

Four Year Under Graduate Programme (FYUGP)

As per provisions of NEP-2020

Vinoba Bhave University Hazaribag



Multidisciplinary Courses (MDC)

To be implemented from the Academic Year **2022-23**

(From session 2022-26)

11. Waves: Berkeley Physics Course, vol. 3, Francis Crawford, 2007, Tata McGraw-Hill.
12. The Physics of Vibrations and Waves, H. J. Pain, 2013, John Wiley and Sons.
13. The Physics of Waves and Oscillations, N.K. Bajaj, 1998, Tata McGraw Hill.
14. Fundamentals of Optics, F.A. Jenkins and H.E. White, 1981, McGraw-Hill
15. Optics, Ajoy Ghatak, 2008, Tata McGraw Hill
16. Fundamental of Optics, A. Kumar, H.R. Gulati and D.R. Khanna, 2011, R. Chand Publications.
17. Introduction to Special Relativity, R. Resnick, 2005, John Wiley and Sons.

6. Multidisciplinary Zoology: Knowledge and Entrepreneurship in Zoology

Semester	: I/II/III
No. of Credits	: 3 (Theory: 03, Practical: 00)
Total Marks	: 75
No. of Teaching Hours	: 45
SIE	: 00
ESE	: 75 (3 hours)
Pass Marks	: 30

Instruction to question Setter:

*There will be **two** group of questions. **Group A** will contain three questions in which all are to be answered. **Question No.1** will be **very short answer type (not MCQ)** consisting of five questions of 1 mark each. **Question No.2 & 3** will be **short answer type** of 5 marks each. **Group B** will contain **descriptive type (Long answer type)** seven questions of fifteen marks each, out of which any four are to be answered.*

Note: *There may be subdivisions in each question of **group B**.*

Unit 1: Environmental waste impact and management:

- a) Definition, Sources and Types of wastes: Industrial wastes, Agricultural wastes, Medical wastes, Hazardous (electronic wastes).
- b) General Impact of wastes on Environment and Human health.
- c) Waste Management and Environmental sustainability.
- d) Environmental Protection Act (1986), Environmental Impact Assessment (EIA).

Unit 2: Wildlife resources and Conservation:

- a) Definition, value and importance of wildlife.
- b) Wildlife resources in India.
- c) Wildlife conservation: objectives, strategies and issues.
- d) Restoration of degraded habitats.
- e) Wildlife Protected Areas: National Parks, Sanctuaries, Biosphere reserves, Tiger reserves, Biodiversity Hot-spots, Wildlife corridors, Project Tiger, Project Elephant, Project Crocodile

- f) Wildlife census methods- Pug mark analysis, fecal sample analysis, Hair sample, GIS.

Unit 3: Common Pest, damage, and their control

- a) Common pest of paddy, vegetables, sugarcane and stored grain pests.
- b) Integrated Pest Management (IPM) (Physical, Chemical and Biological)

Unit 4: Economic Zoology:

- a) Apiculture- Species of Honey bee in India, Life history, Bee Keeping and Bee products
- b) Sericulture- Types of Silk, Silkworm and host plant, Life cycle of silk moth, Processing of Silk from Cocoon, Economic importance of Silk
- c) Lac culture- Different type of Lac insect, life history, cultivation of lac insect and host plant
- d) Aquaculture- culture of freshwater prawn and marine prawn, preparation of prawn farming, preservation and processing of prawn, pearl culture protocol, integrated fish culture, fish by-products.

Unit 5: Human Physiology and Health:

- a) Elementary idea of Digestive system, Excretory System and Respiratory System.
- b) Important endocrine glands of human: location, hormones and their functions.
- c) Common diseases (causes, symptoms and prevention) - Malaria, Diarrhea, Typhoid, Covid-19.
- d) Rabies, HIV(AIDS), Tuberculosis, Kala azar, Filariasis, Polio, Diabetes.

Unit 6: Reproductive health and Sex education:

- a) Elementary idea of Male and Female reproductive system.
- b) Contraceptives and birth control barriers, male and female infertility, surrogacy, IVF, GIFT, ZIFT
- c) Sexually transmitted diseases- Syphilis, Gonorrhea, Trichomoniasis

Suggested Readings:

1. Ecology Environment and Resources Conservation: J.S. Singh, S.P. Singh and S. R. Gupta, Anamaya Publishers, New Delhi
2. Ecology Concept and application: Manual C Molles Jr, Mc Graw Hill
3. G. S. Shukla, V. B Upadhyay: Economic Zoology.
4. C. C. Chatterjee Medical physiology
5. Guyton– A book on medical physiology (Current edition)
6. Textbook in Fisheries- S.S. Khanna