

YOGI VEMANA UNIVERSITY, KADAPA-516005
(w.e.f 2021-2022)

**B.Sc., AGRICULTURE SEMESTER WISE
SYLLABUS AND
MODEL QUESTION PAPERS OF THEORY AND
PRACTICALS (AS PER CBCS AND SEMESTER SYSTEM)**

Course: B. Sc.,

Subject: Agriculture

S. No.	Semester	Module Nature	Modules (Paper)	Hours/ Week	Credits	Max. Marks (75+25)	
1	1	CORE-1 Paper-1	Theory	Agronomy - I	04	04	100
			Practical	-do-	03	02	100/50
2	2	CORE-2 Paper-2	Theory	Agronomy - II	04	04	100
			Practical	-do-	03	02	100/50
3	3	CORE-3 Paper-3	Theory	Fundamentals of Entomology	04	04	100
			Practical	-do-	03	02	40+10
4	4	CORE-4 Paper-4	Theory	Fundamentals of plant pathology	04	04	100
			Practical	-do-	03	02	40+10

YOGI VEMANA UNIVERSITY, KADAPA
B.Sc AGRICULTURE SYLLABUS
SEMESTER – I

Paper – I

Part-I AGRONOMY-I

Total hours of teaching 60 hrs @ 4 hrs per week

- Unit – I** Principles of Agronomy (12 hrs)
1. Definition & Scope of agronomy.
 2. Agro Meteorology and its applications/Practical utility
 - a. Components of Weather
 - b. Measurement of components of weather
 - c. Weather forecasting
 - d. Weather Disaster Management methods
 - e. Agro-climatic zones of India and Andhra Pradesh
- Unit – II** Dry Farming and Water Management (12 hrs)
- a. Dimension of Dry Farming
 - b. Problems and Management of dry farming
 - c. Water resources and their management
 - d. Critical periods and Irrigation methods
- Unit – III** Production of cereals (12 hrs)
- Importance, origin, distribution, climate, variation, soil, practices, manuring, irrigation, Plant protection, harvesting and processing of the following crops:
- a. Paddy
 - b. Wheat
 - c. Maize
- Unit – IV** Production of Millets (12 hrs)
- Importance, origin, distribution, climate, variation, soil, practices, manuring, irrigation, Plant protection, harvesting and processing of the following crops:
- a. Pearl millet / Bajra
 - b. Sorghum/Jowar
 - c. Finger millet / Ragi
 - d. Foxtail millet / Korra
 - e. Miner Millets
- Unit – V** Production of pulses (12 hrs)
- Importance, origin, distribution, climate, variation, soil, practices, manuring, irrigation, Plant protection, harvesting and processing of the following crops:
- a. Bengal gram
 - b. Red gram
 - c. Black gram
 - d. Green gram
 - e. Horse gram

PAPER-I SEMESTER –I
Paper-I P: Agronomy-I
Practical Syllabus

1. Identification and use of the following weather measurement apparatus.
 - a. Minimum – Maximum Thermometer
 - b. Rain gauge
 - c. Anemometer
 - d. Sunshine recorder
 - e. Evaporation pan
2. Study of water distribution system and problems on water use efficiency measurement.
3. Field study of Sprinkler, Drip and Open furrow irrigation methods.
4. Field visit Agro-Meteorological observatory of [ANGRAU at Tirupati/ Utukur/ Yogi Vemana University and of A.P. State department at every Mandal Headquarters].
[Stevensen screen and automated weather station]
5. Identification of Varieties of cereals, millets & pulses
6. Visit to watershed/farm ponds

**B.Sc AGRICULTURE SYLLABUS
SEMESTER – II**

Paper – II

Part-II AGRONOMY-II

Total hours of teaching 60 hrs @ 4 hrs per week

Unit – I	a. Soil fertility and nutrient management b. Chemical analysis of soil and water c. Maintenance of soil fertility and productivity d. Integrated nutrient management <ul style="list-style-type: none">• Organic methods• Chemical fertilizers	(12 hrs)
Unit – II	Breeding of major field crops	(12 hrs)
Unit – III	Weeds & Weed management of crops a. Classification & Identification of weeds b. Methods of weed control c. Integrated weed management	(12 hrs)
Unit – IV	Production of oil seeds Importance, origin, distribution, climate, variation, soil, practices, manuring, irrigation, Plant protection, harvesting and processing of the following crops: a. Ground nut b. Sunflower c. Castor d. Sesame e. Mustard	(12 hrs)
Unit – V	Production of Commercial crops and fodder crops Importance, origin, distribution, climate, variation, soil, practices, manuring, irrigation, Plant protection, harvesting and processing of the following crops: <u>Commercial Crops</u> a. Cotton b. Jute c. Sugarcane d. Tobacco <u>Fodder Crops</u> e. Berseem f. Lucerne g. Para grass h. Napier grass	(12 hrs)

