

# As Per NEP 2020

## University of Mumbai



### Title of the program

- A- U.G. Certificate in **Microbiology**
- B- U.G. Diploma in **Microbiology**
- C- B.Sc. (**Microbiology**)
- D- B.Sc. ( Hons.) in **Microbiology**
- E- B.Sc. (Hons. with Research) in **Microbiology**

### Syllabus for

### Semester – Sem I & II

Ref: GR dated 20<sup>th</sup> April, 2023 for Credit Structure of UG

(With effect from the academic year 2024-25  
Progressively)

# University of Mumbai



(As per NEP 2020)

| Sr. No. | Heading                       | Particulars |                                                                                                          |
|---------|-------------------------------|-------------|----------------------------------------------------------------------------------------------------------|
| 1       | Title of program<br>O: _____A | A           | U.G. Certificate in Microbiology                                                                         |
|         | O: _____B                     | B           | U.G. Diploma in Microbiology                                                                             |
|         | O: _____C                     | C           | B.Sc. (Microbiology)                                                                                     |
|         | O: _____D                     | D           | B.Sc. (Hons.) in Microbiology                                                                            |
|         | O: _____E                     | E           | B.Sc. (Hons. with Research) in Microbiology                                                              |
| 2       | Eligibility<br>O: _____A      | A           | HSC <b>OR</b> Passed Equivalent Academic Level 4.0                                                       |
|         | O: _____B                     | B           | Under Graduate Certificate in <b>Microbiology</b> <b>OR</b> Passed Equivalent Academic Level 4.5         |
|         | O: _____C                     | C           | Under Graduate Diploma in <b>Microbiology</b> <b>OR</b> Passed Equivalent Academic Level 5.0             |
|         | O: _____D                     | D           | Bachelors of <b>Microbiology</b> with minimum CGPA of 7.5 <b>OR</b> Passed Equivalent Academic Level 5.5 |
|         | O: _____E                     | E           | Bachelors of <b>Microbiology</b> with minimum CGPA of 7.5 <b>OR</b> Passed Equivalent Academic Level 5.5 |

|   |                                           |                                                                                                                          |                |
|---|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------|
| 3 | Duration of program<br>R: _____           | A                                                                                                                        | One Year       |
|   |                                           | B                                                                                                                        | Two Years      |
|   |                                           | C                                                                                                                        | Three Years    |
|   |                                           | D                                                                                                                        | Four Years     |
|   |                                           | E                                                                                                                        | Four Years     |
| 4 | Intake Capacity<br>R: _____               | 120 per division                                                                                                         |                |
| 5 | Scheme of Examination<br>R: _____         | NEP<br>40% Internal<br>60% External, Semester End Examination<br>Individual Passing in Internal and External Examination |                |
| 6 | R: _____ Standards of Passing             | 40%                                                                                                                      |                |
| 7 | Credit Structure<br>Sem. I - R: _____ A   | Attached herewith                                                                                                        |                |
|   | Sem. II - R: _____ B                      |                                                                                                                          |                |
|   | Credit Structure<br>Sem. III - R: _____ C |                                                                                                                          |                |
|   | Sem. IV - R: _____ D                      |                                                                                                                          |                |
| 8 | Semesters                                 | A                                                                                                                        | Sem I & II     |
|   |                                           | B                                                                                                                        | Sem III & IV   |
|   |                                           | C                                                                                                                        | Sem V & VI     |
|   |                                           | D                                                                                                                        | Sem VII & VIII |
|   |                                           | E                                                                                                                        | Sem VII & VIII |

|  |  |   |     |
|--|--|---|-----|
|  |  | A | 4.5 |
|--|--|---|-----|

|    |                                                    |                             |     |
|----|----------------------------------------------------|-----------------------------|-----|
| 9  | Program Academic Level                             | B                           | 5.0 |
|    |                                                    | C                           | 5.5 |
|    |                                                    | D                           | 6.0 |
|    |                                                    | E                           | 6.0 |
| 10 | Pattern                                            | Semester                    |     |
| 11 | Status                                             | New                         |     |
| 12 | To be implemented from Academic Year Progressively | From Academic Year: 2024-25 |     |

**Sign of the Offg. Dean  
Prof. Shivram S. Garje  
Faculty of Science &  
Technology**

**Sign of the  
Offg. Associate Dean  
Dr. Madhav R. Rajwade  
Faculty of Science &  
Technology**

**Sign of the Offg. Dean  
Prof. Shivram S. Garje  
Faculty of Science &  
Technology**

## **Preamble**

### **1. Introduction**

The National Education Policy 2020 i.e. NEP 2020 is a comprehensive education policy introduced by the Government of India in July 2020. It aims at producing engaged, productive, and contributing citizens for building an equitable, inclusive, and plural society as envisaged by our Constitution.

Microbiology is a study of the microscopic world. It is an indispensable part of our routine life. It is the branch of science which deals with study of microorganisms with the emphasis on their morphology, biochemistry and industrial applications in diverse fields.

### **2. Aims and Objectives**

The B. Sc (Microbiology) program is designed to provide learners with an experiential learning of the principles, concepts, skills and scope of the subject in day-to-day life as well as in the industry and research.

The objectives are:

- to develop deeper interest in the subject to progress to higher education.
- to sharpen learners' creativity, analytical thinking skills, and logical reasoning.
- to inculcate a scientific temper.
- to acquire skill sets to make them industry ready and independent researchers.

### **3. Learning Outcomes**

On completion of this program the learners will be able to

- apply their knowledge to interdisciplinary sciences in higher education.
- contribute as an efficient professional to an industry as well as research laboratories.
- spread awareness about the importance of Microbiology to the society at local and global level.

## 5) Credit Structure of the Program (Sem I, II, III, IV, V & VI)

### Under Graduate Certificate in Microbiology

#### Credit Structure (Sem. I & II)

|       | R:_____A |                                                                                                                                                                                                                                                                     |           |                                            |                               |                                                                                                                                                                                                                  |                                    |                                   |                       |                             |  |
|-------|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------|-----------------------|-----------------------------|--|
| Level | Semester | Major                                                                                                                                                                                                                                                               |           | Minor                                      | OE                            | VSC, SEC<br>(VSEC)                                                                                                                                                                                               | AEC<br>,<br>VEC<br>, IKS           | OJT,<br>FP,<br>CEP<br>, CC,<br>RP | Cum.<br>Cr. /<br>Sem. | Degree/<br>Cum.<br>. Cr.    |  |
|       |          | Mandatory                                                                                                                                                                                                                                                           | Electives |                                            |                               |                                                                                                                                                                                                                  |                                    |                                   |                       |                             |  |
| 4.5   | I        | 6<br><u>Course I</u><br>Fundamentals<br>of<br>Microbiology<br><br><u>Course II</u><br>Basic<br>techniques in<br>Microbiology<br><br><u>Course III</u><br>Practical in<br>Microbiology I<br>Practical<br>techniques:<br>Staining and<br>Control of<br>Microorganisms | -         | -                                          | 2+2<br>Microbes<br>at<br>work | VSC:2<br><br>(Practical<br>based)<br><br>Techniques in<br>Nutrition<br>,<br>Cultivation and<br>Preservation of<br>Microorganisms<br><br>SEC:2<br><br>(Practical<br>based)<br><br>Microbes<br>in Human<br>welfare | AEC:<br>2,<br>VEC:<br>2, IKS:<br>2 | CC:2                              | 22                    | UG<br><br>Certificate<br>44 |  |
|       | R:_____B |                                                                                                                                                                                                                                                                     |           |                                            |                               |                                                                                                                                                                                                                  |                                    |                                   |                       |                             |  |
|       | II       | 6<br><u>Course I</u><br>Eukaryotes:<br>Cell structure<br>and Microbial<br>Diversity<br><br><u>Course II</u><br>Prokaryotes:<br>Ultrastructure                                                                                                                       | -         | 2<br>Introduction to<br>Microbial<br>World | 2+2<br>Microbes<br>in<br>food | VSC:2,<br><br>(Practical<br>based)<br><br>Techniques in<br>Food and<br>Water<br>Analysis                                                                                                                         | AEC:<br>2,<br>VEC:<br>2            | CC:2                              | 22                    |                             |  |

|  |                |                                                                                                                                                                        |   |      |   |                                                                |       |   |    |  |
|--|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------|---|----------------------------------------------------------------|-------|---|----|--|
|  |                | of Cell and Diversity of Microorganisms<br><br><u>Course III</u><br>Practical in Microbiology II<br>Practical study of groups of organisms: Eukaryotes and Prokaryotes |   | orld |   | SEC:2<br>(Practical based)<br><br>Human - Microbe interactions |       |   |    |  |
|  | <b>Cum Cr.</b> | 12                                                                                                                                                                     | - | 2    | 8 | 4+4                                                            | 4+4+2 | 4 | 44 |  |

**Exit option: Award of UG Certificate in Major with 40-44 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor**

# Under Graduate Diploma in Microbiology

## Credit Structure (Sem. III & IV)

|       | R:_____C |                                                                                                                                                                                                                                                                                  |           |       |    |                                                                      |               |                       |                  |                  |
|-------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------|----|----------------------------------------------------------------------|---------------|-----------------------|------------------|------------------|
| Level | Semester | Major                                                                                                                                                                                                                                                                            |           | Minor | OE | VSC, SEC (VSEC)                                                      | AEC, VEC, IKS | OJT , FP, CEP, CC, RP | Cum . Cr. / Sem. | Degree/ Cum. Cr. |
|       |          | Mandatory                                                                                                                                                                                                                                                                        | Electives |       |    |                                                                      |               |                       |                  |                  |
| 5.0   | III      | 8<br><u>Course I</u><br>Chemical foundations for Basis of life<br><br><u>Course II</u><br>Fermentation technology, Biosafety and Biohazards<br><br><u>Course III</u><br>Basics of Medical Microbiology and Epidemiology<br><br><u>Course IV</u><br>Practical in Microbiology III | --        | 4     | 2  | VSC:2<br><br>(Practical based)<br><br>Basic Bioanalytical techniques | AEC:2         | FP: 2<br><br>CC:2     | 22               | UG Diploma 88    |
|       | R:_____D |                                                                                                                                                                                                                                                                                  |           |       |    |                                                                      |               |                       |                  |                  |

|                |                                                                                                                                                                                                                                           |  |    |    |                                                                  |       |                   |    |  |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|----|------------------------------------------------------------------|-------|-------------------|----|--|
| IV             | 8<br><u>Course I</u><br>Introduction to Microbial metabolism<br><br><u>Course II</u><br>Introduction to Immunology<br><br><u>Course III</u><br>Introduction to Microbial Genetics<br><br><u>Course IV</u><br>Practical in Microbiology IV |  | 4  | 2  | SEC:2<br><br>(Practical based)<br><br>Environmental microbiology | AEC:2 | CEP:<br>2<br>CC:2 | 22 |  |
| <b>Cum Cr.</b> | 28                                                                                                                                                                                                                                        |  | 10 | 12 | 6+6                                                              | 8+4+2 | 8+4               | 88 |  |

**Exit option; Award of UG Diploma in Major and Minor with 80-88 credits and an additional 4 credits core NSQF course/ Internship OR Continue with Major and Minor**

