efforts for mitigation ozone layer depletion.	6
III	Climate change: Green house effects; causes; Green-house gases and their sources; Consequences of climate, oceans, agriculture, natural vegetation and humans; International efforts on climate change issues.	6
IV	Atmospheric deposition: Past and present scenario; Causes and consequences of excessive atmospheric deposition of nutrients and trace elements; Eutrophication.	6
V	Acid rain and its effects on plants, animals, microbes and ecosystems.	6

*For theory Core Course, wherever possible.

Laboratory activities (Cognitive Level K6)

1. Demonstration to calculate Green House Emission by our regular activities
a) Household b) Water consumption c) Travel d) Waste management
2. Determination of Available Organic Carbon content in the Soil
3. Estimation of Biomass using Normalize Vegetation Difference Index (NDVI) using Satellite Data
4. Estimation of Biomass using Enhanced Vegetation Index (EVI) using Satellite Data.

Theoretical Activities (Assignment) (Cognitive Level K6)

1. Evaluate different plastic usage (Products, size and degradation) and methods of methods to prepare degradable plastic preparation
2. Analysis the crop residue burning by different states in India
3. Composition of Municipal Soil Waste and methods of recycling by various municipalities in Tamil Nadu.

Text Book(s):

1. Adger, N. Brown, K and Conway, D. 2012. Global Environmental Change: Understanding the Human Dimensions. The National Academic Press.
2. Turekian. K. K. 1996. Global Environmental Change-Past, Present, and Future. Prentice-Hall.
3. Eugene Odum, 2017. Fundamentals of Ecology 5th Ed. Cengage, Bengaluru.
4. Sharma P.D. 2019. Plant ecology and phytogeography, Rastogi Publications, Meerut.
5. Neeraj Nachiketa. 2018 Environmental & Ecology A Dynamic approach. 2nd Edition GKP Access Publishing

Reference Book(s):

1. Matthew. R.A. 2009. Jon Barnett, Bryan McDonald. Global Environmental Change and Human Security. MIT Press., USA.
2. Hester, R.E and Harrison, R.M. 2002. Global Environmental Change. Royal Society of Chemistry.
3. Keddy, P.A. 2017. Plant Ecology: Origins, processes, consequences. 2nd ed. Cambridge University Press. ISBN. 978-1107114234.
4. Krishnamurthy, K.V. 2004. An Advanced Text Book of Biodiversity- Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi.
5. Kormondy, E.J. 2017. Concepts of Ecology. Prentice Hall, U.S.A. 4th edition.

Web Resource(s):

1. https://www.ebooks.com/en-us/subjects/the-environment-climate-change-ebooks/2074/
2. http://www.ebooks-for-all.com/bookmarks/detail/Climate-Change/onecat/Electronic-books+Environment-and-nature/0/all_items.html
3. https://www.smashwords.com/books/category/4727/newest/0/free/any
4. https://www.free-ebooks.net/environmental-studies-academic/Global-Warming
5. https://www.nap.edu/catalog/14673/climate-change-evidence-impacts-and-choices-pdf-booklet

CO No.	Course Outcomes	Cognitive Level (K-level)
CO1	Understand the global environmental issues pertaining to climate change	K2
CO2	Analyze the impact of ozone layer depletion due to biotic factors	K4
CO3	Analyze the climate change effect on vegetation and human	K4
CO4	Evaluate the impact of atmospheric deposition	K5
CO5	Evaluate impact of acid rain	K5

Course Coordinator: **Dr. B. Balaguru**