

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23UBTVAC1	VALUE ADDED COURSE	40	-	25	75	100
Course Title		BIOGARDENING					

SYLLABUS		
UNITS	CONTENT	HOURS
I	Fundamentals of kitchen/rooftop gardening design and maintenance: Gardening tools, size of garden, purpose, kitchen or rooftop garden site selection, preparation, containers, selection of plants and seedlings.	8
II	Importance of Soil and Manure: Soil types, pH, Water holding capacity, Loam, farmyard manure, vermicompost, compost, cocopeat, vermiculite perlite, clay balls, potting mixture preparation.	8
III	Seedling production and preparation for vegetable garden: Seed structure, types of seeds, seed viability, germination, nursery, transplanting, study of cultivation of different vegetables, tomato, green chillies, brinjal, lady's finger, onion, garlic, spinach, fenugreek.	8
IV	Kitchen garden for herbs: Mint, thyme, basil, coriander, celery, holy basil, lemon grass, exotic vegetables.	8
V	Sustainable gardening: Hydroponics, Aquaponics, aeroponics, Recycling, Production for self, business plan and marketing.	8

Text Book(s):
<ol style="list-style-type: none"> 1. Sheets, P., Dixon, C., Guerra, M., & Blanford, A. Manioc cultivation at Ceren, El Salvador: occasional kitchen garden plant or staple crop? <i>Ancient Mesoamerica</i>, 22(1), 1-11, 2011. 2. Neilson, B. Ford's biopolitics: great trade route and the philosophy of the kitchen garden. <i>Ford's Biopolitics: Great Trade Route and the Philosophy of the Kitchen Garden</i>, 1000-1005, 2002. 3. Yerima, B. P., & Van Ranst, E. Introduction to soil science: Soils of the tropics. Trafford publishing (2005).
Reference Book(s):
<ol style="list-style-type: none"> 1. Baskin, C. C., & Baskin, J. M. Seeds: ecology, biogeography, and, evolution of dormancy and germination Elsevier, 1998. 2. Agarwal, V. K., & Sinclair, J. B. Principles of seed pathology. Crc Press, 1996. 3. Yamaguchi, M. World vegetables: principles, production and nutritive values. Springer Science & Business Media, 2012.
Web Resource(s):
<ol style="list-style-type: none"> 1. https://www.gardendesign.com/how-to/tools.html 2. https://agritech.tnau.ac.in/org_farm/orgfarm_vermicompost.html 3. http://deskuervis.nic.in/pdf/LEAFLET.pdf

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	CO Statement	Cognitive Level (K-Level)
C01	Enhance and appraise the knowledge gardening requirements and design	K5
C02	Analyse the different soil types and manure suitable for gardening.	K4
C03	Study about the types, structure and germination patterns of various vegetable seedlings and their cultivation.	K4
C04	Study about the types, structure and germination patterns of various vegetable seedlings and their cultivation.	K4
C05	Create a system for developing sustainable produce for marketing and small scale business development.	K6

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	
C01	3	3	1	3	2	3	1	2	2	2	2.2
C02	3	3	1	3	2	3	1	2	2	2	2.2
C03	3	3	3	3	2	3	1	2	2	2	2.4
C04	3	3	3	3	2	3	1	2	2	2	2.4
C05	3	3	2	3	3	3	1	2	2	2	2.3
Mean Overall Score											2.3
Correlation											Medium

COURSE COORDINATOR: MS. S. GEET ANDREA

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
V	23UBTVAC2	VALUE ADDED COURSE	40	-	25	75	100
Course Title		SOILD WASTE MANAGEMENT					

SYLLABUS		
Unit	Contents	Hours
I	Fundamentals of kitchen/rooftop gardening design and maintenance: Gardening tools, size of garden, purpose, kitchen or rooftop garden site selection, preparation, containers, selection of plants and seedlings	8
II	Importance of Soil and Manure: Soil types, pH, Water holding capacity, Loam, farmyard manure, vermicomposting, compost, cocopeat, vermiculite, perlite, clay balls, potting mixture preparation.	8
III	Seedling production and preparation for vegetable garden: Seed structure, types of seeds, seed viability, germination, nursery, transplanting, study of cultivation of different vegetables, tomato, green chillies, brinjal, lady's finger, onion, garlic, spinach, fenugreek.	8
IV	Kitchen garden for herbs: Mint, thyme, basil, coriander, celery, holy basil, lemon grass, exotic vegetables	8
V	Sustainable gardening: Hydroponics, Aquaponics, Aeroponics, Recycling, Production for self, business plan and marketing	8

