ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

I SEMESTER **BOTANY** TIME: 4 Hrs/Week

B 1101 (3) **PLANT DIVERSITY - I** Max. Marks: 100

w.e.f:2017-2020('17AE') **(MICROBIAL DIVERSITY, ALGAE, FUNGI & PLANT PATHOLOGY)**

SYLLABUS

OBJECTIVES: To enable the students to –

- Understand the position, classification and structure of prokaryotes
- Understand the position of Thallophyta in the plant kingdom and know the classification of the different groups namely Viruses, Bacteria, Algae, Fungi & Lichens.
- Identify the morphological and reproductive features of different algae and fungi through the study of representative types of various classes.
- Realize the economic importance of Algae and fungi and Bacteria.
- Understand the symbiotic association of Algae & fungi by study of lichens and their economic importance.
- Identify and understand disease cycle of some of the important plant disease and their control measures.

COURSE:

UNIT – I: MICROBIAL DIVERSITY – INTRODUCTION & VIRUSES

1. Introduction to microorganisms-Occurrence and distribution
2. Classification of microorganisms – R.H. Whittaker's five kingdom concept, Carl Woese's- Domain system.
3. Viruses: General characters of Viruses, Classification, Structure and Replication of TMV, Bacteriophage

UNIT – II: Bacteria & Cyanobacteria

1. General characters, Classification, Types, Ultra structure, Nutritional types, Reproduction- Asexual, Sexual- Transformation, Conjugation, Transduction
2. Economic importance of Bacteria
3. **Bacteria** : Brief account of special groups of bacteria- Archaebacteria, Mycoplasma, Chlamydia, Actinomycetes, Rickettsias
4. **Cynobacteria:** General characters (Brief account), Structure and Life history of Nostoc, Scytonema.

UNIT – III: ALGAE:

1. General characters, Thallus organization, Reproduction of Algae.
2. Classification of Algae according to Fritsch system.
3. Structure, reproduction and Life History of following types :
   - Chlorophyceae : Oedogonium
   - Phaeophyceae : Ectocarpus
   - Rhodophyceae : Polysiphonia
4. Economic importance of Algae

UNIT – IV: FUNGI:

1. General characters.
2. Classification of Fungi (Ainsworth system)
3. Structure, Reproduction, Life History and Systematic position of the following types :
   - Zygomycotina : Rhizopus
   - Ascomycotina : Penicillium
   - Basidiomycetes : Puccinia
5. Economic importance of Fungi.

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UNIT – V: LICHENS & PLANT PATHOLOGY

1. **Lichens:** Structure, Reproduction, Economic & Ecological importance.
2. **Plant Pathology:** Major symptoms of Fungal, Bacterial and Viral plant diseases. Transmission of plant viruses
3. General Control Measures of Plant diseases.
4. Symptoms, Propagation and Control measures of following diseases.
   Fungal : Green ear of Bajra, Tikka disease of Ground nut, Red rot of Sugar cane.
   Bacterial : Leaf Blight of Rice, Citrus canker
   Viral : Bendi vein clearing, Leaf curl of Papaya.

TEXT BOOKS:

Common Core Botany – Vol. I – I K. Ramakrishna – Sri Vikas Publications, Guntur, 2008.

REFERENCES:

1. Pelczar, M.J. (2001) Microbiology, 5th edition, Tata Mc Graw-Hill Co, New Delhi.
2. The Structure and Reproduction of the Algae – by F.E.Fritsch (1945): Cambridge University Press Cambridge, U.K. Vol. I, Vol.II.
3. Introductory Botany –Vol.I – Srivastava H.N, - Pradeep Publications, JALANDAR 1993.
4. University Botany – Vol-I– Edited by Prof. S. M. Reddy – New Age International Publishing (P) Ltd. DELHI
5. Cryptogamic Botany – Vol – I- G.M.Smith – Tata Mc Graw HILL Publishing co. DELHI.
6. Botany for Degree students-Algae -Vasishta B.R.-S.Chanda & Co. Delhi, 1992.
7. Alexopoulos,C.J.., Mims, C.W. & Blackwell, M. (1996): Introductory Mycology John Wiley& Sons., Inc., N.Y., Chicester, Berisbane, Toronto, Singapore.
8. Botany for Degree students-Fungi -Vasishta B.R.-S.Chanda & Co. Delhi, 1992.
9. Diversity of Microbes & Cryptogams: Singh, V., Pandey PC, Jain D.K – 2006 Rastogi Publications – MEERUT.

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ST.JOSEPH'S COLLEGE FOR WOMEN (AUTONOMOUS), VISAKHAPATNAM

I SEMESTER **BOTANY** TIME: 3 Hrs/Week

B 1151 (2) **PLANT DIVERSITY- I** Max. Marks: 50

w.e.f:2017-2020 ('17AE') **(MICROBIAL DIVERSITY, ALGAE, FUNGI & PLANT PATHOLOGY)**

PRACTICAL SYLLABUS – I A

OBJECTIVES: To enable the students to –

- Acquire the laboratory techniques of preparation of slides for study of algal and fungal forms.
- Identify and distinguish between the different algal types, fungal types & prokaryotes included in the syllabus.
- Identify some importance plant diseases through the symptoms.

COURSE:

1. Study of Bacteria, Virus using electron micro Photographs / slides.
2. A. **Cynobacteria** – Oscillatoria, Nostoc and Scytonema

   B. Vegetative and reproductive structure of the following with the help of micro preparation by students, Specimens & Permanent slides.

   Algae: Oedogonium, Ectocarpus & Polysiphonia.

   Fungi: Rhizopus, Pencillium, Puccinia.
3. Section cutting of diseased material infected by Fungi and identification of Pathogens per theory syllabus.
4. **Lichens:** Different types of thalli, Anatomy, and Reproductive structure.
5. **Plant Pathology:** Drawings and identification of Pathological Specimens.

   Fungal: Green ear of Bajra, Tikka disease of Ground nut, Red rot of Sugar cane.

   Bacterial: Leaf Blight of Rice, Citrus Canker

   Viral: Bendi vein clearing, Leaf curl of Papaya.

REFERENCES:

1. Practical Botany- Vol.l H.N.Srivastava (1991) – Pradeep Publications, Jalandhar.
2. A Text Book of Practical Botany – Vol.l (227) – Bendre & Kumar – Rastogi Publications, Delhi.

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