PAPER-II SEMESTER –II
Paper-II P: Agronomy-II
Total hours of teaching 45 hrs @ 3 hrs per week

Practical Syllabus – II

1. Chemical analysis of soil and water
 - a. Salinity / Alkalinity
 - b. pH and Electrical conductivity
 - c. Nutrient analysis N, P, K, organic carbon

1. Identification and analysis of manures [Farm yard manure, Poultry manure, sheep penning].

2. Identification of chemical fertilizers based on physical properties.

3. Emasculation and pollination of naturally self / cross – pollinated local crops.

4. Hybrid seed production using male sterile lines, maintainer lines and restoral lines.

5. Identification of Millets, Oil seeds, commercial crops & fodder crops.

6. Identification of weeds and herbicides

Field visits to observe the standing crops at Agriculture College and Research station in the vicinity [Tirupati/Utukur/ Anantharajpet]

**B.Sc AGRICULTURE SYLLABUS
SEMESTER – III**

Paper – III

Part-III Fundamentals of Entomology

Total hours of teaching 60 hrs @ 4 hrs per week

UNIT – I: Morphology & Classification of Insects (12 hrs)

- External Morphological Characters of Class Insecta.
- Classification of insects based on taxonomic character, types of mouth parts and economic importance
- Concept of pest, types of pests based on occurrence and nature of damage.
- Factors influencing abundance and distribution of insect pests.

UNIT – II: Concept of Pest Management (12 hrs)

- Principles of insect pest management including concept and philosophy of integrated pest management (EIL and ETL).
- Tools of Integrated pest management (mechanical, cultural, physical, chemical, biological and legal methods).

UNIT III: Pest Management (12 hrs)

- Insecticide - definition, classification based on chemistry, mode of entry and mode of action
- Insecticide formulations- advantages, types of formulation.
- Advantages and disadvantages of insecticide- pest resistance, pest resurgence, pest outbreaks, pesticide residues and pollution.
- Principle of biological pest management- successes stories and limitations.
- Plant protection equipment, precautions while spraying

UNIT – IV: Pest of Crops (12 hrs)

Pest identification marks, nature, symptoms of damage and management of

- Paddy Stem borer and BPH
- Maize stem borer
- Cotton bollworms and sucking pest
- Pulses- Stem weevil, Aphids and pod borer
- Vegetables- Tomato fruit borer, okra fruit borer, brinjal shoot & fruit borer, chilli fruit borer and sucking pest.
- Fruits- Citrus butterfly, fruit flies, Mango stem borer, Ber fruit borer

UNIT – V: Storage & Household Pests (12 hrs)

- Pest identification marks, nature and symptoms of damage and management of
 - Storage pest- Rice moth, Rice weevil, pulse beetle and flower beetles
 - Household pest- Mosquitoes, Houseflies, Ants, Cockroaches, Bed bugs, Head louse, wasps, crickets, termites.
- Plant and human diseases transmitting insects and management.

PAPER-III SEMESTER –III
Paper-III P: Fundamentals of Entomology

Total hours of teaching 45 hrs @ 3 hrs per week

Practical Syllabus – III

1. External morphology of Grasshopper (or) any locally available insect.
2. Collection and preservation of mature and immature insects.
3. Visit to IPM fields.
4. Collection of information on insecticides available in local market.
5. Visit to Rice, Maize fields and identification of insect pest symptoms of damage & practices followed by farmer.
6. Visit to fruit garden (or) any vegetable growing areas and identification of insect pest symptoms of damage & practice followed by farmer.
7. Collection of damaged fruits, vegetable and identification of causes of insect pest and management.
8. Collection of household pest and stored grain pest- identification of pest and management.
9. Study on working of plant protection equipment

**B.Sc AGRICULTURE SYLLABUS
SEMESTER – IV**

Paper – IV

Part-IV Fundamentals of Plant Pathology

Total hours of teaching 60 hrs @ 4 hrs per week

UNIT – I . Types of plant pathogens (12 hrs)

1. Important plant pathogenic organisms- different groups- fungi, bacteria, fastidious vesicular bacteria, phytoplasmas, spiroplasmas, viruses, viroids, algae, protozoa and phanerogamic parasites with examples of diseases caused by them.
2. General Characters of fungi- Definition of fungus, somatic structures, types of fungal thalli, fungal tissues, and modifications of thallus, reproduction in fungi (asexual and sexual).
3. Plant viruses-general characteristics and examples of plant diseases caused by viruses, viroids.

