

## Teaching Plan Academic Year 2015-16

**Class** : B.Sc I

**Semester: I and II**

**Subject** : Microbiology

**Paper No: III and VI**

**Periods per week** : Th. \_\_\_\_ Pract. \_\_\_\_

**Test (Date):** \_\_\_\_\_

**Weeks (Total)** : 15

**Tutorial (Date):** \_\_\_\_\_

**Name: Dr Madhuri Sahasrabudhe**

<b>Week</b>	<b>Topic to be Covered</b>
<b>July</b> 1	Study of compound microscope- principle, working , ray diagram
2	Study of compound microscope- parts and functions
3	Study of compound microscope- care and use
4	Study of laboratory equipments: Principle, working, application and use Autoclave
<b>August</b> 5	Study of laboratory equipments: Principle, working, application and use Incubator Hot air oven Colourimeter
6	Study of laboratory equipments: Principle, working, application and use Spectrophotometer

	Centrifuge pH meter
7	Monochrome staining
8	Gram staining
<b>September</b> 9	Cell wall staining Capsule staining
10	Test for carbohydrates- Benedict's test
11	Test for proteins- Biuret's test
12	Test for DNA- diphenyl amine method
13	Test for RNA- Orcinol method
<b>October</b> 14	Preparation of media- Nutrient broth and agar
15	Preparation of media- MacConkey's broth and MacConkey's agar
<b>November</b> 16	Preparation of media- Sugar media
17	Preparation of media- Potato dextrose agar
<b>December</b> 18	Effect of pH on growth of bacteria

19	Effect of temperature on growth of bacteria
20	Effect of UV rays on growth of bacteria
21	Effect of antibiotics on growth of bacteria
<b>January</b> 22	Isolation of microorganisms from air and water
23	Isolation of microorganisms from soil
24	Isolation of microorganisms from milk
25	Isolation of bacteria from mixed culture
<b>February</b> 26	Record book certification
27	Practical exam preparation – discussion of university pattern questions
28	Pre practical exam

Teacher's Signature

H.O.D.'s Signature

## Teaching Plan Academic Year 2015-16

**Class** : B.Sc I **Semester: II**

**Subject** : **Microbiology** **Paper No: V**

**Periods per week** : Th. \_\_\_\_ Pract. \_\_\_\_ **Test (Date):** \_\_\_\_\_

**Weeks (Total)** : 15 **Tutorial (Date):** \_\_\_\_\_

**Name: Dr Madhuri Sahasrabudhe**

Week	Topic to be Covered
November	Revision and discussion on difficulties from students, tests
December 3	<p><b>Unit I: Carbohydrates</b></p> <ul style="list-style-type: none"> <li>• Carbohydrates: Definition, classification, properties- optical and chemical Structure of glucose- ring structure, Haworth's formula and Fisher's projection.</li> <li>• Pyranose, hexoses, heptoses- examples with structure</li> </ul>
4	<ul style="list-style-type: none"> <li>• Monosaccharides- examples with structure: triose, pentose, hexose, heptoses</li> </ul>
1	<ul style="list-style-type: none"> <li>• Derived monosaccharides- glycosides, sugar phosphates, uronic acids, sugar alcohols, oligosaccharides</li> </ul>
2	<ul style="list-style-type: none"> <li>• Polysaccharides- homo and heterosaccharides with structure- starch, cellulose, mucopolysaccharides.</li> </ul>

	<ul style="list-style-type: none"> <li>• Biological significance</li> </ul>
3	<b>Unit II: Lipids</b> <ul style="list-style-type: none"> <li>• Lipids- classification,.</li> </ul>
<b>January</b> 1	Chemistry of fatty acids, unsaturated and saturated fatty acids. Triglycerides, saponification, sterol, cholesterol <ul style="list-style-type: none"> <li>• Prostaglandins,</li> <li>• glycerolipids</li> <li>• Functions of lipids</li> </ul>
2	<b>Unit III: Proteins</b> <ul style="list-style-type: none"> <li>• Classification based on solubility and heat coagulability</li> <li>• Fibrous and globular proteins</li> <li>• Protein structure- conformation and configuration,</li> </ul>
3	<ul style="list-style-type: none"> <li>• Protein structure- primary structure Secondary structure- alpha helix and beta pleated sheet structure</li> <li>• Tertiary structure- types of bonds involved</li> <li>• Quarternary structure</li> </ul>
4	<ul style="list-style-type: none"> <li>• Classification of amino acids Isoelectric pH, peptide bonds</li> <li>• Ribose, deoxyribose</li> <li>• DNA- properties, forms, structure , functions and types</li> </ul>
<b>February</b> 1	<ul style="list-style-type: none"> <li>• Enzymes- active sites</li> </ul> Properties- physico chemical factors <b>Unit IV: Nucleic acids : DNA</b>

	<ul style="list-style-type: none"> <li>• Structure of nitrogen bases and base pairing</li> </ul> <p>Structure of nucleosides and nucleotides <b>Nucleic acids : RNA</b></p> <ul style="list-style-type: none"> <li>• Structure, functions</li> <li>• Types- r-RNA, m-RNA and t-RNA</li> <li>• Comparative account of DNA and RNA</li> </ul>
2	<ul style="list-style-type: none"> <li>• pH and buffers</li> <li>• pH titration curve</li> <li>• Pk value</li> <li>• Discussion on university pattern questions</li> <li>• Questions and answers from students</li> </ul>

Teacher's Signature

H.O.D.'s Signature