**B.Sc. (Microbiology)****Credit Structure (Sem. V & VI)**

|            | <b>R: _____ E</b> |                                                                                                                                                                                                                                                                                                        |                                                                          |       |    |                                           |               |                      |                 |                      |
|------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------|----|-------------------------------------------|---------------|----------------------|-----------------|----------------------|
| Level      | Semester          | Major                                                                                                                                                                                                                                                                                                  |                                                                          | Minor | OE | VSC, SEC (VSEC)                           | AEC, VEC, IKS | OJT, FP, CEP, CC, RP | Cum. Cr. / Sem. | Degree/ Cum. Cr.     |
|            |                   | Mandatory                                                                                                                                                                                                                                                                                              | Electives                                                                |       |    |                                           |               |                      |                 |                      |
| <b>5.5</b> | V                 | 10                                                                                                                                                                                                                                                                                                     | 4                                                                        | 4     |    | VSC: 2<br><br>(Practical based)           |               | FP/CEP: 2            | 22              | <b>UG Degree 132</b> |
|            |                   | <u>Course I</u><br>Mendelian genetics and Mutations<br><br><u>Course II</u><br>Medical Microbiology<br><br><u>Course III</u><br>Biochemistry: Carbohydrate, Lipid and Protein catabolism<br><br><u>Course IV</u><br>Practical in Microbiology V<br><br><u>Course V</u><br>Practical in Microbiology VI | 1. Biostatistics and Bioinformatics<br><br>2. Recombinant DNA technology |       |    | Medical lab technology : Basic techniques |               |                      |                 |                      |
|            | <b>R: _____ F</b> |                                                                                                                                                                                                                                                                                                        |                                                                          |       |    |                                           |               |                      |                 |                      |

|  |            |                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |    |    |     |       |       |        |    |  |
|--|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|----|-----|-------|-------|--------|----|--|
|  | VI         | <p>10<br/><u>Course I</u><br/>Introductio<br/>n to<br/>Virology</p> <p><u>Course II</u><br/>Advances<br/>in<br/>Immunolo<br/>gy</p> <p><u>Course III</u><br/>Biochemistr<br/>y:<br/>Biosynthesi<br/>s of<br/>Carbohydrat<br/>es, lipids<br/>and amino<br/>acids and<br/>Inorganic<br/>metabolism</p> <p><u>Course IV</u><br/>Practical in<br/>Microbiolo<br/>gy VII</p> <p><u>Course V</u><br/>Practical in<br/>Microbiolo<br/>gy VIII</p> | 4 | 4  |    |     |       |       | OJT :4 | 22 |  |
|  | Cum<br>Cr. | 48                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8 | 18 | 12 | 8+6 | 8+4+2 | 8+6+4 | 132    |    |  |

**Exit option: Award of UG Degree in Major with 132 credits OR Continue with Major and Minor**

**[Abbreviation - OE – Open Electives, VSC – Vocation Skill Course, SEC – Skill Enhancement Course, (VSEC), AEC – Ability Enhancement Course, VEC – Value Education Course, IKS – Indian Knowledge System, OJT – on Job Training, FP – Field Project, CEP – Continuing Education Program, CC – Co-Curricular, RP – Research Project ]**

# Sem. - II

# Syllabus

## B.Sc. (Microbiology)

### (Sem.- II)

| Course code     |           | SEMESTER II                                                                                                                                                                       | Credits                             |
|-----------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
|                 |           | <b>Major Course I</b><br><b>Eukaryotes: Cell structure and Microbial Diversity</b>                                                                                                | <b>Credits 2</b><br><b>(30L/hr)</b> |
| <b>Module 1</b> | <b>1.</b> | <b>Eukaryotes: Cell structure</b>                                                                                                                                                 | <b>15L</b>                          |
|                 | 1.1       | Overview of Eukaryotic cell structure                                                                                                                                             | <b>2L</b>                           |
|                 | 1.2       | The plasma membrane                                                                                                                                                               | <b>2L</b>                           |
|                 | 1.3       | Cytoplasmic matrix, microfilaments, intermediate filaments, and microtubules                                                                                                      | <b>2L</b>                           |
|                 | 1.4       | Organelles of biosynthetic -secretory and endocytic pathways – Endoplasmic reticulum & Golgi apparatus. Definitions of Lysosome, Endocytosis, Phagocytosis, Autophagy, Proteasome | <b>3L</b>                           |
|                 | 1.5       | Eukaryotic ribosomes                                                                                                                                                              | <b>1L</b>                           |
|                 | 1.6       | Mitochondria                                                                                                                                                                      | <b>1L</b>                           |
|                 | 1.7       | Chloroplasts                                                                                                                                                                      | <b>1L</b>                           |
|                 | 1.8       | Nucleus                                                                                                                                                                           | <b>1L</b>                           |
|                 | 1.9       | External Cell appendages: Cilia and Flagella                                                                                                                                      | <b>2L</b>                           |
| <b>Module 2</b> |           | <b>Eukaryotes: Microbial Diversity</b>                                                                                                                                            | <b>15L</b>                          |
|                 | <b>2.</b> | <b>Protozoa</b>                                                                                                                                                                   | <b>5L</b>                           |
|                 | 2.1       | 2.1.1 Major Categories of Protozoa based on motility, reproduction. Class,<br>2.1.2 General characteristics and examples (Tabulation)                                             |                                     |
|                 | 2.2       | Medically important Protozoa - Life cycle of <i>Entamoeba histolytica</i> (Schematic representation)                                                                              |                                     |
|                 | <b>3</b>  | <b>Algae</b>                                                                                                                                                                      | <b>4L</b>                           |
|                 | 3.1       | Characteristics of major group of algae: Morphology, Pigments, Reproduction (Tabulation)                                                                                          |                                     |
|                 | 3.2       | Biological, Medical and Economic importance of Algae                                                                                                                              |                                     |

|                   |                                                                                                                                 |                                                                                   |           |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------|
|                   | 3.3                                                                                                                             | Differences between Algae and Cyanobacteria                                       |           |
|                   | 4                                                                                                                               | <b>Fungi and Yeast</b>                                                            | <b>5L</b> |
|                   | 4.1                                                                                                                             | Characteristics: Structure, Reproduction                                          |           |
|                   | 4.2                                                                                                                             | Major fungal divisions- Overview (Tabulation)                                     |           |
|                   | 4.3                                                                                                                             | Life cycle of yeast (Schematic representation)<br>Medical and Economic importance |           |
|                   | 5.                                                                                                                              | <b>Slime molds and Myxomycetes</b>                                                | <b>1L</b> |
| <b>References</b> |                                                                                                                                 |                                                                                   |           |
| 1.                | Lansing M. Prescott, Harley and Klein, Microbiology (2005), 6th Edition. McGraw Hill Higher Education, New York.                |                                                                                   |           |
| 2.                | Michael J. Pelczar Jr., E.C.S. Chan, Noel R., Microbiology TMH 5th Edition.                                                     |                                                                                   |           |
| 3.                | Michael T. Madigan & J.M. Martin, Brock's Biology of Microorganisms 13th Ed. International edition 2012, Pearson Prentice Hall. |                                                                                   |           |
| 4.                | Willey, Sherwood and Woolverton, Prescott's Microbiology, 8th edition, 2011, International edition, McGraw Hill                 |                                                                                   |           |
| 5.                | Kathleen Park Talaro & Arthur Talaro - Foundations in Microbiology International edition 2002, McGraw Hill                      |                                                                                   |           |

| Course code       |                                                                                                                 | SEMESTER II                                                                                                                                                                              | Credits                              |
|-------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
|                   |                                                                                                                 | <b>Major Course II</b><br><b>Prokaryotes: Ultrastructure of cell and Diversity of Microorganisms</b>                                                                                     | <b>Credits 2</b><br><b>(30 L/hr)</b> |
| <b>Module 1</b>   | 1.                                                                                                              | <b>Bacterial cell structure</b>                                                                                                                                                          | <b>15L</b>                           |
|                   | 1.1                                                                                                             | Morphology of Prokaryotic cells: Size, Shape and Arrangement                                                                                                                             | <b>1L</b>                            |
|                   | 1.2                                                                                                             | Plasma Membrane: The Fluid Mosaic model, Functions                                                                                                                                       | <b>1L</b>                            |
|                   | 1.3                                                                                                             | Cytoplasm – Ribosomes, Magnetosomes, gas vesicles, PHB granules, Metachromatic granules.                                                                                                 | <b>2L</b>                            |
|                   | 1.4                                                                                                             | Bacterial genome - Nucleoid, Plasmids                                                                                                                                                    | <b>1L</b>                            |
|                   | 1.5                                                                                                             | Cell wall structure: Peptidoglycan Structure, Gram- Positive and Gram-Negative Cell Walls, Lipopolysaccharide layer, Functions of the cell wall                                          | <b>4L</b>                            |
|                   | 1.6                                                                                                             | Components external to cell wall- capsule, slime layer, flagella, fimbriae and pili                                                                                                      | <b>3L</b>                            |
|                   | 1.7                                                                                                             | Bacterial endospores – structure and significance, stages in endospore formation                                                                                                         | <b>2L</b>                            |
|                   | 1.8                                                                                                             | Comparison of Prokaryotic and Eukaryotic Cells                                                                                                                                           | <b>1L</b>                            |
| <b>Module 2</b>   | 2.                                                                                                              | <b>Diversity of Prokaryotic Microorganisms</b>                                                                                                                                           | <b>15L</b>                           |
|                   | 2.1                                                                                                             | General features and medical significance of <i>Rickettsia</i> , <i>Coxiella</i> , <i>Chlamydia</i> , <i>Mycoplasma</i>                                                                  | <b>4L</b>                            |
|                   | 2.2                                                                                                             | 2.2.1 Ecological, Commercial and Medical importance of <i>Actinomycetes</i><br>2.2.2 General features of <i>Nocardia</i> and <i>Streptomyces</i>                                         | <b>3L</b>                            |
|                   | 2.3                                                                                                             | Introduction- to the Major Archaeal physiological groups and their Ecological importance                                                                                                 | <b>2L</b>                            |
|                   | 2.4                                                                                                             | <b>Viruses:</b><br>2.4.1 General properties of Viruses<br>2.4.2 Structure of viruses-capsids, envelopes, genomes<br>2.4.3 Medical significance<br>2.4.4 Cultivation of viruses- overview | <b>6L</b>                            |
| <b>References</b> |                                                                                                                 |                                                                                                                                                                                          |                                      |
| 1.                | Lansing M. Prescott, Harley and Klein, Microbiology (2005),6th Edition. McGraw Hill Higher Education, New York. |                                                                                                                                                                                          |                                      |

|    |                                                                                                                                 |
|----|---------------------------------------------------------------------------------------------------------------------------------|
| 2. | Michael J.Pelczar Jr., E.C.S. Chan ,Noel R , Microbiology TMH 5th Edition.                                                      |
| 3. | Michael T. Madigan & J.M. Martin, Brock's Biology of Microorganisms 13th Ed. International edition 2012, Pearson Prentice Hall. |
| 4. | Willey, Sherwood and Woolverton, Prescott's Microbiology, 8th edition, 2011, International edition, McGraw Hill                 |
| 5. | Kathleen Park Talaro & Arthur Talaro - Foundations in Microbiology International edition 2002, McGraw Hill                      |

| Course Code | SEMESTER II                                                                                                                                                              | Credits                        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|             | <b>Major Course III<br/>(Practical in Microbiology II)</b>                                                                                                               | <b>2 credits<br/>(60 L/hr)</b> |
|             | <b>Practical study of groups of organisms: Eukaryotes and Prokaryotes</b>                                                                                                |                                |
| 1.          | Staining of Nucleus – Giemsa's Method                                                                                                                                    |                                |
| 2.          | Isolation of yeast on Sabouraud's agar                                                                                                                                   |                                |
| 3.          | Cultivation of fungi on<br>a) Sabouraud's agar<br>b) Potato dextrose agar                                                                                                |                                |
| 4.          | Slide Culture technique<br>a) Actinomycetes<br>b) Fungal Culture ( Penicillium/Aspergillus, Mucor/Rhizopus)                                                              |                                |
| 5.          | Fungal Wet mounts & Study of morphological characteristics<br>: <i>Mucor, Rhizopus, Aspergillus, Penicillium</i>                                                         |                                |
| 6.          | Cultivation of Algae<br>Permanent slides of algae and protozoa                                                                                                           |                                |
| 7.          | Spot assay and plaque assay of Bacteriophage (Demonstration)                                                                                                             |                                |
| 8.          | Special staining:<br>a) Cell wall<br>b) Capsule<br>c) Endospore<br>d) Flagella(demonstration)<br>e) Lipid<br>f) Metachromatic granules<br>g) Spirochaetes(demonstration) |                                |
| 9.          | Measurement of bacterial cell size- Micrometry                                                                                                                           |                                |

