


## Skill Enhancement Course


Semester	Course Code	Course Title	Contact Hrs per Week			Credits	Weightage (%)		
			L	T	P		CWS	MTE	ETE
(Select Any One)									
II	24BSC5201T	Waste Management and Recycling	3	0	0	3	10	20	70
	24BSC5202T	Organic Farming	3	0	0	3	10	20	70
	24BSC5203T	Remote Sensing and GIS	3	0	0	3	10	20	70

<b>Course Title:</b>	<b>Waste Management and Recycling</b>	<b>Course Code:</b>	<b>24BSC5201T</b>
<b>Total Lecture hour: 45</b>			
<b>Unit I</b>	Introduction to waste: Problem of Wastes, Types of Solid Waste, Categories of solid waste, Effects of Excess Waste Generation, Waste Characterisation.	<b>Hours</b>	
<b>Unit II</b>	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	<b>10</b>	
<b>Unit III</b>	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.	<b>12</b>	
<b>Unit IV</b>	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	<b>11</b>	
<b>Reference and Reading Books:</b>			
<ol style="list-style-type: none"> <li>1. Internal Waste Audit: A Best Practices, Guide <a href="https://www.partnersinprojectgreen.com/resources/internal-waste-audit-a-best-practices-guide">https://www.partnersinprojectgreen.com/resources/internal-waste-audit-a-best-practices-guide</a></li> <li>2. Hester, R. E. and R. M. Harrison, (2002). Environmental and health impact of solid waste management activities. Cambridge: The Royal Society of Chemistry.</li> <li>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.</li> <li>4. Text book of Solid Wastes Management by Naved Ahsan &amp; Iqbal H.khan.</li> <li>5. Solid Waste Management of Municipalities Dr P.S Ajith &amp; Dr P.N. Hari Kumar</li> <li>6. Solid Waste Management - Present and Future Challenges - Jagbir Singh &amp; AL Ramanathan</li> </ol>			

  
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Course Title:	Organic Farming	Course Code: 24BSC5202T
<b>Total Lecture hour: 45</b>		<b>Hours</b>
<b>Unit I</b>	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
<b>Unit II</b>	Organic plant nutrient management: Organic farming systems, Soil tillage, Land preparation and mulching, Choice of varieties, 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.	13
<b>Unit III</b>	Organic plant protection Plant protection- cultural, mechanical, botanical pesticides, bio pesticide, Weed management Standards for organic inputs- plant protection.	8
<b>Unit IV</b>	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
<b>Reference and Reading Books:</b>		
<ol style="list-style-type: none"> <li>Lampkin, N &amp; Measures, M (2004) 2004 Organic Farm Management Handbook. Organic Farming Research Unit, Aberystwyth (ISSN 1354 3768) &amp; Organic Advisory Service, Berkshire (ISBN 1 872 064 388)</li> <li>Kristensen, P., Taji, A. and Reganold, J. (2006). Organic Agriculture: A Global Perspective. CSIRO Press, Victoria, Australia.</li> <li>Bavec, F. and Bavec, M. (2007). Organic Production and Use of Alternative Crops. CRC Press, Boca Raton, FL.</li> </ol>		

Course Title:	Remote Sensing and GIS	Course Code: 24BSC5203T
<b>Total Lecture hour: 45</b>		<b>Hours</b>
<b>Unit I</b>	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
<b>Unit II</b>	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
<b>Unit III</b>	Remote Sensing Sensors:-Satellite and Sensors, Scanning Systems, Multi spectral System, Orbits and Swaths, History and development of Remote Sensing.	8
<b>Unit IV</b>	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
<b>Reference and Reading Books:</b>		
<ol style="list-style-type: none"> <li>Devi Datt Chuniyal (2024). Sudur Sanvedan Tatha Bhogolik Suchna Pranali. Sharda Pustak Bhawan, Prayagraj.</li> <li>Shahab Fazal (2008) Remote Sensing Basics, Kalyani Publication, New Delhi.</li> <li>Basudeb Bhatta (2021) Remote Sensing and GIS. Oxford, UK.</li> </ol>		

  
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