

(C) Multidisciplinary Courses to be offered

| Sl. No. | Sem | Type of Course | Name of Course | Credits | Marks |
|---------|-----|----------------|-------------------------------|---------|-------|
| 1. | I | MDC-1 | Phycology and Microbiology | 3 | 100 |
| 2. | II | MDC-2 | Biomolecules and Cell Biology | 3 | 100 |
| 3. | III | MDC-3 | Updating Soon | 3 | 100 |

Sub Total = 09

SEMESTER -I

MDC-1 (T): Phycology and Microbiology

Course Objective

This Course aims to enhance the knowledge of Algae and Microbes. Algae have significant importance in industry and also used as food and fodder. As microbes are everywhere and affect almost all aspects of our lives, the study of microbes is necessary.

Course Outcomes

After the completion of the course, the students will be able to:

- CO1: Classify the plant kingdom
- CO2: Describe the diversity, structure and importance of viruses and bacteria
- CO3: Describe the general account of mycoplasma
- CO4: Explain the thallus organization, economic importance and the life cycle of various algae

| MDC-1 (T) Phycology and Microbiology (Theory: 2 credits) | | |
|--|--|-----------------|
| Unit | Topics to be covered | No. of Lectures |
| 1 | Algae: Characteristics, Morphology and life cycle of <i>Nostoc</i> , <i>Oedogonium</i> and <i>Chara</i> | 07 |
| 2 | Virus- Discovery and General Structure, DNA Virus (Bacteriophage)-Structure and its replication (Lytic and Lysogenic Cycle), RNA Virus (TMV), Economic importance of Viruses. | 06 |
| 3 | Bacteria – Discovery, Characteristics and cell structure, Reproduction- Vegetative, asexual and genetic recombination (Conjugation, Transformation and Transduction), Economic importance of Bacteria. | 07 |
| TOTAL | | 20 |

Suggested Readings:

1. Lee, R.E. (2008). Phycology, Cambridge University Press, Cambridge. 4th edition.
2. Prescott, L.M., Harley J.P., Klein D.A. (2005). Microbiology, McGrawHill, India. 6th edition
3. Kumar, H.D. (1999). Introductory Phycology. Affiliated East-West Press, Delhi.
4. Campbell, N.A., Reece J.B., Urry L.A., Cain M.L., Wasserman S.A., Minorsky P.V., Jackson R.B. (2008). Biology, Pearson Benjamin Cummings, USA. 8th edition.
5. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata McGraw-Hill Co, New Delhi.
6. Vashishtha, B.R., Sinha, A.K. Singh, V.P. (2010). Botany for degree students: Algae, S. Chand & Company Ltd. 2nd edition
7. Srivastava, H.N. (2005). Algae, Pradeep Publication. 12th edition.
8. Dubey R.C., Maheshwari D.K. (2005). A Text Book of Microbiology, S. Chand & Company Ltd. 2nd edition.

| MDC-1(P) Phycology and Microbiology (Practical: 1 credit) | No. of Classes |
|---|----------------|
| (c) Algae- Study of Vegetative and reproductive structures of the forms prescribed in the syllabus through temporary slides preparation . (d) Models and microphotographs of viruses and bacteria. | 20 |