## VOCATIONAL SKILL COURSE (VSC) SEM II

| Semester  | Course                                                       | Description                              | Credits   |
|-----------|--------------------------------------------------------------|------------------------------------------|-----------|
| <b>II</b> | <b>Vocational skill course<br/>VSC<br/>(Practical Based)</b> | Techniques in Analysis of food and water | <b>02</b> |

| Course Code | SEMESTER II                                                                      | Credits                        |
|-------------|----------------------------------------------------------------------------------|--------------------------------|
|             | <b>VOCATIONAL SKILL COURSE<br/>(PRACTICAL BASED)</b>                             | <b>2 credits<br/>(60 L/hr)</b> |
|             | <b>Techniques in Food and Water Analysis</b>                                     |                                |
|             | <b>Food analysis</b>                                                             |                                |
| 1.          | Physical and microscopic observation of spoilt Fruit and Vegetable, canned foods |                                |
| 2.          | Isolation of Pectinolytic organism from spoilt fruit                             |                                |
| 3.          | Isolation of saccharolytic organisms from spoilt foods                           |                                |
| 4.          | Isolation of thermophilic organisms from pasteurized milk                        |                                |
| 5.          | Isolation of psychrophiles from ice creams                                       |                                |
| 6.          | Determination of TDT and TDP for gram positive and gram negative food pathogens  |                                |
| 7.          | MIC of Salt and sugar                                                            |                                |
| 8.          | MIC of preservatives (Sodium benzoate)                                           |                                |
|             | <b>Water analysis</b>                                                            |                                |
| 9.          | Standard Plate Count of potable water                                            |                                |

|                   |                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10.               | Indicator organisms and their detection in water<br>a. <i>Escherichia coli</i> MPN<br>b. Fecal <i>Streptococci</i> (Membrane filtration Slanetz and Bartley)<br>c. <i>Clostridium perfringens</i> using DRCM |
| 11.               | Detection of Coliforms in water: Presumptive Test, Confirmed Test, and completed Test                                                                                                                        |
| 12.               | Rapid Detection of <i>E.coli</i> by MUG Technique (Demonstration)                                                                                                                                            |
| <b>REFERENCES</b> |                                                                                                                                                                                                              |
| 1.                | Frazier 5th ed Food Microbiology                                                                                                                                                                             |
| 2.                | James Jay 6th ed Modern Food Microbiology                                                                                                                                                                    |
| 3.                | Bibek Ray, Arun Bhunia (2007), 4th edition CRC Press Fundamental Food Microbiology                                                                                                                           |
| 4.                | Montville and Mathews (2008) Food Microbiology – An Introduction, ASM Press                                                                                                                                  |
| 5.                | Food Science by Sumati R. Mudambi, Shalini Rao, M.V. Rajagopal, revised 2nd edition, (2006), New Age international publications                                                                              |
| 6.                | Prescott's Microbiology, 8 <sup>th</sup> Edition; Joanne M. Willey, Linda M. Sherwood, Christopher J. Woolverton, 2011, Mc Graw Hill International Edition                                                   |
| 7.                | Waites and Morgan Industrial Microbiology Blackwell Science                                                                                                                                                  |
| 8.                | Frobisher, Hinsdill, Crabtree, Goodheart Fundamentals of Microbiology, 9 <sup>th</sup> Edition, 1974, Saunders College Publishing                                                                            |

### Skill Enhancement course (SEC)

| Semester | Course                                                        | Description                         | Credits   |
|----------|---------------------------------------------------------------|-------------------------------------|-----------|
| <b>I</b> | <b>Skill Enhancement course<br/>SEC<br/>(Practical Based)</b> | <b>Human - Microbe interactions</b> | <b>02</b> |

| Course Code | SEMESTER II                                                                                                                                                                                                                                                                                                                                                                     | Credits                        |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
|             | <b>Skill Enhancement Course (SEC)<br/>Practical based</b>                                                                                                                                                                                                                                                                                                                       | <b>2 credits<br/>(60 L/hr)</b> |
|             | <b>Human - Microbe interactions</b>                                                                                                                                                                                                                                                                                                                                             |                                |
| 1.          | Overview of Normal flora of the human body : Skin, Nose & Nasopharynx, Oropharynx, Respiratory tract, Eye, External ear, Mouth, Stomach, Small intestine, Large intestine, Genitourinary tract<br>Study of normal flora<br>a) Skin- Gram staining, isolation on NA, SIBA<br>b) Oral cavity - Gram staining, isolation on NA, SIBA, Sabouraud's agar                             |                                |
| 2.          | Common terminologies : Fomite, aerosols, droplet nuclei<br>a) Cough plate technique<br>Study of Fomites<br>b) Table top<br>c) Door handles<br>d) Cell phones/Ear pods/Earphones<br>e) Hand bags                                                                                                                                                                                 |                                |
| 3.          | Effect of sanitation of the microbial flora<br>Fingerprints on NA plate- before and after sanitization                                                                                                                                                                                                                                                                          |                                |
| 4.          | Overview of Microbial virulence factors and common terms<br>Study of virulence factors<br>a) Haemolysin<br>b) Coagulase<br>c) Lecithinase                                                                                                                                                                                                                                       |                                |
| 4.          | Overview of common microbial diseases like Typhoid/ Gastroenteritis /Malaria / skin infections/Influenza<br>Use of Enrichment / Selective / Differential media for pathogens<br>a) Enrichment media - Tetrathionate / Selenite F<br>b) Differential - SS/ XLD<br>c) Selective - Baird Parker/Salt Mannitol agar<br>d) Transport media - Cary and Blair Medium / Stuart's medium |                                |

## References

|    |                                                                                                                     |
|----|---------------------------------------------------------------------------------------------------------------------|
| 1. | Practical medical microbiology by Mackie and McCartney , 1996, 14th edi.                                            |
| 2. | Tortora, Funke & Case Microbiology, an Introduction 9 <sup>th</sup> and 11 <sup>th</sup> edition, Pearson education |
| 3. | Michael J. Pelczar Jr., E.C.S. Chan, Noel R. Krieg Microbiology TMH 5 <sup>th</sup> Edition                         |

# **Guidelines for examination and evaluation (External and Internal)**

## Evaluation Pattern for Major Courses

### MAJOR:6 credits

| Theory/Practical | Credits | No. of Hours | Marks |
|------------------|---------|--------------|-------|
| Theory: Paper 1  | 2       | 30           | 50    |
| Theory: Paper 2  | 2       | 30           | 50    |
| Practical        | 2       | 60           | 50    |

### Theory courses

|                                                                                                                                          |                                                              |                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------|
| <b>Internal Continuous Assessment:<br/>40% (20 Marks)</b>                                                                                | <b>Semester End<br/>Examination:<br/><br/>60% (30 Marks)</b> | <b>Duration for End<br/>semester examination</b> |
| <b>Continuous Evaluation through:</b><br>Quizzes, Class Tests, presentation,<br>project, role play, creative writing,<br>assignment etc. | As per paper pattern*                                        | 1hour                                            |

### \*Paper Pattern for 30 marks :

#### 30 Marks per paper Semester End Theory Examination:

**Duration - These examinations shall be of one hour duration**

| Question | Option                                                                                                                | Marks     | Questions Based on |
|----------|-----------------------------------------------------------------------------------------------------------------------|-----------|--------------------|
| Q1.      | Attempt any two out of three questions (5 marks each)                                                                 | 10        | Module 1           |
| Q2.      | Attempt any two out of three questions (5 marks each)                                                                 | 10        | Module 2           |
| Q3.      | Attempt any two out of three questions (5 marks each)<br>OR<br>Attempt any five out of eight questions (2 marks each) | 10        | Module 1,2         |
|          | <b>Total</b>                                                                                                          | <b>30</b> |                    |

### **Practical courses**

| <b>Internal Continuous Assessment:<br/>40% (20 Marks)</b>                                                                 | <b>Semester End Examination:<br/>60% (30 Marks)</b>                                                                    | <b>Duration for End semester examination</b> |
|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Minor experiment /Viva/<br>Assignment/ objective question test<br>(15 Marks), Overall performance (5<br>Marks) = 20 Marks | Experiments<br><br>(15 marks Major + 5<br>marks Viva/Spots + 5<br>marks Quiz and 5<br>Marks for Journal = 30<br>Marks) | 2 hours each day<br>(2days)                  |

### **Evaluation Pattern for Vocational Skill Course**

**Practical course of 2 credits, Duration: 60 h, Total marks: 50**

| <b>Internal Continuous Assessment:<br/>40% (20 Marks)</b>                                                                 | <b>Semester End Examination:<br/>60% (30 Marks)</b>                            |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Minor experiment /Viva/ Assignment/<br>objective question test (15 Marks),<br>Overall performance (5 Marks) = 20<br>Marks | Experiments<br><br>(15 marks + 10 marks and 5 Marks for Journal =<br>30 Marks) |

### **Evaluation Pattern for Skill Enhancement Course**

**Practical course of 2 credits, Duration: 60 h, Total marks: 50**

| <b>Internal Continuous Assessment:<br/>40% (20 Marks)</b>                                                                 | <b>Semester End Examination:<br/>60% (30 Marks)</b>                            |
|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Minor experiment /Viva/ Assignment/<br>objective question test (15 Marks),<br>Overall performance (5 Marks) = 20<br>Marks | Experiments<br><br>(15 marks + 10 marks and 5 Marks for Journal =<br>30 Marks) |

### Letter Grades and Grade Points:

| <b>Semester GPA/ Programme<br/>CGPA Semester/ Programme</b> | <b>% of Marks</b> | <b>Alpha-Sign/<br/>Letter Grade Result</b> | <b>Grading<br/>Point</b> |
|-------------------------------------------------------------|-------------------|--------------------------------------------|--------------------------|
| 9.00 - 10.00                                                | 90.0 - 100        | O (Outstanding)                            | 10                       |
| 8.00 - < 9.00                                               | 80.0 - < 90.0     | A+ (Excellent)                             | 9                        |
| 7.00 - < 8.00                                               | 70.0 - < 80.0     | A (Very Good)                              | 8                        |
| 6.00 - < 7.00                                               | 60.0 - < 70.0     | B+ (Good)                                  | 7                        |
| 5.50 - < 6.00                                               | 55.0 - < 60.0     | B (Above<br>Average)                       | 6                        |
| 5.00 - < 5.50                                               | 50.0 - < 55.0     | C (Average)                                | 5                        |
| 4.00 - < 5.00                                               | 40.0 - < 50.0     | P (Pass)                                   | 4                        |
| Below 4.00                                                  | Below 40.0        | F (Fail)                                   | 0                        |
| Ab (Absent)                                                 | -                 | Ab (Absent)                                | 0                        |

