

# Vidyasagar University

## *Curriculum for Agro - Service (Major)* [Choice Based Credit System]

### Semester-VI

Course	Course Code	Name of the Subjects	Course Type/ Nature	Teaching Scheme in hour per week			Credit	Marks
				L	T	P		
CC- 13		C13T: Farming System and Sustainable Agriculture	Core Course-13	4	0	0	6	75
		- Practical		0	0	4		
CC- 14		C14P: Rural awareness work experience - Practical	Core Course-14	0	0	6	6	75
DSE-3		TBD	Discipline Specific Elective - 3	4	0	0	6	75
				0	0	4		
DSE-4		TBD	Discipline Specific Elective - 4	4	0	0	6	75
				0	0	4		
Semester Total							24	300

**L**= Lecture, **T**= Tutorial, **P** = Practical, **CC** - Core Course, **TBD** - To be decided, **DSE**: Discipline Specific Elective.

## **SEMESTER- VI**

### **List of Core Course (CC)**

**CC-13: Farming System and Sustainable Agriculture**

**CC-14: Rural Awareness Work Experience**

### **Discipline Specific Electives (DSE)**

**DSE-3: Environmental Science and Agro-Ecology**

**Or**

**DSE-3: Agro-forestry**

**DSE-4: Production of Medicinal Aromatic and Spices Crops**

**Or**

**DSE-4: Ornamental Horticulture and Land Scape Gardening**

## Core Course (CC)

### **CC-13: Farming System and Sustainable Agriculture**

**Credits 06**

#### **C13T : Farming System and Sustainable Agriculture**

**Credits 04**

#### **Course Contents:**

1. Sustainable agriculture – introduction – adverse effects of modern agriculture – concept and goals of sustainable agriculture –current status of sustainable agriculture in India.
2. Prevention, control and reclamation measures – sea water inundation and sand casting during cyclonic storms and their effects on agriculture.
3. Ground water development –Groundwater development scenario – over exploitation problems and safe yield concept –artificial recharge methods
4. Fertilizers as a source of pollution and control measures – introduction – nitrate pollution in soil and ground water and eutrophication – management factors to reduce fertilizer pollution
5. Pesticides as source of pollution and control measures – bio-pesticides and bio-herbicides
6. Management of natural resources – introduction – land – water – irrigation problems – Impact on Low External Input Agriculture (ILEIA) and Low External Inputs for Sustainable Agriculture (LEISA) –vegetative cover – present scenario and management practices
7. Conjunctive use of water – definition – objectives – types – advantages and limitations – wasteland and their management
8. Organic farming – definition – principles – relevance to modern agriculture and components of organic farming – integrated nutrient management
9. Organic weed management – pest management
10. Farming systems – system and systems approach – farming system – determinants of farming system – cropping systems and related terminology
11. Biodiversity – importance – agricultural intensification and biodiversity– adverse impacts of genetic erosion – conservation of natural resources

#### **C13P: Practical**

**Credits 02**

#### **Practical**

1. Preparation of farming systems to suit to dryland situation
2. Compost making
3. Vermicompost
4. Preparation of enriched farmyard manure
5. Use of bio-pesticides
6. Preparation of project proposals for land development
7. Visit to wetland farm – observation on resource allocation, recycling of inputs and economics
8. Visit to dry land farm – observation on resource allocation, recycling of inputs and economics
9. Methods of profitable utilization of agro-industry wastes

### **Suggested Books/ Reading:**

- Arun, K. Sharma. 2006. A Hand Book of Organic Farming. Agrobios (India), Jodhpur.
- Dahama, A.K. 2007. Organic Farming for Sustainable Agriculture. Agrobios (India), Jodhpur.
- Dalela, R.C. and Mani, U.H. 1985. Assessment of Environmental Pollution. Academy of Environmental Biology, Muzaffarnagar.
- Deb, D.L. 1994. Natural Resources Management for Sustainable Agriculture and Environment. Angkor publishers Ltd., New Delhi.
- Purohit, S.S. 2006. Trends in Organic Farming in India. Agrobios (India), Jodhpur.
- Ruthenburg, H. 1971. Farming Systems in Tropics. Clarendon Press, London.
- Saroja Raman. 2006. Agricultural Sustainability – Principles, Processes and Prospects. Food Products Press, New York.
- Subramaniyan, S. 2004. Globalization of Sustainable Agriculture. Kalyani Publishers, Ludhiana.

