

# ANDHRA KESARI UNIVERSITY



## B.Voc. Agriculture (Major)

w.e.f AY 2023-24 onwards

### Semester IV

#### COURSE STRUCTURE

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
II	IV	9	Pests of Field Crops & their Management	5	4
		10	Diseases Of Field Crops & Their Management	5	4
		11	Principles of Plant Breeding	5	4

*R. V. Ramana*

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**B.Voc. Agriculture**  
**II Year – Semester IV**  
**2023-24 Admitted batch**

**PESTS OF FIELD CROPS AND THEIR MANAGEMENT**  
**(CREDITS 3+1=4)**

**UNIT: I**

- Pests of Cereals and Millets Distribution, bionomics, symptoms of damage and management strategies for insect pests and integrated pest management of rice, wheat, maize and sorghum.

**UNIT II**

- Pests of Pulses and Oilseeds Distribution, bionomics, symptoms of damage and management strategies of insect pests and integrated pest management of pulses (grams, cowpea.), groundnut, castor, sunflower and mustard.

**UNIT III**

- Pests of Cotton and Sugarcane Distribution, bionomics, symptoms of damage and management strategies of insect pests and integrated pest management of cotton and sugarcane.

**UNIT IV**

- Pests of Stored Products, bionomics, symptoms of damage and management strategies.

**UNIT V**

- Rodents and birds of agricultural importance and their management. Locusts and their management.

**PESTS OF FIELD CROPS AND THEIR MANAGEMENT (PRACTICAL)**

1. Pests of rice
2. Pests of maize, sorghum
3. Pests of wheat and ragi
4. Pests of grams and cowpea
5. Pests of groundnut, gingelly and sunflower
6. Pests of castor, soybean, safflower and mustard
7. Pests of cotton
8. Pests of sugarcane
9. Pests of stored products
10. Gadgets for management of stored product insects.
11. Calculation on the doses and their application techniques
12. Assessment of losses in stored grain pests, fumigation of grains stored in godowns
13. Visit to nearest FCI/AWC/SWC godown.

**Reference Books**

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, Ludhiana.

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**B. Vocational course AGRICULTURE**  
**(Honours)**  
**II Year Semester – IV**  
**2023-24 Admitted batch**

**DISEASES OF FIELD CROPS AND THEIR MANAGEMENT**

**CREDITS (3+1=4)**

**UNIT I**

- Principles of plant disease management. Physical methods and biological methods. Protection – Classification of fungicides based on chemical nature and method of application. Integrated disease management.

**UNIT II**

- Diseases of Cereals, Millets and their Management- Rice, Maize, Sorghum, Bajra and Ragi.

**UNIT III**

- Diseases of Pulses and oil seeds and their Management- Red Gram, Black Gram and Green Gram Ground nut, Sun Flower and Sesamum.

**UNIT IV**

- Diseases of Cash crops and vegetable crops and their Management- Cotton, Sugar cane, Brinjal, Chilli, Tomato and Bhendi.

**UNIT V**

- Diseases of Fruits and their Management- Mango, Papaya, Banana and Citrus

**(PRACTICAL)**

1. Survey and assessment of important plant diseases
2. Methods of application of fungicides
3. Special methods of application – acid delinting, pseudostem injection, root feeding, pairing and pralinage, trunk injection
4. Mass multiplication of Trichoderma spp and method of application
5. Identification of Rice and Millets Diseases
6. Identification of Diseases on Pulses
7. Identification of Diseases on Oil Seeds
8. Identification of Diseases on Commercial Crops
9. Identification of Diseases on Vegetables
10. Identification of Diseases on Fruits

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## 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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**B. Vocational course**  
**AGRICULTURE (Honours)**  
**II Year – Semester IV**  
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**PRINCIPLES OF PLANT BREEDING**

**(CREDITS 3+1=4)**

**UNIT-I-**

- Self – incompatibility and male sterility- genetic consequences, cultivar options; Domestication, Acclimatization, introduction, Centre of origin/diversity.

**UNIT-II-**

- Genetic basis and breeding methods in self-pollinated crops-mass and pure line selection, hybridization techniques and handling of segregating population.

**UNIT-III-**

- Multiline concept; Concepts of population genetics and Hardy Weinberg Law.
- Genetic basis and methods of breeding cross pollinated crops, modes of selection.

**UNIT-IV-**


- Heterosis and inbreeding depression, development of inbred lines and hybrids, composite and synthetic varieties
- Breeding methods in asexually propagated crops, clonal selection and hybridization.

**UNIT-V**

- Wide hybridization and pre-breeding; Polyploidy in relation to plant breeding; mutation breeding- methods and uses.

**(PRACTICAL)**

- Plant Breeder's kit; Study of germplasm of various crops;
- Study of floral structure of self-pollinated and cross pollinated crops;
- Emasculation and hybridization techniques in self & cross pollinated crops;
- Consequences of inbreeding on genetic structure of resulting populations;
- Study of male sterility system; Handling of segregation populations;
- Methods of calculating mean, range, variance, standard deviation.
- Designs used in plant breeding experiment, analysis of Randomized Block Design;
- Estimation of heterosis, inbreeding depression and heritability;
- Layout of field experiments;
- Work out the mode of pollination in a given crop and extent of natural out crossing;
- Prediction of performance of double cross hybrids.

  
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## REFERENCES

1. Principles of Plant Breeding (1st & 2nd Edition) by RW Allard,
2. Breeding Field Crops by JM Poehlman,
3. Plant Breeding: Principles & Practices by JR Sharma,
4. Genetics by Strickberger, and
5. An introduction to genetic analysis by Suzuki et Al.

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ANDHRA KESARI UNIVERSITY-ONGOLE, PRAKASAM DISTRICT  
Major Programme from the Year 2023-24 Onwards  
Programme-B. Voc. Agriculture Honours- Question Paper model,  
Second Year-Semester- IV

Time: 3 Hours

Total Marks: 75

PART –A

Answer any Five of the following. Note: Draw labelled diagrams wherever necessary  
(Paper setter must give two questions from each Unit) 1.

5X5=25 Marks

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10

PART –B

Answer any Five of the following  
Note: Draw labelled diagrams wherever necessary Marks  
(Paper setter must give two questions from each Unit)

5X10=50 Marks

- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.

*AV Ramana*

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