

ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

REVISED UG SYLLABUS UNDER CBCS

(Implemented from Academic Year 2020-21)

PROGRAMME: FOUR YEAR B.Sc. (Hons)

Domain Subject: BOTANY

Fourth Year – VII and VIII Semesters (5 Courses in each semester)

(Syllabus with Learning Outcomes, References, & Co-curricular Activities)

Semester – VII: 3 Courses of Higher Order (P.G. level) + 2 Skill Oriented Courses

Semester	Components of study	Course No. & Title of the Course	Hours/week	No. credits	Internals	External	Total Marks
VII	Higher Order Courses (HOC)	8(A) Plant Pathology (OR) 8(B) Plant Systematics	4	4	75	25	100
		PP/PS Practical	2	1	-	50	50
		9(A) Plant Biochemistry (OR) 9(B) Plant Developmental Biology	4	4	75	25	100
		PB/PDB Practical	2	1	-	50	50
		10(A) Plant Molecular Biology (OR) 10(B) Plant Resources and Utilization	4	4	75	25	100
		PMB/PRU Practical	2	1	-	50	50
	Skill Oriented Courses (SOC)	11(A) Gardening and Landscaping (OR) 11(B) Herbal Technology	4	4	75	25	100
		GL/HT Practical	2	1	-	50	50
		12(A) Floriculture (OR) 12(B) Organic Farming	4	4	75	25	100

A.P. State Council of Higher Education
Semester-wise Revised Syllabus under CBCS 2020-21
Four Year – B.Sc. (Hons), Semester – VII
Domain Subject: BOTANY

Semester – VII

Skill Oriented Course 12 (B): Organic Farming

I. Learning outcomes: Students at the successful completion of the course will be able to:

1. Compare and contrast the advantages and disadvantages of conventional and organic farming.
2. Acquire skills on different composting methods.
3. Acquaint with cultural and crop protection practices related to organic farming.
4. Acquire knowledge on various management practices in organic farming.
5. Discuss about the certification and marketing of organic foods.
6. Explain the initiatives of government in promoting organic farming

II. Syllabus of theory:

UNIT-1: Basic concepts of organic farming (10h)

1. Organic farming: Definition, ecological social and economic benefits.
2. Organic farming and its components; concepts and principles.
3. Biodynamic and natural farming approaches; permaculture and LEISA farming approaches.
4. Sustainable Agriculture, key indicators of sustainable agriculture.
5. Living soil and healthy plant concepts.

UNIT-2: Organic inputs for soil (12h)

1. Vermicompost production technology.
2. Organic manures: Farmyard Manure (FYM), Enrichment of FYM.
3. Compost, methods of composting (Bangalore, Indore, Coimbatore, NADEP methods).
4. Green manuring, classification of green manures.
5. Classification of organic residues, recycling of organic residues.

UNIT-3: Organic crop management (12h)

1. Introduction to Organic Crop Management – land preparation, planting technic, nutrient management.
2. Factors considered for nutrient management; recommended nutrient quantity –blanket, major problems; balance sheet method.
3. Nutrient composition of some organic resources, right timing of nutrient application.
4. Right method of nutrient application, nutrient use efficiency.

UNIT-4: Cultural and crop protection practices (14h)

1. Pre-sowing irrigation; crop rotation, intercropping and mixed cropping.
2. Use of tolerant and resistant varieties; manipulation in sowing dates, irrigation/flooding, destruction of volunteer plants.

3. Pest and disease management – preventive, physical and mechanical methods.
4. Organic crop management – rice, red gram, groundnut, and tomato.
5. Government interventions to promote organic farming: NPOF, NPMSHF, NHM, RKVY, KVK and APEDA.

UNIT-5: Certification and Marketing of Organics (12h)

1. Organic certification process – definition, need, aim and scope, requirements to maintain certification.
2. Organic certification process – labeling of products, NPOP, organic quality control, standards, accreditation, inspection, and certification.
3. Operational structure of organic certification.
4. Marketing of organic products.

III. Practical syllabus:

1. Preparation of Jeevamrutham (liquid and solid) and Beejamrutham.
2. Preparation of Neemastram and Brahmastram.
3. Preparation of Agniastram and Dashaparni Kashayam.
4. Study of intercropping method.
5. Study of water management in Organic Farming.
6. Study of livestock component in Organic Farming.
7. Hands on training on vermicompost preparation.
8. Study of different organic and green manures.

IV. Suggested student activities:

1. Making a study report on soil chemistry in a conventional and organic crop field.
2. A case study on organic farming of an agricultural crop from beginning to ending.
3. A case study on organic farming of a horticulture crop from beginning to ending.
4. A study on economics of a crop in conventional and organic farming methods.
5. A case study on getting certification for an organic farm product.

V. Textbooks:

- Vandana Shiva, Poonam Pande and Jitendra Singh, (2004). Principles of Organic Farming - Renewing the Earth's Harvest, Navdanya, New Delhi.
- Sujit Chakrabarty, Sumati Narayan, Farooq Ahmad Khan, (2019). Arts and Science of Organic Farming, Purna Organics
- Thapa, U., and P. Tripathi, (2016). Organic Farming in India, Agrotech Publications, Udaipur
- Peter, V. Fossel, (2007). Organic Farming (Everything You Need to Know), Voyageur Press, USA

VI. Reference books:

- Richard Wiswall (2009), The Organic Farmer's Business Handbook Chelsea Green Publishing, White River Junction, VT, USA.
- William Lockeretz (2007), Organic Farming: An International History CABI Publishing, Wallingford, UK.

- Ann Larkin Hansen (2010), *The Organic Farmer's Manual: A Comprehensive Guide to Starting and Running a Certified Organic Farm* Storey Publishing, North Adams, MA, USA.
- Masanobu Fukuoka (1978), *The One-Straw Revolution: An Introduction to Natural Farming* Rodale Press, Emmaus, PA, USA.
- Gary Zimmer (2000), *The Biological Farmer: A Complete Guide to the Sustainable & Profitable Biological System of Farming Acres U.S.A.*, Austin, TX, USA
- Albert Howard (1947), *The Soil and Health: A Study of Organic Agriculture* University Press of Kentucky, Lexington, KY, USA.
- Terri Paajanen (2014), *The Complete Guide to Organic Livestock Farming* Atlantic Publishing Group, Inc., Ocala, FL, USA.