### **CC- 14: Rural Awareness Work Experience**

**Credits 06**

#### **C14P: Rural Awareness Work Experience**

**Credits 06**

### **Course Contents:**

1. Rural Agricultural Work Experience (RAWE) is to a designed programme, where students will be exposed to rural (Village) environment for strengthening practical training
2. Group of students will be associated to farmers, agro-industrial units and agricultural research station for this purpose for a period of 3-4 months.
3. Field level expertise to be gained under the supervision of faculty members.
4. Detailed report of the field works for the RAWE is to be submitted
5. Students will be constantly supervised and evaluated by the faculty.
6. Evaluation will be done by one internal and one external field experts.
7. Viva-Voce

### **Discipline Specific Electives (DSE)**

### **DSE-3: Environmental Science and Agro-Ecology**

**Credits 06**

#### **DSE3T: Environmental Science and Agro-Ecology**

**Credits 04**

### **Course Contents:**

1. Ecology - definition, division and significance.
2. The Environment - environmental management and control of pollution, affecting plant growth abiotic and biotic interactions.
3. Ecosystem major ecosystems, energy and its flow in ecosystem biochemical cycles and

nutrient cycles.

4. Plant community - classification composition, and study of plant community structure.
5. Plant adoption - ecological classification of plants and their morphological anatomical and physiological adaptations to adverse environments hydrophytes, xerophytes, mesophytes, epiphytes and halophytes
6. Ecological problems of major crops-cereals, millets, pulse and oilseeds

### **DSE-3P: Environmental Science and Agro-Ecology (Practical)**

**Credits 02**

#### **Practical:**

1. To record temperature, relative humidity and light intensity value of the atmosphere.
2. To study the community by quadrat method by determining plant structure different species crops.
3. To study the vegetation of the given area by a phytosociological method biological spectrum method.
4. To determine the biomass producers in the given area.
5. To record abiotic components- pH, temperature, light intensity, turbidity in pond ecosystem.

**Or**

### **DSE-3: Agro-forestry**

**Credits 06**

#### **DSE3T: Agro-forestry**

**Credits 04**

#### **Course Contents:**

1. Forestry, its scope and classification, Role of forests - geographic, productive and bioaesthetical.
2. Regeneration of forests.
  - (a) Natural seed production, seed dispersal, germination and seedling establishment.
  - (b) Artificial Afforestation, reforestation and their objectives. Choice of tree species, nursery techniques.
3. Definition, concept and need of agro forestry and Social forestry
4. Classification of agro forestry and Social forestry systems.
5. Prominent agro forestry and Social forestry systems prevailing in Uttar Pradesh.
6. Limitations of agro forestry and Social forestry, choice of tree species for agro forestry.
7. Social forestry for fuel, fodder and timber requirement.
8. Shelter belt and wind breaks trees.
9. Cultivation of teak, sal and poplar trees.

### **DSE-3P: Agro-forestry**

**Credits 02**

#### **List of Practical**

1. Afforestation, techniques of problematic sites viz. ravines, saline-alkali soils, waterlogged areas, arid areas, hilly areas; roadside and canal bank plantation.

2. Nursery techniques - Numerical problems.
3. Numerical problems on planting and cost of earthwork estimation.
4. Identification of forest tree species.

## **DSE- 4: Production of Medicinal Aromatic and Spices Crops**

**Credits 06**

### **DSE4T: Production of Medicinal Aromatic and Spices Crops**

**Credits 04**

#### **Course Contents:**

1. Importance and scope of medicinal, aromatic and spices crops.
2. Cultivation of mentha, citronella, Khus, Ocimum, Rauvolfia and Dioscoria.
3. Cultivation of turmeric, Zinger, Coriander, Zira and Saunf in the North Indian Condition.
4. Cultivation of plantations crops-coconut, cashew nut, tea and coffee.

### **DSE4P: Production of Medicinal Aromatic and Spices Crops**

**Credits 02**

#### **List of Practical**

1. Identification of medicinal, aromatic plants and spices crops.
2. Calculation of the cost of cultivation of mentha, citronella, Rauvolfia and Dioscorea.
3. Practical, Identification and demonstration of spices in the course.
4. Visit to commercial growing places and research stations of the medicinal, aromatic and spices crops.

**Or**

## **DSE-4: Ornamental Horticulture and Land Scape Gardening**

**Credits 06**

### **DSE4T: Ornamental Horticulture and Land Scape Gardening**

**Credits 04**

#### **Course Contents:**

1. Importance and scope of ornamental horticulture in India.
2. Cultivation of annuals and canna.
3. Commercial cultivation of rose, chrysanthemum, marigold and gladiolus.
4. Making and maintenance of Lawn; Making and maintenance of Hedge and edging.
5. Elementary knowledge of common shrubs, climbers and trees and their various uses.
6. Indoor gardening; Styles of gardens with special reference to Mughal and Japanese gardens.
7. Flower arrangement and techniques to prolong vase life of flowers.

## **DSE4P: Ornamental Horticulture and Land Scape Gardening**

**Credits 02**

### **List of Practical:**

1. Identification of ornamental plants
2. Preparation of herbaceous border
3. Practice of making garlands, Bouquet and arrangements in vases
4. Propagation of Ornamental plants
5. Practice of potting and repotting of plants.
6. Visit to ornamental gardens and research station.
7. Evaluation on keeping physical demonstration, note books, Viva- Voce

\*\*\*\*\*