Text Book(s):
1. Dr. R. Saravanan, R. Dinesh Kumar, A.Suriya, Municipal Soild Waste Management, Lakshmi Publication, 2013. 2. Keshav Singh, Gorakh Nath, Rabish Chandra Shukla. A Textbook of Vermicompost: Vermiwash and Bio pesticides, Biotech Books (Publisher), 2014. 3. Dr. Himadri Panda, Technology Book on Vermiculture and Vermicompost (Earthworm) with Manufacturing Process, Machinery Equipment Details & Plant Layout 2nd Edition, 2022.
Reference Book(s):
1. Ashok Pandey, Mukesh Awasthi & Zengqiang Zhang. Current Developments in Biotechnology and Bioengineering, Advances in Composting and Vermicomposting Technology, 2022. 2. Tchobanoglous, G., Theisen, H. and Vigil, S.A. (1993) Integrated Solid Waste Management: Engineering Principle and Management Issue. McGraw Hill Inc., New York.
Web Resource(s):
1. https://www.envis.org/technology/87-swm/manual-on-municipal-solid-waste-management/267-classification-of-solid-wastes . 2. https://www.sciencedirect.com/science/article/pii/S1110062118301375 . 3. https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/solid-wastes .

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	CO Statement	Cognitive Level (K-Level)
C01	Enhance and appraise the knowledge on the classification, Sources, Causes, Effects and pollution of solid waste.	K5
C02	Apply the waste reduction solutions for solid waste management.	K3
C03	Study about Earthworm, its Life Cycle, Features and Classification.	K4
C04	Investigate the Role of enzymes and Microbes involved in Vermicomposting process.	K4
C05	Create a system for managing waste and manure.	K6

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of COs
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	
C01	3	3	1	3	2	3	1	2	2	2	2.2
C02	3	3	1	3	2	3	1	2	2	2	2.2
C03	3	3	3	3	2	3	1	2	2	2	2.4
C04	3	3	3	3	2	3	1	2	2	2	2.4
C05	3	3	2	3	3	3	1	2	2	2	2.3
Mean Overall Score											2.3
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

COURSE COORDINATOR: MS. M. HABIBUNISHA

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	23PBTVAC1	VALUE ADDED COURSE	40	-	25	75	100
Course Title		FORENSIC SCIENCE					

SYLLABUS		
Unit	Contents	Hours
I	Forensic Examination of Body and Semen Fluids: Molecular mechanisms for identification of the evidences from the criminal.	8
II	Forensic Examination of Hair: Molecular mechanisms for identification of the evidences from the criminal.	8
III	Forensic Examination of Nail: Molecular mechanisms for identification of the evidences from the criminal.	8
IV	Forensic Examination of Tissue: Molecular mechanisms for identification of the evidences from the criminal.	8
V	Techniques and Applications: New and future technologies - *DNA chips*- SNPs and limitations of DNA profiling. Application of forensic science in various fields.	8

Text Book(s):
1. Dr. Rukmani Krishnamurthy. Introduction to Forensic Science in Crime Investigation. Selective and scientific books publishers and distributors, New Delhi. 2005. 2. LT. Kirby, DNA Fingerprinting Technology. Palgrave Macmillan UK. 2009. 3. Evgeny Katz, Jan Halamek. Forensic Science in Criminal Investigation and Trials. 6 th Edition, 2020.
Reference Book(s):
1. B.S. Nabar, Forensic Science in crime investigation. 3 rd edition, 2019. 2. Dr. S.R. Myneni, Forensic Science, first edition, 2019.
Web Resource(s):
1. https://en.wikipedia.org/wiki/Forensic_science . 2. https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/forensic-sciences .

Course Outcomes		
Upon successful completion of this course, the student will be able to:		
CO No.	CO Statement	Cognitive Level (K-Level)
C01	Discuss about the working and functioning of Forensic science laboratories.	K6
C02	Elaborate the crime science its role in criminal investigation and Prevention of crime.	K6
C03	Examine how the Principles of Forensic science used to solve criminal cases.	K4
C04	Solve the different cases and how they used to solve the criminal cases.	K5
C05	Apply the Laboratory skills to participate in the career needs of Forensic community and work with different R&D organizations.	K6

Relationship Matrix:

Course Outcomes (COs)	Programme Outcomes (POs)					Programme Specific Outcomes (PSOs)					Mean Score of Cos
	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	
C01	3	3	3	3	2	3	3	3	3	3	2.6
C02	3	2	2	3	2	2	2	2	3	2	2.3
C03	3	3	3	2	2	3	2	2	2	2	2.4
C04	3	3	3	3	2	3	2	2	2	2	2.5
C05	3	3	2	3	2	2	2	2	2	2	2.3
Mean Overall Score											2.42
Correlation											Medium

Mean Overall Score	Correlation
< 1.5	Low
≥ 1.5 and < 2.5	Medium
≥ 2.5	High

COURSE COORDINATOR: Dr. S. DEBORAH