



**NETAJI SUBHAS OPEN UNIVERSITY**  
**ORGANIC AGRICULTURE AND HORTICULTURE**

**(SYLLABUS)**

Sl. No.	Subject	Course name	Course name
1	Paper-I (Theory)	Organic Agriculture & Horticulture	Diploma in Agriculture Extension for Input Dealer
2	Paper-II (Theory)		
3	Paper-III(Practical)		
4	paper-IV (Practical)		
5	Paper-V(Theory)		
6	Paper-VI(Theory)		

**Eligibility:** 10+2

**Duration:** Certificate-6months; Diploma -12 months

**DETAILED SYLLABUS**

**PAPER – I: Organic Agriculture (Theory)**

**Total: 50 hrs**

1. Detrimental effects of currently chemical dependant farming. (4 hrs)
  - i) Reduction of crop production due to depletion of soil Health.
  - ii) Pesticide contamination and human health hazard.
  - iii) Contamination of food products by pesticides & chemicals.
  - iv) Environmental (soil, water, air) pollution.
  - v) Reduction of natural enemies of crop pests.
  - vi) Threat to Bio diversity.
  
2. Types of Farming (Advantage & disadvantage of each system): (4 hrs)
  - Pure Organic Farming – Definition, Concept & Benefits
  - Integrated Farming system (Combination of Organic and Inorganic)
  - Mixed Farming
  
3. Concept of different cropping systems in relation to Organic Farming (Inter cropping etc) (4 hrs)
  
4. Organic Farming (Process) (8 hrs)
  - Concept of farming system
  - Developing organic farms
  - Important steps & methods
  
5. Plant Nutrients: (4 hrs)
  - Name of plant Nutrients with gradation
  - Functions of Nutrients in plant growth and Development of crops

6. Nutrient uptake and Utilization by plant: (2 hrs)
- From Organics
  - From Inorganic
7. Chemical Fertilizer. Advantage & Disadvantage of their use: (2 hrs)
- Nutrient content of different fertilizers
8. Balanced Nutrients supply: (4 hrs)
- a) For Organic Farming system using nutrients from Organic sources.
  - b) Integrated plant nutrient Management.
9. Sources of nutrients for Organic Agriculture: (6 hrs)
- Organic Manure –
    - FYM/Rural compost, City compost, Oil cakes,
    - Animal wastes, Vermi composts, etc
    - Characterization and Nutrients content of the above sources (Data Chart)
  - Green Manure –  
Green Manure with Leguminous crops in crop rotation. In-situ incorporation of crop residues -Benefits
  - Other Nitrogen contributing plants.
  - Liquid Manure
10. Importance of Bio fertilizers in soil productivity (4 hrs)
- Nitrogenous
  - Phosphatic
  - Potassic
11. Preparation of Compost: (Video or PPT.) (4 hrs)
- Different Methods
  - Enrichment of compost
  - Nutrient composition
12. Preparation of vermincompost: (Video or PPT.) (4 hrs)
- Pit construction
  - Raw materials
  - Availability of specific species of earth worm
  - Method of preparation
  - Quality improvement of finished vermin compost

**PAPER –II: Organic Horticulture (Theory)**

**Total: 42 hrs**

1. Soil: (4 hrs)
- Definition
  - Soil formation
  - Composition and characteristics
  - Types of soil according to composition
  - Distribution of soil groups in W.B.

2. Acidic, Alkaline and Saline soils (2 hrs)
  - How they affect Agriculture
  - Method of reclamation
3. Soil productivity: (4 hrs)
  - Meaning & Concept
  - Difference between Soil Fertility and Productivity
  - Method of Increasing productivity and fertility
4. Crops: (2 hrs)
  - Classification of crops according to use
  - Their Growing requirements (in brief)
5. Crop Cultivation: (4 hrs)
  - Rice cultivation with organic Inputs with special emphasis on SRI, Drum Seeder and Sudha etc.
6. Cultivation of crops with organic inputs: (4 hrs)
  - Field crops
  - Leguminous crops
7. Cultivation of Horticultural crops with organic inputs: (6 hrs)
  - Vegetable
  - Fruits
  - Flowering plants
8. Plant Protection Measures: (8 hrs)
  - Different types of pests & their classification.
  - Integrated pest & disease managements and Botanical pesticides.
  - Organic pesticides, bio-pesticides.
  - Inorganic pesticides, disadvantages of their use.
  - Control of pests & diseases of important crops /vegetables.
9. Importance of Neem in organic Agriculture (2 hrs)
10. Mushroom cultivation (2 hrs)
11. Quality Control and certification procedures of Organic products (4 hrs)

**PAPER-III: PRACTICAL (Organic Agriculture)      Total: (50 hours)**

1. Soil: (4 hours)
  - Soil and its physical characters.
  - Soil types:- Alluvial, Laterite, Clay, Loam etc.
  - Physical testing and assessment of soil types, weighment, water movement, etc.