**This syllabus is applicable to IDOL students as well, w.e.f. 2025-26**

### Signatures of Team Members

| Name                                 | College Name                                                                                                                                                                                                                                                                                         | Sign                                                                                  |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Dr. Aparna Dubhashi<br>(Coordinator) | Associate Professor,<br>Department of Microbiology,<br>Guru Nanak Khalsa College (Autonomous),<br>Nathalal Parekh Marg, Matunga, Mumbai<br>400019<br>Email: <a href="mailto:aparna.dubhashi@gnkhalsa.edu.in">aparna.dubhashi@gnkhalsa.edu.in</a><br>Contact no: 9820658260                           |    |
| Dr. Radhika Birmole                  | Associate Professor,<br>Department of Microbiology,<br>Wilson college (Autonomous), Sea face<br>road, Chowpatty, Mumbai 400007<br>Email: <a href="mailto:radhika.birmole@wilsoncollege.edu">radhika.birmole@wilsoncollege.edu</a><br>Contact no: 9372187273                                          |    |
| Dr. Ajitha Nair                      | Associate Professor,<br>Department of Microbiology,<br>S.I.W.S. College (Autonomous),<br>Plot no 337, Major Parmeshwaran Marg,<br>Sewree Wadala Estate, Wadala, Mumbai<br>400031<br>Email: <a href="mailto:ajithanair@siwscollege.edu.in">ajithanair@siwscollege.edu.in</a><br>Contact no.9892155260 |    |
| Dr. Sandhya Mulchandani              | Associate Professor,<br>Department of Microbiology,<br>Smt. Chandibai Himathmal Mansukhani<br>College, Opposite Railway station,<br>Ulhasnagar - 421003<br>Email: <a href="mailto:bharti.mul@gmail.com">bharti.mul@gmail.com</a><br>Contact no.9657944876                                            |  |
| Dr. Shweta Patil                     | Assistant Professor,<br>Department of Microbiology<br>Vivekanand Education society's college of<br>Arts, Science and Commerce (Autonomous)<br>Chembur, Mumbai 400071<br>Email: <a href="mailto:shweta.patil@ves.ac.in">shweta.patil@ves.ac.in</a><br>Contact no: 9869345818                          |  |

## Appendix B

### Justification for B.Sc. (Microbiology)

|    |                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Necessity for starting the course:                                                                                               | The necessity for starting the Certificate, Diploma and Undergraduate degree program in B.Sc. (Microbiology) lies in its significance as a fundamental , interdisciplinary, skill and research based , science. Due to its multidisciplinary scope in research related to medical, industrial, environmental, etc. the course prepares the learners for higher education, job opportunities and active participation in addressing national and global challenges |
| 2. | Whether the UGC has recommended the course:                                                                                      | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3. | Whether all the courses have commenced from the academic year 2023-24                                                            | The course has commenced in the university , but restructured under NEP 2020 in the academic year 2024-25 .                                                                                                                                                                                                                                                                                                                                                       |
| 4. | The courses started by the University are self-financed, whether adequate number of eligible permanent faculties are available?: | This course is aided / self-financed based on the sanction given by University of Mumbai to affiliated colleges from time to time.                                                                                                                                                                                                                                                                                                                                |
| 5. | To give details regarding the duration of the Course and is it possible to compress the course?:                                 | The duration of the program is three years (6 semesters). It is not possible to compress the course.                                                                                                                                                                                                                                                                                                                                                              |
| 6. | The intake capacity of each course and no. of admissions given in the current academic year:                                     | The intake capacity is variable from college to college based on sanctions received from the University.                                                                                                                                                                                                                                                                                                                                                          |
| 7. | Opportunities of Employability / Employment available after undertaking these courses:                                           | B.Sc. (Microbiology) graduates can apply their professional skills in various sectors: Diagnostics, Pharmaceuticals, Food, Environment management, Agriculture, Astrobiology, etc. making them key players in the lives of humans and society at large. They have diversified opportunities of jobs in both government and private sectors in India as well as globally. They can contribute immensely to nation building.                                        |

**Sign of the Offg. Dean**  
**Prof. Shivram S. Garje**  
**Faculty of Science &**  
**Technology**

**Sign of the**  
**Offg. Associate Dean**  
**Dr. Madhav R. Rajwade**  
**Faculty of Science &**  
**Technology**

**Sign of the Offg. Dean**  
**Prof. Shivram S. Garje**  
**Faculty of Science &**  
**Technology**

## As Per NEP 2020

# University of Mumbai



| Syllabus for<br>Basket of Minor               |              |
|-----------------------------------------------|--------------|
| Board of Studies in Botany                    |              |
| UG First Year Programme                       |              |
| Semester                                      | II           |
| Title of Paper                                | Credits 2/ 4 |
| I) Plant Science and Human Welfare<br>(Minor) |              |
| II)                                           |              |
| III)                                          |              |
| From the Academic Year                        | 2024-25      |

## Name of the Course: Plant Science and Human Welfare

| SEMESTER-II |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sr. No.     | Heading                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Particulars                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1           | <b>Description of the course:</b><br><br><b>Including but not limited to:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p>This course is aimed at students interested in understanding the basic plant science and the use of plants in daily life. In this course, there are two modules viz. Plant science and Plants in Human Welfare.</p> <p>This course provides biodiversity and significance of plants, interesting facts about plants and traditional and aesthetic aspects of plants. Plant-Human welfare module is focused on the benefits of plants that are used as food, as medicine, as cosmetics etc. and the importance of plants which are used in aesthetic and daily life.</p> |
| 2           | <b>Vertical:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Minor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 3           | <b>Type:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4           | <b>Credit:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2 credits (1 credit = 15 Hours for Theory)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 5           | <b>Hours Allotted:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 30 Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 6           | <b>Marks Allotted:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 50 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 7           | <b>Course Objectives:</b> To enable the students: <ol style="list-style-type: none"> <li>1. Recognize different plant types.</li> <li>2. Understand the concept of plant communication, plant defense mechanism, and Aesthetic Botany.</li> <li>3. Comprehend the role of plants in providing food, significance of microgreens, plant-derived beverages like tea, coffee, and squash.</li> <li>4. Explore the diverse applications of plants in everyday products, traditional uses of plants in cultural practices.</li> <li>5. Acquire the knowledge of hydroponics and aeroponics, vertical gardening, <i>Spirulina</i> farming.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 8           | <b>Course Outcomes:</b> The students will be able to: <ol style="list-style-type: none"> <li>1. Differentiate plant types.</li> <li>2. Describe the concept of plant communication, plant defense mechanism, and Aesthetic Botany.</li> <li>3. Explain the role of plants in providing food, significance of microgreens, plant-derived beverages like tea, coffee, and squash.</li> <li>4. Utilize plants in everyday products, and in traditional cultural practices.</li> <li>5. Illustrate the techniques of hydroponics and aeroponics, vertical gardening, <i>Spirulina</i> farming.</li> </ol>                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9  | <b>Module-1: Plant Science (15 Lectures)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|    | <p><b>1. Biodiversity and Significance of Plants 5 Lectures</b></p> <p>1.1.1. General classification of plants.</p> <p>1.1.2. Various plants types: Herb, Shrub, Tree, Climbers, Creepers.</p> <p>1.1.3. Botanical marvels: Pitcher plant (<i>Nepenthes</i>), Sun dew (<i>Drosera</i>), Touch-me-not (<i>Mimosa</i>), <i>Rafflesia</i>, <i>Cuscuta</i></p> <p><b>2. Interesting Facts about plants: 5 Lectures</b></p> <p>1.2.1. Do plants talk? (Communication in plants)</p> <p>1.2.2. Plant movements (example- flower, tendrils etc.)</p> <p>1.2.3. Plant-defence and mimicry.</p> <p><b>3. Aesthetic and Traditional Aspects of Plants 5 Lectures</b></p> <p>1.3.1. Aesthetic Botany: Concept, Significance</p> <p>1.3.2. Gardens and landscapes (Indoor gardening, Terrace and gallery gardening)</p> <p>1.3.3. Traditional practices involving plants (Example- Banana leaves, coconut, rice etc.)</p>                                                                       |
|    | <b>Module-2: Plants in Human Welfare (15 Lectures)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 10 | <p><b>1. Plants as Food 5 Lectures</b></p> <p>2.1.1. Plants as Food (Root, stem, leaves, tuber, corm, flower, rhizome, fruit, seed used as food with one example)</p> <p>2.1.2. Microgreens (Fenugreek, Wheatgrass etc.)</p> <p>2.1.3. Plant derived beverages (Tea, Coffee and Squash)</p> <p><b>2. Plants in Daily Life 5 Lectures</b></p> <p>2.2.1. Plants used for cosmetics, perfumes, ecofriendly colours, fabrics, soap, shampoo, toothpaste.</p> <p>2.2.2. Plants used in sports and musical instruments, building infrastructure, furniture, writing- drawing.</p> <p>2.2.3. Importance of Medicinal Plants - Amla, Brahmi, Chakramuni (Multivitamin plant) and Stevia (Madhuparni).</p> <p><b>3. Next Generation Plant Cultivation 5 Lectures</b></p> <p>2.3.1. Hydroponics and Aeroponics</p> <p>2.3.2. Vertical gardening</p> <p>2.3.3. <i>Spirulina</i> farming</p> <p><b>Field Visit:</b> Exploration of In-Situ / Ex-Situ Conservation Methods in Botany (Visit)</p> |
|    | <p><b>Reference books:</b></p> <p>1. “Botany for the Future” by Peter H. Raven</p> <p>2. “Medicinal Plants: A Comprehensive Guide” by S. K. Jain</p> <p>3. “Plant Physiology” by Lincoln Taiz and Eduardo Zeiger</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                 |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|           | 4. "The Physiology of Flowering Plants: Their Growth and Development" by Roger F. E. Schumacher –<br>5. "Edible Medicinal and Non-Medicinal Plants: Volume 1, Fruits" by T. K. Lim<br>6. "Landscaping principles and practices" by Jack E. Ingels<br>7. "Hydroponics: The Essential Hydroponics Guide: A Step-By-Step Hydroponic Gardening Guide to Grow Fruit, Vegetables, and Herbs at Home" by Andy Jacobson<br>8. "Vertical Gardening for Beginners: Ideas for Growing Beautiful Space-Saving Gardens Indoors and Outdoors" by Julie Ruth<br>9. "Spirulina in Human Nutrition and Health" by M. E. Gershwin and Amha Belay |                                                                                                 |
| <b>11</b> | <b>Internal Continuous Assessment: 40% (20 marks)</b><br><br>Field report, Assignments, Presentation and Quiz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Semester End Examination: 60% (30 marks)</b><br><br>Any 3 questions out of 6 (10 marks each) |

**Sign of the BOS**  
**Chairman**  
**Dr. Vasant P. Mali**  
**BOS in Botany**

**Sign of the Offg.**  
**Associate Dean**  
**Dr. Madhav R. Rajwade**  
**Faculty of Science &**  
**Technology**

**Sign of the**  
**Offg. Dean**  
**Prof. Shivram S. Garje**  
**Faculty of Science &**  
**Technology**

## As Per NEP 2020

# University of Mumbai



| <b>Syllabus for<br/>Basket of Open Electives</b>                |                     |
|-----------------------------------------------------------------|---------------------|
| <b>Ad- hoc Board of Studies in B. Com. (Management Studies)</b> |                     |
| <b>UG First Year Programme</b>                                  |                     |
| <b>Semester</b>                                                 | <b>II</b>           |
| <b>Title of Paper</b>                                           | <b>Credits 2/ 4</b> |
| <b>Leadership Management</b>                                    | <b>2</b>            |
| <b>From the Academic Year</b>                                   | <b>2024-25</b>      |

