

**WASTE LAND DEVELOPMENT (PEC-I)**

Course Code	<b>21AG644</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	(3:0:0:0)	SEE Marks	50
Total Hours of Teaching-Learning Process	40	Total Marks	100
Credits	03	Exam Hours	03

**Course Objectives:**

- To impart knowledge on concept and causes of land degradation, assessment of land degradation and wasteland development.
- To study about socio-economic perspectives of sustainable wasteland development, government policies and participatory approach.

**Teaching-Learning Process (General Instructions)**

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Adopt different types of teaching methods to develop the outcomes through PowerPoint presentations and Video demonstrations or Simulations.
2. Chalk and Talk method for Problem Solving.
3. Arrange visits to show the live working models other than laboratory topics.
4. Adopt collaborative (Group Learning) Learning in the class.
5. Adopt Problem Based Learning (PBL), which fosters students Analytical skills and develops thinking skills such as evaluating, generalizing, and analyzing information.

<b>Module-1</b>	
Land degradation – concept, classification - arid, semiarid, humid and sub-humid regions, denuded range land and marginal lands and assessment. Wastelands - factors causing, classification and mapping of wastelands, planning of wastelands development - constraints, agro-climatic conditions, development options, contingency plans.	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. PowerPoint Presentation</li> <li>2. Chalk and Talk are used for Problem Solving (In-general)</li> <li>3. Video demonstration or Simulations</li> <li>4. Laboratory Demonstrations and Practical Experiments</li> </ol>
<b>Module-2</b>	
Conservation structures - gully stabilization, ravine rehabilitation, sand dune stabilization, water harvesting and recycling methods. Afforestation - agro-horti-forestry-silvipasture methods, forage and fuel crops - socioeconomic constraints.	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. PowerPoint Presentation</li> <li>2. Chalk and Talk are used for Problem Solving (In-general)</li> <li>3. Video demonstration or Simulations</li> <li>4. Laboratory Demonstrations and Practical Experiments</li> </ol>
<b>Module-3</b>	
Shifting cultivation, optimal land use options. Wasteland development – hills, semi-arid, coastal areas, water scarce areas, reclamation of waterlogged and salt-affected lands.	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. PowerPoint Presentation</li> <li>2. Chalk and Talk are used for Problem Solving (In-general)</li> <li>3. Video demonstration or Simulations</li> <li>4. Laboratory Demonstrations and Practical Experiments</li> </ol>
<b>Module-4</b>	
Mine spoils- impact, land degradation and reclamation and rehabilitation, slope stabilization and mine environment management, Micro-irrigation in wastelands development.	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. PowerPoint Presentation</li> <li>2. Chalk and Talk are used for Problem Solving (In-general)</li> <li>3. Video demonstration or Simulations</li> <li>4. Laboratory Demonstrations and Practical Experiments</li> </ol>
<b>Module-5</b>	
Sustainable wasteland development - drought situations, socio-economic perspectives. Government policies. Participatory approach. Preparation of proposal for wasteland development and benefit-cost analysis.	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1. PowerPoint Presentation</li> <li>2. Chalk and Talk are used for Problem Solving (In-general)</li> <li>3. Video demonstration or Simulations</li> <li>4. Laboratory Demonstrations and Practical Experiments</li> </ol>
<b>Course outcome (Course Skill Set)</b> At the end of the course the student will be able to : <ol style="list-style-type: none"> <li>1. Impart knowledge on concept and causes of land degradation, assessment of land degradation and wasteland development.</li> <li>2. Study about socio-economic perspectives of sustainable wasteland development, government policies and participatory approach.</li> <li>3. Recognize importance of watershed.</li> <li>4. To understand the Geomorphology of watershed and watershed management</li> <li>5. Be proficient about the Integrated watershed management practices</li> <li>6. Formulation of project proposal for watershed management programme</li> </ol>	



**Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% ( 18 Marks out of 50) in the semester-end examination(SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

**Continuous Internal Evaluation:**

Three Unit Tests each of **20 Marks (duration 01 hour)**

1. First test at the end of 5<sup>th</sup> week of the semester
2. Second test at the end of the 10<sup>th</sup> week of the semester
3. Third test at the end of the 15<sup>th</sup> week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4<sup>th</sup> week of the semester
5. Second assignment at the end of 9<sup>th</sup> week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks (duration 01 hours)**

6. At the end of the 13<sup>th</sup> week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

**CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.**

**Semester End Examination:**

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours**)

1. The question paper will have ten questions. Each question is set for 20 marks.
2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

The students have to answer 5 full questions, selecting one full question from each module

**Suggested Learning Resources:****Books**

1. Panda S.C., 2007. Soil water conservation and dry farming. Agrobiospublishers. India
2. Jat M. L., Bhakar, S.R., Sharma, S.K. and Khotari, A.K. 2013. Dry land technology. Scientific publishers., Jhodpur
3. Mahnot, S.C., Songh P. K. and Chaplot P.C. (2012). Soil and water conservation & Watershed Management. Apex Publishing House., Udaipur .
4. Suresh , R.,2014. Soil and water conservation Engineering. Standard Publishers Distributors Delhi.
5. Michael A. M. 2012. Irrigation: Theory and Practice. Vikas Publishing Vikas Publ. House New Delhi.
6. Chaudhuri., A.B., 1992, Mine environment and management: An Indian Scenario. Ahsih publishing house. Newdelhi.
7. Jaume Bech., Claudio Bini and Mariya A Pashkevich.,2017. Assessment, Restoration and Reclamation of Mining Influenced Soils. Candice Janco – Elseveir publisher., UK.
8. Shankaranarayan.K.A.,1962.Wasteland Development and Their Utilisation, Scientific Publishers, Jodhpur
9. Karthikeyan, C., K. Thangaraja, C. Cinthia Fernandez and K. Chandrakandon. 2009. Dryland Agriculture and Wasteland Management. Atlantic Publishers and Distributors Pvt. Ltd., New Delhi.

**Web links and Video Lectures (e-Resources):**

  
**H.O.D.**

**Dept. of Agricultural Engineering**  
**Alva's Institute of Engg. & Technology**  
**Mijar, Moodubidire - 574225**