- 2. Soil Conditioners:** (4 hours)
- Lime, Dolomite, Gypsum, Basis slag, Organic Manures, etc.
  - Use of soil conditioners for better management of soil, dosages by soil types etc.
  - Interaction
- 3. Preparation of FYM/Rural Compost / Different types of composting** (8 hours)
- Preparation of compost pit at appropriate location
  - Lining of pit with brick, polythene sheet
  - Collection and accumulation of raw materials
  - Aerated/Non aerated pits for quality manure production
  - Collection or rotten manure and post treatment
  - Interaction
- 4. Preparation of seed bed & raising of seedlings:** (8 hours)
- Wet seedbed, manuring, sowing (broadcasting)
  - Dry seed bed, bed size, manuring, soil treatment, actual sowing in line/broadcasting, weeding, watering, hardening of seedlings, time requirement for seedling growth, uprooting seedlings.
- 5. Raising seedlings in pots/seed pans:** (4 hours)
- Preparation of potting mixture, its treatment.
  - Seed treatment, making seeds ready for planting in seed pans.
  - Seed sowing, very small seed, medium and large seeds
  - Aftercare-germination till seedlings are ready for planting through hardening

**PAPER-IV : PRACTICAL (Organic Horticulture) Total: (50 hours)**

- 1. Plant food:** (8 hours)
- Familiarization of Manures and Fertilizers according to source of plant nutrients
  - Soil testing (Sample collection and processing for analysis)
    - a) Laboratory method
    - b) By soil testing kits
    - c) Calculation of different fertilizer requirement of crops as per soil test results.
- 2. Plant growth Regulators:** (2 hours)
- Why the need?
  - Familiarization and actual application according to need
  - Interaction
- 3. Preparation of Vermicompost:** (4 hours)
- Erection of Vermicompost structure with cover
  - Drainage arrangement and collection of the liquid
  - Raising leguminous crops around the pit
  - Collection of raw materials & Processing
  - Putting active worms (specific sps.) and processed raw materials in the pit
  - Collection of final product (Vermicompost)

4. **Training on Plant Protection (PPT) presentation:** (8 hours)
- Identification of visual symptoms of pest attack along with the pests (Insects, Fungi, Virus etc.) as far as possible.
  - Acquaintance of common Fungicides, Insecticide (Chemical, Botanical and Organism based)
  - Seed treatment, seedling treatment
  - Training on application of pesticides by hand spraying, hand dusters etc.
  - Safety measures towards application of pesticides.
  - Viral disease symptoms – approach for control
  - First Aid.
5. **Training on:** (4 hours)
- Preparation of Neem kernel powder
  - Neem Kernel Aquaous Extract (NKAE)
6. **Physiological Disease/Disorders:** (4 hours)
- Symptoms of plant nutrient deficiencies (ppt presentation)
  - Ameliorating measures (soil/spray application)
  - Soil amelioration
  - Interaction
7. **Herbicides in Agricultural Practices:** (2 hours)
- Acquaintance of Herbicides and their specificity
  - Application of herbicides in field and monitoring the result with repeat visit
  - Interaction.
8. **Familiarization of Farm Equipments & Implements (Farm visit):** (8 hours)
- Equipments & Implements, their actual operation by working and practicing
  - Maintenance, costs.
  - Interaction.
9. **Crop Sowing, Harvesting, Processing and Storage of Produce at Farm Level:** (10 hours)
- Practicing and experiencing in Farmer's Fields.
  - Post harvest technology seed testing.

**PAPER-V : Cultivation & Irrigation**

**Total: (36 hours)**

1. Basic Principles in Irrigation (2 hours)
2. Water use efficiency & methods of irrigation (2 hours)
3. Micro irrigation system – Drip, Sprinkler etc., (Video or site visit) (4 hours)
4. Weeds, its importance and Management-Use of herbicide, types of herbicide & precautions needed for use (4 hours)
5. Cultivation of high – tech horticultural crops (4 hours)
6. Cultivation of medicinal and Aromatic plants (2 hours)

7. Seeds and seed production	(4 hours)
8. Seed certification process	(2 hours)
9. Climate change and adoption of strategies for rain fed Agriculture	(2 hours)
10. Natural Resource Management for Dry Land Agriculture	(2 hours)
11. Weather parameters and their impact on Agricultural production. Types of forecasts	(4 hours)
12. Agro ecological situation of the state / District. Agro-eco system approach	(2 hours)
13. Kishan call centre	(2 hours)

### **PAPER-VI : Legislation & Management**

**Total: (42 hours)**

1. Role of Input Dealers in disseminating Agricultural	
2. Technology to the Farming community.	(4 hours)
3. Role of Extension in Agricultural Development.	(4 hours)
4. Market led Extension – meaning	
5. Role of Input Dealers for forward & backward linkage of Farmers.	(2 hours)
6. Seed Act.	(2 hours)
7. Insecticide Act.	(2 hours)
8. Fertilizer control order.	(4 hours)
9. Other related Acts. .... Consumer protection Act., & Limitation Act.	(2 hours)
10. Rural credit ..... Micro Finance.	(2 hours)
11. Crop Insurance ..... Weather Insurance.	(2 hours)
12. Use of IT (Information Technology) for Extension & business.	(4 hours)
13. Major flagship programmes of State and Central Govt. related to Agricultural Development. Title, Purpose, beneficiaries etc.	(4 hours)
14. Importance of custom hiring Centres – as a business Model.	(4 hours)
15. Motivation and Negotiation.	(2 hours)
16. GST etc.	(4 hours)

**6. Undertaking Pot/Container culture of Flowers, Vegetable and Fruit plants:**

(4 hours)

- Preparation of potting mixture, planting seedlings, sapling and their maintenance for performance.

**7. Practice training on Mushroom cultivation:**

(8 hours)

**9. Hands on experience in using computer for accessing Agriculture and Market information.**

(10 hours)