Syllabus for B.Sc. (Hons) Agriculture Year – I (Sem. II)

Subject Code: 16AS0212

Subject Short Name: Ag. Met. 2.1

Subject Name: Environmental Studies and Disaster Management

Objective:

1. To expose and acquire knowledge on the environment and to gain the state-of-the-art – skill and expertise on management of disasters.

Credits Earned: 3 Credits (2+1)

Course Outcomes: After completion of this course, Students will be able to

- Identify the current environmental and social issues and the strategies to moderate them.
- Explore the causes, consequences and the management strategies of natural and anthropogenic disasters.
- Survey the impacts of various environmental issues to promote public awareness.
- Articulate the knowledge of environmental legislation for public awareness.

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	Mid Sem (M)	Progressive Assessment (PA)	Viva (V)	Term work (TW)	
2	0	2	3	40	20	20	10	10	100

Theory Content:

Unit	Topics	Contact Hours
1	Introduction to Environment - Environmental studies: Definition, scope and importance - Multidisciplinary nature of environmental studies - Segments of Environment - Spheres of Earth - Lithosphere - Hydrosphere - Atmosphere - Different layers of atmosphere.	**2**
2	Natural Resources: Classification - Forest resources. Water resources.	**2**

	Mineral resources Food resources. Energy resources. Land resources. Soil resources.	
3	Ecosystems: Concept of an ecosystem - Structure and function of an ecosystem - Energy flow in the ecosystem. Types of ecosystem	**2**
4	Biodiversity and its conservation: Introduction, definition, types. Bio geographical classification of India. Importance and Value of biodiversity. Biodiversity hot spots. Threats and Conservation of biodiversity.	**2**
5	Environmental Pollution: Definition, cause, effects and control measures	**3**
6	Solid Waste Management: Classification of solid wastes and management methods, Composting, Incineration, Pyrolysis, Biogas production, Causes, effects and control measures of urban and industrial wastes.	**2**
7	Social Issues and the Environment: Urban problems related to energy. Water conservation, rain water harvesting, watershed management.	**2**
8	Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Human Population and the Environment: Environment and human health: Human Rights, Value Education. Women and Child Welfare. Role of Information Technology in Environment and human health.	**3**
9	Disaster management: Disaster definition - Types - Natural Disasters - Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and cold waves. Man Made Disasters: Nuclear disasters, chemical disasters, biological disasters, building fire, coal fire, forest fire, oil fire, road accidents, rail accidents, air accidents, sea accidents.	**3**
10	International and National strategy for disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of NGOs, community-based organizations and media in disaster management. Central, state, district and local administration in	**3**

	disaster control; Armed forces in disaster response; Police and other organizations in disaster management.	
	Total	**24**

Practical Content:

Unit	Topics	Contact Hours
1	Visit to a local area to document environmental assets river/forest/grassland/hill/mountain.	**2**
2	Biogas production from organic wastes	**2**
3	Visit to wind mill/hydro power / solar power generation units	**2**
4	Study of simple ecosystems-pond, river, hill slopes - crop adaptation to different ecosystems	**2**
5	Biodiversity assessment in polluted and unpolluted system	**2**
6	Visit to river/forest/ grass land/ hill/ mountain to document environmental assets	**2**
7	Estimation of acidity and alkalinity in water samples	**2**
8	Estimation of water hardness	**2**
9	Case studies on environmental issues and human health: climate Change	**2**
10	Visit to areas affected by natural disaster	**2**
	Total	**20**

Reference Books:

1. Environment Management, Environment Management, P. Sasi bhushana rav, Regal publication, 2007
2. Environmental education, Environmental education, G. S. Bhalla & hema khanna, Deep & Deep publication pvt. ltd., 2007
3. Environmental pollution: causes, effect and control, Environmental pollution : causes, effect and control, S.S. Purohit & A. K. Agrwal, Agrobios, 2006

Suggested Theory distribution:

The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process.

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
25%	25%	20%	10%	10%	10%

Instructional Method:

1. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by white board may also use any of tools such as demonstration, role play, quiz, brain storming, MOOCs etc.
2. The internal evaluation will be done on the basis of continuous evaluation of students in the class-rooms.
3. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory/ field.
4. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory.