

ANDHRA KESARI UNIVERSITY



B. Voc., Honours in Agriculture: MAJOR

w.e.f AY 2023-24 onwards

Semester - III

COURSE STRUCTURE

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
II	III	5	Agronomy of field Crops	5	4
		6	Manures, fertilizers and soil fertility management	5	4
		7	Introduction to Entomology	5	4
		8	Introduction to Plant Pathology	5	4

A. V. Ramae

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ONGOLE, Prakasam District.

B. Vocational course AGRICULTURE (Honours)
2023-24 Admitted Batch II Year – Semester III
AGRONOMY OF FIELD CROPS
(CREDITS 3+1=4)

UNIT-I:

- CEREALS: Rice, wheat, Maize

UNIT-II:

- MILLETS: Sorghum, Pearl millet, Finger millet, Proso millet, Kodo millet, Foxtail millet, Little millet, Barnyard millet

UNIT-III:

- PULSES: Pigeon pea, Green gram, Black gram, Bengal gram, Peas, Horse gram, Cowpea

UNIT-IV:

- OIL SEEDS: Ground nut , Sesame, Sunflower, Castor, Rape seed, mustard, safflower, niger,

UNIT-V:

- COMMERCIAL & FIBER CROPS: Sugarcane, Tobacco, Cotton, Jute, Mestha, Sunhemp

Reference Books

1. Reddy, S R and Reddi Ramu 5th edition 2016, Agronomy of Field Crops- kalyani publishers, Ludhiana.
2. Chidda Singh, Singh ,P and Singh R, Modern Techniques of Raising field crops-oxford publishing house, New Delhi.
3. Rajendra Prasad 2004 text book of Field Crop Production Volume i, Volume ii
4. Panda S C 2014 Agronomy of Fodder a forage crops, kalyani publishers Ludhina

AGRONOMY OF FIELD CROPS (PRACTICAL)

1. Identification of cereals, millets, pulses, oil seed, sugar and fibre crops in the crop cafeteria.
2. Practicing various nursery types and main field preparation for field crops.
3. Acquiring skill in different seed treatment techniques in important field crops.

4. Estimation of plant population, seed rate and fertilizer requirement for important field crops.
5. Acquiring skill in field preparation, sowing and manuring of crops under pure and intercropping situations for field crops.
6. Acquiring skill in using seed drill for sowing operations.
7. Observations on growth parameters of cereals, millets, pulses, green manures and forage crops.
8. Study on yield parameters and estimation of yield in field crops.
9. Collection of seeds of field crops.

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B. Vocational course AGRICULTURE (Honours)

2023-24 Admitted Batch II Year Semester – III

Time: 3 Hours

Maximum: 75 Marks

Single Major Programme from the Year 2023-24 Onwards

Question Paper model,

Second Year-Semester-III & IV

Time: 3 Hours

Total Marks: 75

PART –A

Out of Ten Answer any Five of the following

Note: Draw labelled diagram wherever necessary, Examiners must give two questions from each unit

5X5=25 Marks

- 1.
- 2.
- 3.
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- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

PART –B

Answer Any Five of the following

Note: Draw labelled diagram wherever necessary, Examiners must give two questions from each unit

5x10=50 Marks

- 11.
- 12.
- 13.
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- 15.
- 16.
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- 18.
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B. Vocational course AGRICULTURE (Honours)
2023-24 Admitted Batch II Year Semester- III
MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT
(CREDITS 3+1=4)

UNIT I

- Manures – classification of manures – bulky organic manures - methods of composting – concentrated organic manures – green manures – biogas plant – vermicomposting

UNIT II

- Commercial fertilizers – straight fertilizers – Nitrogen fertilizers – phosphorus fertilizers – potassic fertilizers

UNIT – III

- Complex fertilizers – mixed/ bulk blended fertilizers – secondary nutrient fertilizers – micronutrient fertilizers – fertilizer control order and regulations

UNIT IV

- Methods of fertilizer application – Seed coating, pelletization, seedling dipping – Nutri seed pack – Soil Application – Foliar spray – Fertigation – water soluble fertilizers, fertigation scheduling (Fertilizer – water interaction, fertilizer solubility, comparison of fertilizer application methods).

UNIT V

- Nutrient management concepts – INM, STCR, IPNS, SSNM and RTNM. Nutrient use efficiencies of major and micronutrients and enhancement techniques (Soil, Cultural and Fertilizer strategies) - Soil health – Quality indices and their management

References

1. **Indian Society** of Soil Science.2012. Fundamentals of Soil Science. IARI, New Delhi.
2. Yawalkar K.S, Agarwal, T.P and Bokde, S 1995. Manures and Fertilisers. Agril. Publishing House, Nagpur
3. Samuel Tisdale, Nelson Werner L, Beaton James D and Havlin John L. 2005. Soil Fertility and Fertilizers: An Introduction to Nutrient Management, Macmillian Publishing Co., New York.
4. D. K. Das 2014. Introductory Soil Science. Kalyani Publishers, New Delhi

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MANURES, FERTILIZERS AND SOIL FERTILITY MANAGEMENT (PRACTICAL)

1. Introduction to analytical instruments and principles-spectrometry and flame photometry
2. Estimation of available N in soils
3. Estimation of available P in soils
4. Estimation of available K in soils
5. Estimation of available S in soils
6. Estimation of available Ca and Mg in soils
7. Estimation of available Zn in soils
8. Basic of plant analysis and estimation on N in plant samples
9. Estimation of P in plant samples
10. Estimation of K&S in plant samples

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B. Vocational course

AGRICULTURE (Honours) 2023-24 Admitted Batch

II Year – Semester III INTRODUCTION TO ENTOMOLOGY

(CREDITS 3+1=4)

UNIT I

- History of Entomology in India
- Antenna, mouthparts, legs, wings and sense organs

UNIT II

- Anatomy and physiology - digestive, excretory, respiratory, circulatory systems

UNIT III

- Nervous and reproductive systems in insects in brief
- Insect systematics; Distinguishing characters of agriculturally important orders and families of Hexapoda. Characters of Apterygota

UNIT IV

- Exopterygota (Ephemeroptera, Odonata, Orthoptera, Phasmida, Dictyoptera, Embioptera, Dermaptera, Hemiptera, Isoptera, Psocoptera, Mallophaga, Thysanoptera and Siphunculata).

UNIT V

- Taxonomy of Endopterygota - Distinguishing characters of agriculturally important families of Lepidoptera, Coleoptera, Diptera, Hymenoptera, Siphonaptera, Neuroptera and Strepsiptera.

INTRODUCTION TO ENTOMOLOGY (PRACTICAL)

1. Observations on external features of grasshopper / cockroach,
2. Methods of insect collection, preservation – Preparation of Riker mount.
3. Types of insect head, antenna, mouth parts – Structure of thorax.
4. Types of insect legs, wings and their modifications – wing coupling.
5. Structure of abdomen, and its modifications.
6. Metamorphosis in insects – immature stages in insects.
7. Study of digestive and reproductive systems of grasshopper / cockroach
8. Observing the characters of agriculturally important orders and families.

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REFERENCES

1. Vasanthraj David. B and Rama murthy VV 2016 Elements of Economic Entomology, popular book depot, Coimbatore
2. Vasanthraj David. B and Ananthkrishnan T.N.2016. General and applied Entomology, Tata McGraw-Hill publishing house, New Delhi.
3. Nair MRGK 1986, Insects and Mites of Crops in India, ICAR, New Delhi.
4. Khare, S.P 1993 Stored Grain Pests and their Management, kalyani publishers, Ludhina

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2023-24 Admitted Batch II Year Semester – III

INTRODUCTION TO PLANT PATHOLOGY

CREDITS (3+1=4)

UNIT I

- Fungi: General characters, definition of fungus, somatic structures, 2.2Types of fungal thalli, fungal tissues, modifications of thallus, 2.3Reproduction (asexual and sexual)

UNIT II:

- Bacteria – General Characters, Classification of plant pathogenic bacteria Important plant bacterial diseases and their causal agents. Mollicutes: Phyto plasma and Spiroplasma – General characters and important diseases and vectors

UNIT III:

- Fastidious vascular Bacteria – general characters and important diseases and vectors Viruses: General characters of plant viruses, nature, architecture
- Symptoms of various viral diseases, transmission of plant viruses. Important plant viral diseases and their vectors.

UNIT IV:

- Viroids, phanerogamic plant parasites and plant parasitic nematodes, viroids – General characters and important diseases
- Phanerogamic plant parasites – general characters, propagation, survival and their hosts Plant parasitic nematodes–general characters and important plant parasitic nematodes.

UNIT V:

- Survival of Plant Pathogen- Dispersal of Pathogen- Active and Passive- Infection process – pre- penetration, penetration and post-penetration. Defense mechanism in plants – structural, induced defense in plants. Host plant resistance.

INTRODUCTION TO PLANT PATHOLOGY (PRACTICAL)

1. Study of lab equipments.
2. Preparation of PDA (Potato Dextrose Agar).
3. Preparation of NA (Nutrient Agar).
4. General study of different structures of fungi.
5. Study of symptoms of various plant diseases.
6. Staining and identification of plant pathogenic bacteria.
7. Study of phanerogamic parasites.

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8. 30 Herbarium.

REFERENCES

1. Introductory Mycology- 1996 C. J. Alexopoulos C. W. Mims and M. Blackwell, John Wiley and Sons Ltd. N. York.
2. Introduction to Mycology –1990 R. S. Mehrotra and K. R. Aneja, Wiley E. Ltd. New Delhi
3. Plant Pathogens- The Fungi – 1982 R. S. Singh, Oxford and IBH Publishing Co., New Delhi.
4. Introduction to Plant Viruses – 1987 C. L. Mandahar, Chand and Co., Pvt Ltd., New Delhi.
5. Fungicides in Plant disease control – Nene Y L and Thapliyal P N 1993 Oxford & IBM Publishing Co., New Delhi.
6. Introduction to Principles of Plant Pathology – Singh R. S. 1984. Oxford & IBH Publishing Co., New Delhi.
7. Principles of Plant Pathology – Das Gupta M. K. 1999. Allied Publishers, Pvt. Ltd. New Delhi.
8. Plant Pathology. Concepts and Laboratory Exercise. Trigiano, R.N., Windham, M.T. and Windham. A.S. (eds), 2004. CRC Press, New York.

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