| Sr. No. | Heading                                                                                                                                                                                                                                                                             | Particulars                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <b>Description the course:</b><br><br><b>Including but not limited to:</b>                                                                                                                                                                                                          | Management is not only an essence in all fields but it is a prevalent tool in the hands of corporates to governments. From planning to controlling and from budgeting to reporting, all managerial elements are the most essential parts of daily life. So the learners need to know about all aspects from rural development to creating artificial intelligence. They will understand how to develop India, one of the fifth most powerful economies in the world. It is expected that the learners should learn how to develop our economy and management for the future generation from these managerial facets. |
| 2       | <b>Vertical :</b>                                                                                                                                                                                                                                                                   | Major/Minor/ <b>Open Elective</b> /Skill Enhancement / Ability Enhancement/Indian Knowledge System (Choose By √)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 3       | <b>Type :</b>                                                                                                                                                                                                                                                                       | Theory / Practical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 4       | <b>Credit:</b>                                                                                                                                                                                                                                                                      | 2 credits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5       | <b>Hours Allotted :</b>                                                                                                                                                                                                                                                             | 30 Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 6       | <b>Marks Allotted:</b>                                                                                                                                                                                                                                                              | 50 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 7       | <b>Course Objectives:</b> <ol style="list-style-type: none"> <li>1. To acquaint the learners with basic fundamentals of leadership.</li> <li>2. To orient &amp; apply the theoretical &amp; practical perspective of leadership in the changing dynamics of the society.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8 | <b>Course Outcomes:</b> <ol style="list-style-type: none"> <li>1. Generate social sensitization among youth of the nation.</li> <li>2. Students will explore various leadership theories and their applications in real-world scenarios</li> <li>3. Learner should develop effective communication skills for leading and motivating teams</li> <li>4. Analyze the dynamics of teamwork and foster a collaborative work environment</li> </ol> |
|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9  | <b>Modules: -</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|    | <b>Module 1:</b> Leaders & Leadership                                                                                                                                                                                                                                                                                                                                                                                                                            |
|    | <ol style="list-style-type: none"> <li>a) Definition of Leader &amp; leadership, Traits/qualities of a successful leader, Skill sets required for an effective leader – Role of communication in leadership.</li> <li>b) Leadership Styles – Women as Leaders - Time Management &amp; Leadership – Tools &amp; techniques for effective time management.</li> </ol>                                                                                              |
|    | <b>Module 2:</b> Theories & Trends in Leadership <ol style="list-style-type: none"> <li>a) Theories of Leadership – Great Man Theory of Leadership – Trait Theory of Leadership- Transactional &amp; Transformational Leadership Theory.</li> <li>b) Leadership Training – Concept – Need for leadership - Youth Leadership - Principles of youth leadership – Social leadership – Need, Success stories of successful business &amp; social leaders.</li> </ol> |
| 10 | <b>Text Books:</b> <ul style="list-style-type: none"> <li>• Ramaswamy. V S &amp; Namakumari. S, <i>MARKETING MANAGEMENT-PLANNING IMPLEMENTATION AND CONTROL</i>, Macmillan Business Books, New Delhi, 2002, Hall Of India, New Delhi,</li> </ul>                                                                                                                                                                                                                 |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                 |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| 11 | <b>Reference Books:</b> <ul style="list-style-type: none"><li>● Khanna, S.S. Human resource Management (Text and Cases). S. Chand, New Delhi.</li><li>● Chhabra, T.N.,Human Resource Management, Dhanpat Rai &amp; Co., Delhi.</li><li>● Aswathappa K.,Human Resource Management ata McGraw, Hill, New Delhi.</li><li>● Robbins, Stephen P. Organisational Behaviour. Pearsons Education, New Delhi</li><li>● Leadership and Self-Deception: Getting Out of the Box by The Arbinge</li><li>● Dare to Lead by Brené Brown</li><li>● Multipliers: How the Best Leaders Multiply Intelligence, Influence, and Capability of Others by Liz Wiseman</li><li>● The Management Challenge by Manfred Kets de Vries</li><li>● High-Output Management by Andrew Grove</li></ul> |                                                                                                                 |
| 12 | <b>Internal Continuous Assessment: 40%</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>External, Semester End Examination<br/>Individual Passing in Internal and<br/>External Examination : 60%</b> |
| 13 | <b>Continuous Evaluation through:</b><br>Quizzes, Class Tests, presentation,<br>project, role play, creative writing,<br>assignment etc.( at least 3 )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                 |
| 14 | <b>Format of Question Paper:</b> for the final examination<br><b>External Paper Pattern (30 Marks)</b><br>Q1. Case Study Analysis 10 Marks<br>Q2. Answer the following (Any One) 10 marks<br>A<br>Or<br>B<br>Q3. Answer the following (Any One) 10 Marks<br>A<br>Or<br>B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                 |

**Sign of the BOS**  
**Chairman**  
**Prof. Dr. Kanchan**  
**Fulmali**  
**BOS in BMS**

**Sign of the**  
**Offg. Associate Dean**  
**Dr. Ravikant Balkrishna**  
**Sangurde**  
**Faculty of Commerce**

**Sign of the**  
**Offg. Associate Dean**  
**Prin. Kishori Bhagat**  
**Faculty of**  
**Management**

**Sign of the**  
**Offg. Dean**  
**Prof. Kavita Laghate**  
**Faculty of Commerce**  
**& Management**

## As Per NEP 2020

# University of Mumbai



| Syllabus for<br>Basket of OE   |           |
|--------------------------------|-----------|
| Board of Studies in Mass Media |           |
| UG First Year Programme        |           |
| Semester II                    |           |
| Title of Paper                 | Credits 2 |
| Communication in Digital Age   | 2         |
| From the Academic Year         | 2024-2025 |

# COMMUNICATION IN DIGITAL AGE

| Sr. No. | Heading                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Particulars                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <b>Description the course :</b><br><b>Including but Not limited to :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Communication in Digital Age aims to equip students with the skills and knowledge needed to navigate and effectively communicate in a rapidly evolving digital landscape. |
| 2       | <b>Vertical :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Open Elective                                                                                                                                                             |
| 3       | <b>Type :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Theory                                                                                                                                                                    |
| 4       | <b>Credit:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2 credits                                                                                                                                                                 |
| 5       | <b>Hours Allotted :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 30 Hours                                                                                                                                                                  |
| 6       | <b>Marks Allotted:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 50 Marks                                                                                                                                                                  |
| 7       | <b>Course Objectives:</b> (List some of the course objectives) <ol style="list-style-type: none"> <li>1. To study the basics of communication in digital era</li> <li>2. To explore the growth of digital communication platforms and its impact on communication</li> <li>3. To outline the role of digital communication in framing online identity and relationships</li> <li>4. To study diverse digital platforms and their contribution in formulating effective communication strategies for virtual collaborations</li> <li>5. To acquire digital literacy skills in order to evaluate, interpret and create digital content</li> </ol> |                                                                                                                                                                           |
| 8       | <b>Course Outcomes:</b> (List some of the course outcomes) <ol style="list-style-type: none"> <li>1. Learners will develop proficiency in using a variety of digital communication tools and platforms to effectively convey messages and engage with audiences.</li> <li>2. Learners will be able to analyze digital communication trends and implement effective strategies to achieve specific communication goals.</li> <li>3. Learners will realize the ethical and legal considerations associated with digital communication, ensuring responsible and compliant practices.</li> </ol>                                                   |                                                                                                                                                                           |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9  | <b>Modules:-</b> Per credit One module can be created                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|    | <b>Module 1: COMMUNICATION IN DIGITAL AGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|    | <ol style="list-style-type: none"> <li>1. Introduction</li> <li>2. Impact of Digitalization on society, culture and communication</li> <li>3. Digital Communication channels and multimedia communication tools</li> <li>4. Influence of Digital media on interpersonal communication</li> </ol>                                                                                                                                                                                                 |
|    | <b>Module 2: INFORMATION MANAGEMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|    | <ol style="list-style-type: none"> <li>1. Usage of online resources for research, personal development, career advancements</li> <li>2. Importance of tools for information management like Search engine, Bookmarks, cloud storage, more</li> <li>3. Digital footprint</li> </ol>                                                                                                                                                                                                               |
|    | <b>Module 3: INTERPERSONAL COMMUNICATION IN THE DIGITAL WORLD</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |
|    | <ol style="list-style-type: none"> <li>1. Self-presentation in online communities and online identity</li> <li>2. Dynamics of interpersonal communication and conflict resolution</li> <li>3. Understanding nonverbal communication cues in digital communication</li> <li>4. Norms for polite and respectful communication on digital media</li> </ol>                                                                                                                                          |
| 10 | <b>Module 4: COMMUNICATION IN DIGITAL WORKPLACE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|    | <ol style="list-style-type: none"> <li>1. Establishing effective communication in virtual office spaces</li> <li>2. Role of digital communication in leadership and management practices</li> <li>3. Techniques to facilitate virtual meetings, collaborations and employee engagement</li> <li>4. Digital interface for crisis communication</li> <li>5. Using digital channels of communication for brand building</li> </ol>                                                                  |
| 10 | <b>Text Books:</b> <ol style="list-style-type: none"> <li>1. Rheingold, Howard. (2014). Net Smart: How to Thrive Online.</li> <li>2. Jenkins, Henry. (2006). Convergence Culture: Where Old and New Media Collide.</li> <li>3. Boyd, Danah. (2014). It's Complicated: The Social Lives of Networked Teens.</li> <li>4. Turkle, Sherry. (2011). Alone Together: Why We Expect More from Technology and Less from Each Other.</li> <li>5. Castells, Manuel. (2009). Communication Power</li> </ol> |

| 11          | <b>Reference Books:</b><br><div>1. Rheingold, Howard. (2014). Net Smart: How to Thrive Online.</div> <div>2. Jenkins, Henry. (2006). Convergence Culture: Where Old and New Media Collide.</div> <div>3. Boyd, Danah. (2014). It's Complicated: The Social Lives of Networked Teens.</div> <div>4. Turkle, Sherry. (2011). Alone Together: Why We Expect More from Technology and Less from Each Other.</div> <div>5. Castells, Manuel. (2009). Communication Power</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------|-------|-----|-----------------------|----|-----|-------------------|----|-----|-------------------|----|--|--------------|-----------|
| 12          | <b>Internal Continuous Assessment: 40%</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>External, Semester End Examination<br/>60%</b><br><b>Individual Passing in Internal and<br/>External Examination</b>                                                        |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
| 13          | <b>Continuous Evaluation through:</b><br>Quizzes, Class Tests, presentation,<br>project, role play, creative writing,<br>assignment etc.( at least 3 )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div>1. ORAL &amp; PRACTICAL PRESENTATIONS</div> <div>2. PROJECTS / ASSIGNMENTS</div> <div>3. DEBATES /GROUP DISCUSSION</div> <div>4. OPEN BOOK TESTS</div> <div>5. QUIZ</div> |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
| 14          | <b>Format of Question Paper: for the final examination</b><br><br>Question.1 is compulsory.<br>Attempt any 1 from Q2. And Q3.<br>Each question carries 15 Marks<br><table><tr><th>Question No</th><th>Questions</th><th>Marks</th></tr><tr><td>Q 1</td><td>Practical/ Case study</td><td>15</td></tr><tr><td>Q 2</td><td>Practical/ Theory</td><td>15</td></tr><tr><td>Q 3</td><td>Practical/ Theory</td><td>15</td></tr><tr><td></td><td><b>TOTAL</b></td><td><b>30</b></td></tr></table><br>Note:<br><div>1. Equal Weightage is to be given to all the modules.</div> <div>2. Internal option shall be given in Q1.</div> <div>3. 15 marks question may subdivide into 7.5 marks each. Internal option shall be given, i.e attempt any two out of three. For direct 15 Marks question option should be given. Attempt any one out of two.</div> <div>4. Use of simple calculator is allowed in the examination.</div> <div>5. Wherever possible more importance is to be given to the practical problems.</div> |                                                                                                                                                                                | Question No | Questions | Marks | Q 1 | Practical/ Case study | 15 | Q 2 | Practical/ Theory | 15 | Q 3 | Practical/ Theory | 15 |  | <b>TOTAL</b> | <b>30</b> |
| Question No | Questions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Marks                                                                                                                                                                          |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
| Q 1         | Practical/ Case study                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 15                                                                                                                                                                             |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
| Q 2         | Practical/ Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 15                                                                                                                                                                             |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
| Q 3         | Practical/ Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 15                                                                                                                                                                             |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |
|             | <b>TOTAL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>30</b>                                                                                                                                                                      |             |           |       |     |                       |    |     |                   |    |     |                   |    |  |              |           |

**Sign of the BOS Chairman**  
**Dr. Navita Kulkarni**  
**BoS in Mass Media**

**Sign of the**  
**Offg. Associate Dean**  
**Prof. Mala Lalwani**  
**Humanities**

**Sign of the Offg. Dean**  
**Dr. Anil Singh**  
**Humanities**

# **As Per NEP 2020**

## **University of Mumbai**



**Title of the Course Law related to Intellectual  
Property Rights**

**Semester – Sem I**

**Syllabus for Two Credit**

**(With effect from the academic year 2024-25)**

| <b>Law related to Intellectual Property Rights</b> |                                                    |
|----------------------------------------------------|----------------------------------------------------|
| <b>PROGRAM</b>                                     | <b>BA /BSc/ BCom</b>                               |
| <b>SEMESTER</b>                                    | <b>I</b>                                           |
| <b>COURSE TITLE</b>                                | <b>Law related to Intellectual Property Rights</b> |
| <b>VERTICLE /CATEGORY</b>                          | <b>E (Value Education Course)</b>                  |
| <b>COURSE LEVEL</b>                                | <b>50</b>                                          |
| <b>COURSE CODE</b>                                 |                                                    |
| <b>COURSE CREDIT</b>                               | <b>2</b>                                           |
| <b>HOURS PER WEEK THEORY</b>                       | <b>2</b>                                           |
| <b>HOURS PER WEEK PRACTICAL/TUTORIAL</b>           |                                                    |

| <b>COURSE OBJECTIVE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>❑ Learners will be enabled with the knowledge of the branch of the law that rights given to persons over the creation of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period.</li> <li>❑ To impart knowledge on identification of diverse types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP.</li> <li>❑ Learners will be able to recognize the crucial role of IP in organizations of different industrial sectors for the purposes of product and technology development.</li> <li>❑ To facilitate students to identify activities and constitute IP infringements and the remedies available to the IP owner and describe the precautionary steps to be taken to prevent infringement of proprietary rights in products and technology development</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

| <b>COURSE OUTCOME</b>                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CO1: Learners will be able to study development and reform of intellectual propertyright institutions and their impact on creativity and innovation.                                                                                                                                                                    |
| CO2: Learners will be able to critically analyze the principles of Tortious liability, develop familiarization of process of Intellectual Property Management (IPM) andvarious approaches for IPM and conducting IP and IPM auditing and explain how IP can be managed as a strategic resource and suggest IPM strategy |
| CO3: Learners will be well equipped with the expensive characteristics of judicialtrend related to IPR and the remedies provided under the mechanism set up by the Government Convention of IPR                                                                                                                         |

| <b>ORGANISATION OF THE COURSE</b> |                                                                |                      |
|-----------------------------------|----------------------------------------------------------------|----------------------|
| <b>UNIT NO</b>                    | <b>COURSE UNITS</b>                                            | <b>HOURS PERWEEK</b> |
| 1                                 | Nature, Concept and forms of Intellectual Property and Patents | 10                   |
| 2                                 | Patents and Trade Marks                                        | 10                   |
| 3                                 | Copy Rights and Geographical Indicators                        | 10                   |
| <b>TOTAL HOURS</b>                |                                                                | <b>30</b>            |

## COURSE DESIGN

| UNIT TITLE                                                                             | OUTCOME                                                                                                                                                    | DESCRIPTION                                                                                                                         | PEDAGOGICAL APPROACH                  |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Intellectual Property: Meaning, Nature and Significance                                | Learners will understand the concept of IPR and analyze the concept of liabilities.                                                                        | Nature & Concept of Intellectual Property, General Principles of IP                                                                 | Lecture and seminar method, Case laws |
| Various forms of Intellectual Properties:                                              | Learners will be able to acquire the knowledge of the fundamentals of Intellectual property right and judicial perspective towards persons and properties. | Copyright, Patent, Trademark, Design, Geographical indication, Semi-Conductor and Plant variety                                     | Lecture and seminar method, Case laws |
| Major international instruments relating to the protection of Intellectual Properties: | Learners will be able to evaluate the process of IPR mechanism set by the government.                                                                      | The Paris Convention, 1883, the Berne Convention, 1886, The WIPO Convention, 1967, The TRIPS Agreement, 1994 and recent amendments. | Lecture and seminar method, Case laws |

| <b>CONTINUOUS ASSESSMENT TESTS (CAT) &amp; SEMESTER END EXAMINATION (SEE)</b> |              |                                                                                                                                             |                       |
|-------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>NATURE OF ASSESSMENT</b>                                                   | <b>MARKS</b> | <b>METHODOLOGY</b>                                                                                                                          | <b>COURSE OUTCOME</b> |
| CAT 1*                                                                        | 10           | Online Quiz, Open booktest, Class test, Assignment and Viva                                                                                 | CO1                   |
| CAT 2*                                                                        | 10           | Online Quiz, Open booktest, Class test, Assignment and Viva                                                                                 | CO1, CO2              |
| CAT 3*                                                                        | 10           | Online Quiz, Open booktest, Class test, Assignment and Viva                                                                                 | CO3                   |
| SEE                                                                           | 30           | Four questions of 10 markseach (from each course unit), to be attempted any 3, 10 marks may be subdivided into two sub questions of 5 marks | CO1, CO2,CO3          |

\*Any two.

|                                              |                                                                                                   |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|
| Practical Activities and Aspect ofthe Course | Analysis of landmark cases, Field visit patent office, Visit to Trademark office,Workshop on IPR. |
|----------------------------------------------|---------------------------------------------------------------------------------------------------|

|                           |                                                                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ESSENTIAL READINGS</b> | W.R.Cornish and D. Llewelyn, Intellectual Property: Patents, Copyrights, Trademarks and Allied Rights, Sweet& Maxwell.<br>P. Narayanan, Intellectual Property Law, Eastern Law House |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                            |                                                                         |
|----------------------------|-------------------------------------------------------------------------|
| <b>ADDITIONAL READINGS</b> | V.K. Ahuja, Law Relating to Intellectual Property Rights,<br>LexisNexis |
|----------------------------|-------------------------------------------------------------------------|

Syllabus Drafting Committee -

Dr. Rajeshri N.Varhadi, Professor and In-Charge Director

(UMLA)Dr. Gouri Gargate, Professor of IIT Kharagpur.

Dr. Swati Rautela, Professor and Head Department of

Law.Dr. Sanjay Jadhav, Associate Professor

Department of Law.

Prof. Uma Nehare, Assistant Professor, University of Law Academy.

**Signature:**

**Prof. Kavita Laghate**

**Chairman of Board of Studies in Value Education**

## As Per NEP 2020

### University of Mumbai



| Syllabus for<br>Basket of AEC |         |
|-------------------------------|---------|
| Board of Studies in HINDI     |         |
| UG First Year Programme       |         |
| Semester                      | II      |
| Title of Paper                | Credits |
| हिन्दी भाषा : कौशल के आधार    | 2       |
| From the Academic Year        | 2024-25 |

| Sr. No. | Heading                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Particulars                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <b>Description the course :</b><br><br><b>Including but Not limited to :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p><b>हिन्दी भाषा : कौशल के आधार</b></p> <p>हिंदी राजभाषा होने के साथ-साथ भारत में बोलीजाने वाली एक प्रमुख भाषा है। भारत के अधिकांश निवासी और यहां तक कि भारत के बाहर बसनेवाले भारतवंशी भी अपने दैनिक आपसी वार्तालाप, कार्य-व्यवहार में हिंदी भाषा का ही प्रयोग करते हैं। विश्व की प्रमुख पांच भाषाओं के अंतर्गत हिंदी का अस्तित्व है, इस दृष्टि से हिंदी को लेकर विभिन्न प्रकार के कौशल सीखे और सिखाए जा सकते हैं। विद्यार्थियों के लिए हिंदी एक सामान्य भाषा होने के साथ विशेष भाषा तब बन जाती है जब वह हिंदी के माध्यम से अपने कौशल में अभिवृद्धि करें, हिंदी के माध्यम से रोजगार के कई अवसरों को प्राप्त करें। इस दृष्टि से पाठ्यक्रम अत्यंत लाभवर्धक और उपयोगी सिद्ध होगा। हिंदी भाषा में कौशल विकास की असीम संभावनाएं हैं और कौशल के विभिन्न आयाम जुड़े हुए हैं जो अलग-अलग दिशाओं में देखे जा सकते हैं। पाठ्यक्रम विद्यार्थियों में लेखन, वाचन कौशल की अभिवृद्धि करने के साथ रोजगारपरक अवसर प्रदान करता है।</p> |
| 2       | <b>Vertical :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Open Elective                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3       | <b>Type :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Theory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4       | <b>Credit:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2 credits ( 1 credit = 15 Hours for Theory in a semester )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 5       | <b>Hours Allotted :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 30 Hours                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 6       | <b>Marks Allotted:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 50 Marks                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 7       | <b>Course Objectives:</b> ( List some of the course objectives ) <ol style="list-style-type: none"> <li>विद्यार्थियों को लेखन, वाचन कौशल का ज्ञान देना एवं रोजगार के अवसरों से जोड़ना।</li> <li>विद्यार्थियों को लेखन, वाचन कौशल से परिचय करते हुए अभिव्यक्ति की शैलियों का विकास करना।</li> <li>विद्यार्थियों को भाषण कला के विविध रूपों को समझाना, मौलिकता में अभिवृद्धि लाना एवं विशेषज्ञता दिलाना।</li> <li>विद्यार्थियों को श्रवण कौशल की विशेषताओं से परिचय कराते हुए श्रवण कौशल के लाभों से अवगत कराना।</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| 8       | <p><b>Course Outcomes:</b> ( List some of the course outcomes )</p> <p>CO-1) विद्यार्थियों को लेखन, वाचन कौशल के ज्ञान प्राप्ति के साथ मौलिक अभिव्यक्ति में बदलाव आएगा।</p> <p>CO-2) विद्यार्थियों का लेखन, वाचन कौशल द्वारा मानसिक विकास होगा, पठन-शक्ति, शैली का विकास होगा।</p> <p>CO-3) विद्यार्थियों को लेखन, भाषण कौशल से भाषिक-शक्ति, शैलियों का संवर्धन होगा विशेषज्ञता आएगी।</p> <p>CO-4) विद्यार्थियों को लेखन, वाचन, श्रवण, भाषण कौशल की विशेषताओं और उपयोगिता का ज्ञान प्राप्त होगा।</p>                                                                                                                                                                                                                                                              |                              |     |                  |         |                                                                                                                                                                                                                                                          |                              |         |                                                                                                                                                                                                                                             |                              |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----|------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 9       | <p><b>Modules:-</b></p> <table><tr><th>इकाई</th><th>पाठ</th><th>व्याख्यान संख्या</th></tr><tr><td>इकाई -1</td><td>1. लेखन कौशल का अर्थ एवं स्वरूप<br/>2. लेखन कौशल की उपयोगिता एवं महत्व<br/>3. लेखन कौशल की विधियाँ<br/>4. लेखन कौशल के भेद एवं विशेषताएँ<br/>5. वाचन कौशल का अर्थ, स्वरूप एवं विशेषताएँ<br/>6. वाचन कौशल की उपयोगिता<br/>7. वाचन कौशल की विधियाँ एवं विशेषताएँ</td><td>व्याख्यान- 15<br/>क्रेडिट- 01</td></tr><tr><td>इकाई -2</td><td>8. भाषण कौशल का अर्थ एवं स्वरूप<br/>9. भाषण कौशल का महत्व एवं उपयोगिता<br/>10. भाषण कौशल की विशेषताएँ<br/>11. भाषण कौशल की विधियाँ<br/>12. श्रवण कौशल का अर्थ एवं स्वरूप<br/>13. श्रवण कौशल का महत्व एवं उपयोगिता<br/>14. श्रवण कौशल की विशेषताएँ</td><td>व्याख्यान- 15<br/>क्रेडिट- 01</td></tr></table> | इकाई                         | पाठ | व्याख्यान संख्या | इकाई -1 | 1. लेखन कौशल का अर्थ एवं स्वरूप<br>2. लेखन कौशल की उपयोगिता एवं महत्व<br>3. लेखन कौशल की विधियाँ<br>4. लेखन कौशल के भेद एवं विशेषताएँ<br>5. वाचन कौशल का अर्थ, स्वरूप एवं विशेषताएँ<br>6. वाचन कौशल की उपयोगिता<br>7. वाचन कौशल की विधियाँ एवं विशेषताएँ | व्याख्यान- 15<br>क्रेडिट- 01 | इकाई -2 | 8. भाषण कौशल का अर्थ एवं स्वरूप<br>9. भाषण कौशल का महत्व एवं उपयोगिता<br>10. भाषण कौशल की विशेषताएँ<br>11. भाषण कौशल की विधियाँ<br>12. श्रवण कौशल का अर्थ एवं स्वरूप<br>13. श्रवण कौशल का महत्व एवं उपयोगिता<br>14. श्रवण कौशल की विशेषताएँ | व्याख्यान- 15<br>क्रेडिट- 01 |
| इकाई    | पाठ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | व्याख्यान संख्या             |     |                  |         |                                                                                                                                                                                                                                                          |                              |         |                                                                                                                                                                                                                                             |                              |
| इकाई -1 | 1. लेखन कौशल का अर्थ एवं स्वरूप<br>2. लेखन कौशल की उपयोगिता एवं महत्व<br>3. लेखन कौशल की विधियाँ<br>4. लेखन कौशल के भेद एवं विशेषताएँ<br>5. वाचन कौशल का अर्थ, स्वरूप एवं विशेषताएँ<br>6. वाचन कौशल की उपयोगिता<br>7. वाचन कौशल की विधियाँ एवं विशेषताएँ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | व्याख्यान- 15<br>क्रेडिट- 01 |     |                  |         |                                                                                                                                                                                                                                                          |                              |         |                                                                                                                                                                                                                                             |                              |
| इकाई -2 | 8. भाषण कौशल का अर्थ एवं स्वरूप<br>9. भाषण कौशल का महत्व एवं उपयोगिता<br>10. भाषण कौशल की विशेषताएँ<br>11. भाषण कौशल की विधियाँ<br>12. श्रवण कौशल का अर्थ एवं स्वरूप<br>13. श्रवण कौशल का महत्व एवं उपयोगिता<br>14. श्रवण कौशल की विशेषताएँ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | व्याख्यान- 15<br>क्रेडिट- 01 |     |                  |         |                                                                                                                                                                                                                                                          |                              |         |                                                                                                                                                                                                                                             |                              |
| 10      | <p><b>संदर्भ ग्रंथ सूची -</b></p> <ol style="list-style-type: none"><li>हिंदी भाषा शिक्षण के विविध आयाम - प्राध्यापक डॉ. राठौर, किनले एडिशन</li><li>अभिनव पत्र लेखन - डॉ अनिल सिंह</li><li>हिंदी के व्यावहारिक रूप - डॉ संतोष मोटवानी, परिदृश्य प्रकाशन, मुंबई</li><li>हिंदी भाषा लेखन कौशल - गुलीबाबा पब्लिकेशन प्राइवेट लिमिटेड</li></ol>                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |     |                  |         |                                                                                                                                                                                                                                                          |                              |         |                                                                                                                                                                                                                                             |                              |

