Skill Enhancement Course
For Semester II

Semester	Course Code	Course Title	Contact Hrs per Week			Credits	Weightage (%)		
			L	T	P		CWS	MTE	ETE
(Select Any One)									
II	**24BSC6201T**	Waste Management and Recycling	3	0	0	**3**	10	20	70
	24BSC6202T	Organic Farming	3	0	0	**3**	10	20	70
	24BSC6203T	Remote Sensing and GIS	3	0	0	**3**	10	20	70

Course Title:	**Waste Management and Recycling**	**Course Code: 24BSC6201T**
Total Lecture hour: 45		**Hours**
Unit I	Introduction to waste: Problem of Wastes, Types of Solid Waste, Categories of solid waste, Effects of Excess Waste Generation, Waste Characterisation.	**10**
Unit II	Source Reduction Solid Waste Reduction, Waste reduction strategies - How to Start a Waste Reduction Program Guideline, Economic benefits of Waste Reduction, Operation on a daily basis	**12**
Unit III	Waste Analysis and Waste Audit Introduction to Terminology of Waste, Waste Analysis, Introduction to Waste Audit, Checklist for performance audit in Waste Collection, Segregation, Transport, Treatment.	**11**
Unit IV	Recycle and Reuse of Waste: Re-use, General Process of Recycling, Precautions for Recycling –Aluminium, Glass, Precautions while Recycling of Plastics, Precautions while Recycling paper Amplifying benefits from waste	**12**

Reference and Reading Books:

1. Internal Waste Audit: A Best Practices, Guidehttps://www.partnersinprojectgreen.com/resources/internal-waste-audit-a-best-practices-guide
2. Hester, R. E. and R. M. Harrison, (2002). Environmental and health impact of solid waste management activities. Cambridge: The Royal Society of Chemistry.
3. Misi, S. N and Forster, C.F (2002). "Semi-Continuous Anaerobic Co Digestion of Agro-Waste," Environmental Technology, Vol. 23, No. 1, 2002, pp. 445-451.
4. Text book of Solid Wastes Management by Naved Ahsan & Iqbal H.khan.
5. Solid Waste Management of Municipalities Dr P.S Ajith & Dr P.N. Hari Kumar
6. Solid Waste Management - Present and Future Challenges - Jagbir Singh & AL Ramanathan

Course Title:	**Organic Farming**	**Course Code: 24BSC6202T**
Total Lecture hour: 45		**Hours**
Unit I	Concept of organic farming: Introduction, Farming, organic farming, concept and development of organic farming, Principles of organic farming, Types of organic farming, Biodynamic farming, Benefits and Need of organic farming. Conventional farming v/s organic farming, Scope of organic farming. Agencies and institutions related to organic agriculture.	13
Unit II	Organic plant nutrient management: Organic farming systems, Soil tillage, Land preparation and mulching, Choice of varieties,	13

	Propagation-seed, planting materials and seed treatments, Water management, Green manuring, Composting- principles, stages, types and factors, Composting methods, Vermicomposting, Bulky organic manures, Concentrated organic manures, Organic preparations, Organic amendments and sludges, biogas, Bio-fertilizers- methods of application, advantages and disadvantages.	
Unit III	Organic plant protection Plant protection- cultural, mechanical, botanical pesticides, bio pesticide, Weed management Standards for organic inputs- plant protection.	8
Unit IV	Farm economy: Basic concept of economics- Demand, supply, Economic Viability of a farm, Basic production principles, Reducing expenses, ways to increase returns, Cost of production system, Benefit/ cost ratio, Marketing, Imports and exports, Policies and incentives of organic production, Farm inspection and certification.	11

Reference and Reading Books:

1. Lampkin, N & Measures, M (2004) 2004 Organic Farm Management Handbook. Organic Farming Research Unit, Aberystwyth (ISSN 1354 3768) & Organic Advisory Service, Berkshire (ISBN 1 872 064 388)
2. Kristensen, P., Taji, A. and Reganold, J. (2006). Organic Agriculture: A Global Perspective.CSIRO Press, Victoria, Australia.
3. Bavec, F. and Bavec, M. (2007). Organic Production and Use of Alternative Crops.CRC Press, Boca Raton, FL.

Course Title:	**Remote Sensing and GIS**	**Course Code: 24BSC6203T**

Total Lecture hour: 45		**Hours**
Unit I	Global positioning System:- What is GPS, elements, How does GPS Work, Basic principles of satellite navigation; Determining position, The GPS System, Satellite Signals, The GPS message, wide area DGPS introduction.	13
Unit II	Remote Sensing aerial photography:- Air photo/Image interpretation, Element of Air Photo, Basic of Arial Photography, Camera systems, Air photo geometry, Air photo Scale, Area measurement with GIS.	13
Unit III	Remote Sensing Sensors:-Satellite and Sensors, Scanning Systems, Multi spectrual System, Orbits and Swaths, History and development of Remote Sensing.	8
Unit IV	Geographical Information System:- Introduction, Concept, Data Sources, Rostar data & Vector data, Digital Elevaton model (DEM), QGIS Application open source, Geo Referencing of Satellite Imagery.	11

Reference and Reading Books:

1. Devi Datt Chuniyal (2024). Sudur Sanvedan Tatha Bhogolik Suchna Pranali. Sharda Pustak Bhawan, Prayagraj.
2. Shahab Fazal (2008) Remote Sensing Basics, Kalyani Publication, New Delhi.
3. Basudeb Bhatta (2021) Remote Sensing and GIS. Oxford, UK.