UNIT – II Principles of Plant Pathology (12 hrs)

1. Terms and concepts in Plant Pathology. Survival and Dispersal of Plant Pathogens
2. Phenomenon of infection – pre-penetration, penetration and post penetration.
3. Pathogenesis – Role of enzymes, toxins, growth regulators and polysaccharides
4. Defense mechanism in plants – Structural and Bio-chemical (pre and post-infection).

UNIT- III Plant disease epidemiology (12 hrs)

1. Meaning and importance, difference between simple and compound interest diseases – Factors affecting plant disease epidemics – host, pathogen, environment and time factor.
2. Plant Disease Forecasting – Meaning, advantages, methods in forecasting and examples.
3. Remote sensing – Meaning, scope, objectives, advantages.

UNIT- IV Plant Disease Management (12 hrs)

1. General principles of plant diseases management – Importance, general Principles – Avoidance, exclusion, eradication, protection and therapy, immunization
2. Regulatory methods – Plant Quarantine and Inspection – Quarantine Rules and Regulations. 3 .Cultural methods – Rouging, eradication of alternate and collateral hosts, crop rotation, manure and fertilizer management, mixed cropping, sanitation, hot weather ploughing, soil amendments, time of sowing, seed rate and plant density, irrigation and drainage.
4. Biological control and PGPR – Scope and importance – Role and mechanisms of biological control and PGPR with examples. Plant growth promoting rhizobacteria
5. Physical Methods – Heat treatments, soil solarization, hot water treatment, hot air treatment, control by refrigeration and radiation.
6. Chemical methods – study of different groups of fungicides, Methods of application of fungicides.
7. Integrated plant disease management (IDM) – Concept, advantages and importance.

UNIT –V. Disease of field crops and their management (12 hrs)

1. Diseases of crops and their management –important disease in rice, sugarcane, cotton,tobacco, groundnut, pulses and major fruit and vegetable crops.

PAPER-IV SEMESTER –IV
Paper-IV P: Fundamentals of Plant Pathology
Total hours of teaching 45 hrs @ 3 hrs per week

Practical Syllabus – IV

1. Field collection of plant pathogens

2. Temporary slide preparation of representative genera of disease causing fungi for
Morphological studies
3. Isolation of phytopathogenic bacteria from locally available diseased plant material and study
of colony characteristics and Grams -staining
4. Demonstration of mechanical transmission of plant viruses in green houses.
5. Study and identification of disease in the fields in major crops of the state
 - a) Paddy
 - b) Maize
 - c) Cotton
 - d) Chillies
 - e) Turmeric
 - f) Sugarcane
 - g) Mango
 - h) Banana
 - i) Citrus
 - j) Tomato
 - k) Brinjal
 - l) Pulses

6. Preparation of PDA

**I B.Sc., Agriculture
Paper – II Agronomy-II**

Time: 3 hours Max. Marks. 75

SECTION – A (Short Answer Questions)

[Instructions to the Paper Setter : Set minimum ONE question from each Unit,
maximum EIGHT from all]

Answer **FIVE** of the following questions

5 X 5 = 25 marks

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

SECTION – B (Essay Questions)

[Instructions to the Paper Setter : Set minimum TWO question
from each Unit either / or internal choice]

Answer **ALL** of the following questions

5 X 10 = 50 marks

9. (a) }
 or } from Unit I
 (b) }
10. (a) }
 or } from Unit II
 (b) }
11. (a) }
 or } from Unit III
 (b) }
12. (a) }
 or } from Unit IV
 (b) }
13. (a) }
 or } from Unit V
 (b) }

SECTION – A (Short Answer Questions)

[Instructions to the Paper Setter : Set minimum ONE question from each Unit,
maximum EIGHT from all]

Answer **FIVE** of the following questions

5 X 5 = 25 marks

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

SECTION – B (Essay Questions)

[Instructions to the Paper Setter : Set minimum TWO question
from each Unit either / or internal choice]

Answer **ALL** of the following questions

5 X 10 = 50 marks

9. (a) }
 or } from Unit I
 (b) }
10. (a) }
 or } from Unit II
 (b) }
11. (a) }
 or } from Unit III
 (b) }
12. (a) }
 or } from Unit IV
 (b) }
13. (a) }
 or } from Unit V
 (b) }

SECTION – A (Short Answer Questions)

[Instructions to the Paper Setter : Set minimum ONE question from each Unit,
maximum EIGHT from all]

Answer **FIVE** of the following questions

5 X 5 = 25 marks

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

SECTION – B (Essay Questions)

[Instructions to the Paper Setter : Set minimum TWO question
from each Unit either / or internal choice]

Answer **ALL** of the following questions

5 X 10 = 50 marks

9. (a)

or

from Unit II

(b)

10. (a)

or

from Unit III

(b)

11. (a)

or

from Unit IV

(b)

12. (a)

or

from Unit V

(b)

13. (a)

(b)