|    |                                                                                                                                                                                                                                                                                              |                                                                                                   |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| 11 | Internal Continuous Assessment: 40%                                                                                                                                                                                                                                                          | External, Semester End Examination 60%<br>Individual Passing in Internal and External Examination |
| 12 | <p>Continuous Evaluation through:<br/> <u>मूल्यांकन प्रारूप</u><br/> आंतरिक मूल्यांकन- 20- अंक</p> <p>रचनात्मक कार्य, प्रकल्प इत्यादि- 10 अंक,<br/> कक्ष शिक्षण के दौरान सहभागिता इत्यादि - 05 अंक<br/> अकादमिक, व्यावसायिक एवं कौशल संवर्धन<br/> गतिविधियाँ- 05 अंक<br/> कुलयोग -20 अंक</p> |                                                                                                   |
| 13 | <p>Format of Question Paper:<br/> <u>बाह्य मूल्यांकन- लिखित परीक्षा- 30- अंक</u> <u>परीक्षा अवधि- 01 घंटा</u></p> <p><u>निम्नलिखित तीन में से किन्हीं दो प्रश्नों के उत्तर लिखिए</u> <u>30 अंक</u></p> <p>कुलयोग- 30 अंक</p>                                                                 |                                                                                                   |



Sign of the BOS  
Chairman  
Name of the  
Chairman  
Name of the BOS

Sign of the  
Offg. Associate Dean  
Name of the Associate  
Dean  
Name of the Faculty

Sign of the  
Offg. Dean  
Name of the Offg. Dean  
Name of the Faculty

**As Per NEP 2020**

**University of Mumbai**



**Title of the Program**

**Co-Curricular Course  
NATIONAL SERVICE SCHEME**

**SEM I & SEM II**

**Syllabus for Two Credit**

**(With effect from the academic year 2024-25)**

## **UNIVERSITY OF MUMBAI**

### **National Service Scheme**

#### **1.1 Preamble:**

Students in the National Service Scheme are better able to comprehend all the most recent ideas. These courses include an Introduction to National Service Scheme that covers the concept of social services, which are a variety of public services meant to offer support and help to targeted specific groups, most often the underprivileged. They could be offered by individuals, autonomous, private entities, or under the management of a government body.

#### **1.2 Objectives of the Course:**

1. To Introduce National Service Scheme to learners and explain how it is used in current social studies.
2. To make the students aware of the need of having a foundation in social science and NSS.
3. To introduce students to social concepts and issues in society, as well as to get involved in resolving social issues.

#### **1.3 Learning Outcomes of the Course:** The students will be able to

1. The course will help students comprehend the foundations of the National Service Program.
2. To understand the unique camping program.
3. Students will learn about the regular activities of NSS.

#### **1.4. Programme Specific Outcomes:**

1. Students will be familiar with NSS fundamentals and history, particularly as they pertain to social work.
2. Students will recognize NSS and its ongoing operations.

#### **1.5 Programme Outcomes:**

1. Students will comprehend fundamental ideas and facts about the National Service Program.
2. Students will learn the essentials of NSS-related procedures.
3. Students will learn social work skills (such as Voter Awareness, Campus Cleanup, Tree Plantation, and Rallies).

**1.6 Modes of Internal Evaluation:** Assignment, Tutorial, Presentation, MCQs via Google, Field Visits, any other suitable mode along with marks for Attendance of the students.

**UNIVERSITY OF MUMBAI****Semester I****NSS CC****Sub: - Introduction to National Service Scheme****Credits: 02****Marks:50**

| <b>Unit Number</b> | <b>SEMESTER 1<br/>Title of the Unit</b>                                                                                                                                                                                                                                                                                                                                                                  | <b>No. of Lecture</b> |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1                  | <b>Introduction to National Services Scheme</b><br>NSS- History,Philosophy & Need of Emergence<br>Aims, Objectives, Motto and Emblem of NSS, NSS Theme Song<br>Organizational Structure of NSS-Hierarchy at different levels (National,State,University,College)<br>Roles and Responsibilities of Program Officer<br>Financial Provisions -Grant in Aid for NSS<br>Advisory committees & their functions | 15                    |
| 2                  | NSS Programmes and Activities (Regular activities)<br>NSS Programmes and Activities (Special Camp activities)<br>Yearly Action Plan of NSS Unit<br>Volunteerism– Meaning, definition, basic qualities of volunteers, need of volunteerism for National development.<br>Opportunities in NSS for Volunteers (Various Camps)<br>Report Writing                                                             | 15                    |

**UNIVERSITY OF MUMBAI**

**Semester II**

**NSS CC**

**Sub: - Leadership and Community Engagement**

**Credits: 02**

**Marks: 50**

| <b>Unit Number</b> | <b>SEMESTER 2<br/>Title of the Unit</b>                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>No. of<br/>Lecture</b> | <b>No. of<br/>Credits</b> |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------------------|
| 1                  | <b>Leadership &amp; Personality development:</b><br>Meaning, definition, qualities, and characteristics of a Leader. Meaning of personality, Dimensions of personality. Personality and Leadership nexus.                                                                                                                                                                                                                                                                 | 15                        |                           |
|                    | Universal Human Values and Ethics for youths<br>Sustainable Development Goals                                                                                                                                                                                                                                                                                                                                                                                             |                           |                           |
| 2                  | <b>Activity Based Programmes</b> (Suggestive list given below. Colleges can plan various social activities for learners and make a detailed report) Activities can be conducted throughout the academic year .Evaluation will be based on record keeping of the attendance of the learner.                                                                                                                                                                                | 30                        |                           |
|                    | <b>Shramadhan</b> – Plantation, Cleaning, Watering, Weeding, Any other activities.                                                                                                                                                                                                                                                                                                                                                                                        |                           |                           |
|                    | <b>Awareness Programmes</b> – Seminar, Workshops, Celebration of National and International days, Personality Development Programmes, Group Activities, etc.,                                                                                                                                                                                                                                                                                                             |                           |                           |
|                    | Rally, Visit to Adopted villages, Swatchatha Programme, Visit and Conserving Ancient monuments and heritage site, Socio Economic Survey of village/slum, Nature Camp, Environmental Education, Women Empowerment Programme, Health Camps, Blood grouping awareness and Blood donation, Legal awareness Programme, Literacy Programme, Water Conservation Programme, One Day Special Camp in a village (preferably in adopted village/Adopted areas/Slums/MR Schools etc). |                           |                           |

**Note:**

- Above Paper will be exempted if the learner is involved in NSS as Volunteer and Successfully completes 60 hours in each Semester.
- If learner as a NSS Volunteer attends any Camps at National/State/University/District/ College Special Camp will be exempted from either Sem II OR Sem IV Paper provided they produce Certificate of Participation or Attendance in Camp certified by the Programme Officer.

## Evaluation Pattern

### Internal Assessment

| Assessment Criteria                          | Marks     |
|----------------------------------------------|-----------|
| Assignment / Project / Quiz/Presentations    | 10        |
| Attendance, Class and Activity Participation | 10        |
| <b>Total</b>                                 | <b>20</b> |

### External Assessment Question Paper Pattern

**Time: 1:00 Hours**

**Total Marks: 30**

**Introduction:-** 1. All questions are compulsory.  
2. Figure to the Right indicates full marks.  
3. Draw neat labeled drawings wherever necessary.

---

Q.1) Rewrite the following by choosing the correct options given below  
(with four alternatives) 6 Objectives question of 1 mark each **06 marks.**

- |       |    |    |    |
|-------|----|----|----|
| 1. a) | b) | c) | d) |
| 2. a) | b) | c) | d) |

Q.2) Short Notes . (Any Two out of Four) **06marks**

- 1.
- 2.
- 3.
- 4.

Q.3) Answer the following questions (Any Three out of Five) **18 marks**

- 1.
  - 2.
  - 3.
  - 4.
  - 5.
- .....

## References:

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2. Salunkhe P.B. Ed, Chhtrapati Shahu the Pillar of Social Democracy
3. National Service Scheme Manual, Govt. of India
4. Training Programme on National Programme Scheme TISS
5. Orientation Courses for N.S.S. Programme Officers, TISS
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15. Bishop, W. H. (2013). Defining the Authenticity in Authentic Leadership. The Journal of Values-Based Leadership, 6(1), Article 7. Available at : <https://scholar.valpo.edu/cgi/viewcontent.cgi?article=1077&context=jvbl>
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No. AAMS\_UGS/ICC/2024-25/234

Date: 14<sup>th</sup> February, 2025

**CIRCULAR:-**

Attention of all the Principals of the Affiliated Colleges, Directors of the Recognized Institutions and the Head University Departments is invited to this office Circular No. AAMS\_UGS/ICC/2024-25/04 dated 11<sup>th</sup> June, 2023 relating to the NEP UG & PG Syllabus.

They are hereby informed that the recommendations made by the Ad-hoc Board of Studies in N.C.C./N.S.S./Sports Co-Curricular at its meeting held on 06<sup>th</sup> February, 2025 has been accepted by the Hon'ble Vice Chancellor as per the powers confirmed upon him under Section 12 (7) of the Maharashtra Public Universities Act, 2016 and that in accordance therewith syllabus of **Co-Curricular Course Introduction to Sports, Physical Literacy, Health and Fitness & Yog Sem II** as per appendix (NEP 2020) with effect from the academic year 2024-25.

