

**K.T.S.P. MANDAL'S  
SAHEBRAOJI BUTTEPATIL MAHAVIDYALAYA  
RAJGURUNAGAR**


**TEACHING PLAN -2019-20  
SEMESTER-II  
F.Y.B.Sc.**

**Subject: Paper II- Microbial cultivation and growth**

**Teacher Name: Prof. Indais A.A.**

| <b>Month</b>  | <b>Unit</b> | <b>Topics</b>  | <b>No.of Lectures</b> |
|---|-------------|--|-----------------------|
| Credit One<br>December<br>2019 -<br>Janaury<br>2020 | 1           | <b>Cultivation of Microorganisms:</b><br>1.Nutritional requirements and nutritional classification<br>2.Design and preparation of media:<br>Common ingredients of media and types of media<br>3.Methods for cultivating photosynthetic, extremophilic and chemo-lithotrophic bacteria, anaerobic bacteria, algae, fungi, actinomycetes and viruses<br>4.Concept of Enrichment, Pure Culture, Isolation of culture by streak plate, pour plate, spread plate<br>5. Maintenance of bacterial and fungal cultures using different techniques<br>6. Culture collection centres and their role<br>7. Requirements and guidelines of National Biodiversity Authority for culture collection centres. | 15                    |

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|--|----------|--|-----------|
| <p>Credit Two</p> <p>Febraury -<br/>March 2020</p> | <p>2</p> | <p><b>Bacterial growth:</b></p> <ol style="list-style-type: none"> <li>1. Kinetics of bacterial growth (Exponential growth model)</li> <li>2. Growth curve and Generation time</li> <li>3. Diauxic growth</li> <li>4. Measurement of bacterial growth- Methods of enumeration: <ul style="list-style-type: none"> <li>• Microscopic methods (Direct microscopic count, counting cells using improved Neubauer, Petroff-Hausser's chamber)</li> <li>• Plate counts (Total viable count)</li> <li>• Turbidometric methods (including Nephelometry)</li> <li>• Estimation of biomass (Dry mass, Packed cell volume)</li> <li>• Chemical methods (Cell carbon and nitrogen estimation)</li> </ul> </li> <li>5. Factors affecting bacterial growth {pH, Temperature, Solute Concentration (Salt and Sugar)} and Heavy metal.</li> </ol> | <p>15</p> |
| <p>April 2020</p>                                  |          | <p>Paper Solving And Revision</p>  |           |

  
**Prof. Indais A.A.**  
**Subject Teacher**