

Govt. College, Ropar

Department of Botany

Syllabus Plan

Session: 2019-2020 (Semester-1)

| Month | Paper 1 DIVERSITY OF MICROBES | Paper 2 DIVERSITY OF CRYPTOGAMS | PRACTICALS |
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| JULY | | | |
| 3 rd week | <ul style="list-style-type: none"> Viruses: General characters, structure, classification and replication of viruses; Importance of viruses, a brief account of Mycoplasma. | <ul style="list-style-type: none"> Basic characteristics of algae; habitat, range of thallus, algal cell structure, Photosynthetic pigments, cellwall, flagella | <ul style="list-style-type: none"> Observation of disease symptoms in hosts infected by viruses – (Yellow vein mosaic of bhindi) and mycoplasma – (little leaf disease of brinjal). |
| 4 th week | <p>#TEST</p> <ul style="list-style-type: none"> Bacteria- A general account with particular reference to ultra structure, classification, mode of reproduction | <ul style="list-style-type: none"> Reserves food materials and nutrition; Life cycle pattern, classification and economic importance of algae. | <ul style="list-style-type: none"> Gram staining of bacteria. |
| AUGUST | | | |
| 1 st week | <ul style="list-style-type: none"> Nutritional types and economic importance; | <ul style="list-style-type: none"> Important features and life history of | <ul style="list-style-type: none"> Study of the genera included under algae and fungi indicating their systematic position. |
| 2 nd week | <ul style="list-style-type: none"> General account of <u>cyanobacteria</u> with emphasis on <u>Oscillatoria</u>. | <ul style="list-style-type: none"> Chlorophyceae – <i>Volvox</i>, <i>Oedogonium</i>; | |
| 3 rd week | <p>#TEST</p> <ul style="list-style-type: none"> Fungi and Fungi like organisms: General characters; Classification and economic Importance | <ul style="list-style-type: none"> Xanthophyceae- <i>Vaucheria</i> Phaeophyceae- <i>Ectocarpus</i>, <i>Sargassum</i>; Rhodophyceae- <i>Batrachospermum</i> | <ul style="list-style-type: none"> Observation of disease symptoms in hosts infected by bacteria – (Citrus canker) |
| 4 th week | <ul style="list-style-type: none"> Important features and life history of members of Kingdom Chromista: <i>Albugo</i> and <i>Phytophthora</i>. Kingdom Fungi: <i>Zygomycota</i>-<i>Mucor</i>; | <p>#TEST</p> | <ul style="list-style-type: none"> Examination of diseased material and identification of pathogens. |

SEPTEMBER1st week2nd week3rd week4th week

- Important features and life history of members of Kingdom
- **Ascomycota**-*Saccharomyces*, *Penicillium**Peziza*
- Important features and life history of **Basidiomycota**, Mitosporic Fungi –*Puccinia*
- **MST**

- Bryophyta displaying alternation of generations; structure, reproduction and affinities of *Marchantia* (**Hepaticopsida**);
- *Anthoceros* (**Anthocerotopsida**)
- *Funaria* (**Bryopsida**)
- Evolution of sporophytes in Bryophytes.
- **MST**

- Study of morphology, reproductive structures and anatomy of the examples cited
- in theory under Bryophyta and Pteridophyta indicating their systematic position.

OCTOBER1st week2nd week3rd week4th week

- Important features and life history of **Basidiomycota**, Mitosporic Fungi
- *Ustilago*,
- *Agaricus*, *Cercospora*
- *Colletotrichum*
- **#TEST**

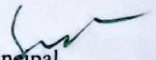
- Pteridophyta: important characteristics, structure and reproduction of **Psilopsida** (*Rhynia*);
- **Lycopsidea** (*Lycopodium*, *Selaginella*);
- **Sphenopsida** (*Equisetum*)
- **#TEST**
- **Pteropsida** (*Pteris* and *Marsilea*)

- Observation of diseasesymptoms in hosts infected by bacteria – (Citrus canker),
- Fungi – (White rust of crucifer, Late blight of potato, loose smut ofwheat, brown
- Rust of wheat, yellow striperust of wheat, tikka disease of groundnut, red rot of sugarcane)

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| <p>NOVEMBER</p> <p>1st week</p> <p>2nd week</p> | <ul style="list-style-type: none"> • Important features and life history of Lichens: • Structure, morphology, reproduction, and economic importance. • • #TEST | <p>#TEST</p> <ul style="list-style-type: none"> • Evolution of stellar system in Fern-allies and Ferns. | <ul style="list-style-type: none"> • Study of crustose, foliose and fruticose lichen thalli. |
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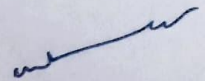
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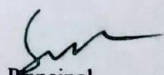
Session: - 2019-2020 (Semester-2)

| Month | Paper 3 <u>CELL BIOLOGY</u> | Paper 4 <u>GENETICS AND EVOLUTION</u> | <u>PRACTICALS</u> |
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| <u>January</u> 4 th week | <ul style="list-style-type: none"> • General Structure of Cell: structure and function of nucleus; • Ultrastructure of nuclear membrane, nuclear pore; nucleolus | <ul style="list-style-type: none"> • DNA the genetic material: DNA structure; replication; • #TEST | <ul style="list-style-type: none"> • To study cell structure from onion leaf peels. |
| <u>February</u> 1 st week 2 nd week 3 rd week | <ul style="list-style-type: none"> • Structure and function of cell organelles: Mitochondria, Plastids, Ribosomes, Golgi Body • Structure and function of cell organelles Endoplasmic Reticulum, Peroxisomes, Vacuoles • Extranuclear genome: Presence and function of mitochondrial and plastid DNA • #TEST | <ul style="list-style-type: none"> • DNA – protein interaction; the nucleosome model • Genetic code; satellite and repetitive DNA; Cell division: • Mitosis; meiosis. • #TEST • Genetic inheritance: Mendelism; laws of segregation and independent assortment; linkage analysis; allelic and non-allelic interactions. | <ul style="list-style-type: none"> • Examination of electron micrographs of eukaryotic cells with special reference to organelles. • Examination of various stages of mitosis and meiosis using appropriate plant material |

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| <p>March</p> <p>1st week</p> <p>2nd week</p> <p>3rd week</p> <p>4th week</p> | <ul style="list-style-type: none"> Chromosome organization: Morphology; centromere and telomere; Chromosome alterations – deletions, duplications. Chromosome alterations – translocations, inversions MST Variations in chromosome number – aneuploidy polyploidy. Sex chromosomes. | <ul style="list-style-type: none"> Gene expression: Structure of genetransfer of genetic information– transcription, translation Protein synthesis; regulation of gene expression in prokaryotes and eukaryotes MST Proteins structure; Genetic Variations: Mutations – spontaneous and induced; transposable genetic elements. | <ul style="list-style-type: none"> Preparation of karyotypes from dividing root tip cells of Allium. Study of pollen mitosis of Impatiens balsamina. Study of special types of chromosomes from slides/photographs. |
| <p>April</p> <p>1st week</p> <p>2nd week</p> | <ul style="list-style-type: none"> #TEST 4. The cell envelopes: Structure, composition and functions of cell wall and plasma membrane in microbes and plants. | <ul style="list-style-type: none"> 4. Brief account of origin of life, evolutionary theories of Lamark, Darwin DeVries, evidences for organic evolution | <ul style="list-style-type: none"> Working out the laws of inheritance using seed mixture data provided using Chi square methods. |



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