(The said circular is available on the University's website [www.mu.ac.in](http://www.mu.ac.in)).

MUMBAI – 400 032  
14<sup>th</sup> February, 2025

  
(Dr. Prasad Karande)  
REGISTRAR

To,

The Principals of the Affiliated Colleges, Directors of the Recognized Institutions and the Head, University Departments.

**BOS/06/02/2025**

Copy forwarded with Compliments for information to:-

- 1) The Chairman, Board of Deans,
- 2) The Dean, Faculty of Interdisciplinary,
- 3) The Chairman, Ad-hoc Board of Studies in N.C.C./N.S.S./Sports Co-Curricular,
- 4) The Director, Board of Examinations and Evaluation,
- 5) The Director, Department of Students Development,
- 6) The Director, Department of Information & Communication Technology,
- 7) The Director, Centre for Distance and Online Education (CDOE), Vidyanagari,
- 8) The Deputy Registrar, Admissions, Enrolment, Eligibility & Migration Department (AEM).

| <b>Copy forwarded for information and necessary action to :-</b> |                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                | The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Dept)(AEM),<br><a href="mailto:dr@eligi.mu.ac.in">dr@eligi.mu.ac.in</a>                                                                                                                                    |
| 2                                                                | The Deputy Registrar, Result unit, Vidyanagari<br><a href="mailto:drresults@exam.mu.ac.in">drresults@exam.mu.ac.in</a>                                                                                                                                                             |
| 3                                                                | The Deputy Registrar, Marks and Certificate Unit,. Vidyanagari<br><a href="mailto:dr.verification@mu.ac.in">dr.verification@mu.ac.in</a>                                                                                                                                           |
| 4                                                                | The Deputy Registrar, Appointment Unit, Vidyanagari<br><a href="mailto:dr.appointment@exam.mu.ac.in">dr.appointment@exam.mu.ac.in</a>                                                                                                                                              |
| 5                                                                | The Deputy Registrar, CAP Unit, Vidyanagari<br><a href="mailto:cap.exam@mu.ac.in">cap.exam@mu.ac.in</a>                                                                                                                                                                            |
| 6                                                                | The Deputy Registrar, College Affiliations & Development Department (CAD),<br><a href="mailto:deputyregistrar.uni@gmail.com">deputyregistrar.uni@gmail.com</a>                                                                                                                     |
| 7                                                                | The Deputy Registrar, PRO, Fort, (Publication Section),<br><a href="mailto:Pro@mu.ac.in">Pro@mu.ac.in</a>                                                                                                                                                                          |
| 8                                                                | The Deputy Registrar, Executive Authorities Section (EA)<br><a href="mailto:eau120@fort.mu.ac.in">eau120@fort.mu.ac.in</a><br><br>He is requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to the above circular. |
| 9                                                                | The Deputy Registrar, Research Administration & Promotion Cell (RAPC),<br><a href="mailto:rapc@mu.ac.in">rapc@mu.ac.in</a>                                                                                                                                                         |
| 10                                                               | The Deputy Registrar, Academic Appointments & Quality Assurance (AAQA)<br>dy.registrar.tau.fort.mu.ac.in<br><a href="mailto:ar.tau@fort.mu.ac.in">ar.tau@fort.mu.ac.in</a>                                                                                                         |
| 11                                                               | The Deputy Registrar, College Teachers Approval Unit (CTA),<br><a href="mailto:concolsection@gmail.com">concolsection@gmail.com</a>                                                                                                                                                |
| 12                                                               | The Deputy Registrars, Finance & Accounts Section, fort<br><a href="mailto:draccounts@fort.mu.ac.in">draccounts@fort.mu.ac.in</a>                                                                                                                                                  |
| 13                                                               | The Deputy Registrar, Election Section, Fort<br><a href="mailto:drelection@election.mu.ac.in">drelection@election.mu.ac.in</a>                                                                                                                                                     |
| 14                                                               | The Assistant Registrar, Administrative Sub-Campus Thane,<br><a href="mailto:thanesubcampus@mu.ac.in">thanesubcampus@mu.ac.in</a>                                                                                                                                                  |
| 15                                                               | The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,<br><a href="mailto:ar.seask@mu.ac.in">ar.seask@mu.ac.in</a>                                                                                                                                                   |
| 16                                                               | The Assistant Registrar, Ratnagiri Sub-centre, Ratnagiri,<br><a href="mailto:ratnagirisubcentre@gmail.com">ratnagirisubcentre@gmail.com</a>                                                                                                                                        |
| 17                                                               | The Director, Centre for Distance and Online Education (CDOE),<br>Vidyanagari,<br><a href="mailto:director@idol.mu.ac.in">director@idol.mu.ac.in</a>                                                                                                                               |
| 18                                                               | Director, Innovation, Incubation and Linkages,<br>Dr. Sachin Laddha<br><a href="mailto:pinkumanno@gmail.com">pinkumanno@gmail.com</a>                                                                                                                                              |
| 19                                                               | Director, Department of Lifelong Learning and Extension (DLLE),<br>Dlleuniversityofmumbai@gmail.com                                                                                                                                                                                |

**Copy for information :-**

|   |                                                                                                                     |
|---|---------------------------------------------------------------------------------------------------------------------|
| 1 | P.A to Hon'ble Vice-Chancellor,<br><a href="mailto:vice-chancellor@mu.ac.in">vice-chancellor@mu.ac.in</a>           |
| 2 | P.A to Pro-Vice-Chancellor<br><a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>                              |
| 3 | P.A to Registrar,<br><a href="mailto:registrar@fort.mu.ac.in">registrar@fort.mu.ac.in</a>                           |
| 4 | P.A to all Deans of all Faculties                                                                                   |
| 5 | P.A to Finance & Account Officers, (F & A.O),<br><a href="mailto:camu@accounts.mu.ac.in">camu@accounts.mu.ac.in</a> |

**To,**

|   |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | The Chairman, Board of Deans<br><a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>                                                                                                                                                                                                                                                                                                                                 |
| 2 | <b>Faculty of Humanities,</b><br><b>Dean</b><br>1. Prof.Anil Singh<br><a href="mailto:Dranilsingh129@gmail.com">Dranilsingh129@gmail.com</a><br><b>Associate Dean</b><br>2. Dr.Suchitra Naik<br><a href="mailto:Naiksuchitra27@gmail.com">Naiksuchitra27@gmail.com</a><br>3.Prof.Manisha Karne<br><a href="mailto:mkarne@economics.mu.ac.in">mkarne@economics.mu.ac.in</a>                                               |
|   | <b>Faculty of Commerce &amp; Management,</b><br><b>Dean</b><br>1. Dr.Kavita Laghate<br><a href="mailto:kavitalaghate@jbims.mu.ac.in">kavitalaghate@jbims.mu.ac.in</a><br><b>Associate Dean</b><br>2. Dr.Ravikant Balkrishna Sangurde<br><a href="mailto:Ravikant.s.@somaiya.edu">Ravikant.s.@somaiya.edu</a><br>3. Prin.Kishori Bhagat<br><a href="mailto:kishoribhagat@rediffmail.com">kishoribhagat@rediffmail.com</a> |

|   |                                                                                                                                                                                                                                                                                                                                                                     |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>Faculty of Science &amp; Technology</b><br><b>Dean</b><br>1. Prof. Shivram Garje<br><a href="mailto:ssgarje@chem.mu.ac.in">ssgarje@chem.mu.ac.in</a><br><b>Associate Dean</b><br>2. Dr. Madhav R. Rajwade<br><a href="mailto:Madhavr64@gmail.com">Madhavr64@gmail.com</a><br>3. Prin. Deven Shah<br><a href="mailto:sir.deven@gmail.com">sir.deven@gmail.com</a> |
|   | <b>Faculty of Inter-Disciplinary Studies,</b><br><b>Dean</b><br>1. Dr. Anil K. Singh<br><a href="mailto:aksingh@trcl.org.in">aksingh@trcl.org.in</a><br><b>Associate Dean</b><br>2. Prin. Chadrashekhkar Ashok Chakradeo<br><a href="mailto:cachakradeo@gmail.com">cachakradeo@gmail.com</a>                                                                        |
| 3 | Chairman, Board of Studies,                                                                                                                                                                                                                                                                                                                                         |
| 4 | The Director, Board of Examinations and Evaluation,<br><a href="mailto:dboee@exam.mu.ac.in">dboee@exam.mu.ac.in</a>                                                                                                                                                                                                                                                 |
| 5 | The Director, Board of Students Development,<br><a href="mailto:dsd@mu.ac.in@gmail.com">dsd@mu.ac.in@gmail.com</a> DSW <a href="mailto:directr@dsw.mu.ac.in">directr@dsw.mu.ac.in</a>                                                                                                                                                                               |
| 6 | The Director, Department of Information & Communication Technology,<br><a href="mailto:director.dict@mu.ac.in">director.dict@mu.ac.in</a>                                                                                                                                                                                                                           |

## As Per NEP 2020

# University of Mumbai



| Syllabus for<br>Sports Co-Curricular Vertical - 6      |         |
|--------------------------------------------------------|---------|
| Board of Studies in NCC/NSS/Sports Co-Curricular       |         |
| UG First Year Programme                                |         |
| Semester                                               | II      |
| Title of Paper                                         | Credits |
| I) Sports, Physical Literacy, Health and Fitness & Yog | 2       |
| From the Academic Year                                 | 2024-25 |

## **Semester II**

### **1.1 Preamble:**

India is growing rapidly as a global super-power. To face the challenges of the century and to keep up with the pace of the world, maintaining health is of prime importance. Giving thrust to healthy society, Physical Education, Sports, Health & fitness and Yoga are of great significance in today's world. The Government of India insists on Physical Fitness, Mental Health and Overall Development of Personality for every citizen. In these lines, the Government has launched Fit India Movement, Khelo India, TOPS and National Sports Day, International Day of Yoga etc. These initiatives have given impetus and awareness among general public, professional and academicians. However, creating efficient and skilled human resource in the field of Physical Education, Sports and Yoga is identified as the need of the hour. Thus, the Governments of India and Government of Maharashtra have included Physical Education, Sports and Yoga as a key area under the NEP 2020.

### **1.2 Objectives of the Course:**

1. To understand the importance of Physical Education, Sports, & Physical Activity
2. To increase participation of students in various games and sports and fitness activities
3. To develop the physical as well as mental health through physical activity
4. To create interest regarding sports , physical fitness to inculcate healthy habits for lifelong

### **1.3 Program outcomes:**

By the end of the program the students will be able to:

1. The student will participate in various games, sports and physical activities and they will also learn the technical and tactical experience of it.
2. Students will understand the importance and benefits of participation in any fitness activity or sports.
3. Own choice based activities will be the stress buster for the students and this will inculcate healthy habits in the students
4. Students will able to organize, plan activities and will develop administrative qualities through these events
5. Students acquire the knowledge of Physical Education, Sports and Yoga and understand the purpose and its development.
6. The student learns to plan, organize and execute sports events.
7. Student will learn theoretical and practical aspects of game of his choice to apply at various levels for teaching, learning and coaching purposes efficiently.
8. Student acquires the knowledge of opted games, sports and yoga and also learns the technical and tactical experience of it.
9. Student will learn to apply knowledge of Physical fitness and exercise management to lead better quality life.
10. Students will understand and learn different dimension of active life style.

**1.4 Programme Duration:** The structure of the Credit Course in Sports has two semesters in total covering a period of two years i.e. 2 credits in each semester till the fourth semester as per the guidelines of NEP 2020.

**1.5 Modes of Internal & External Evaluation:** Students will submit a hard copy of the report of total 60 hours spent for semester II in any physical activities/ training sessions/ Sports events/ yoga/ adventure activities/ any sports/ gym or pilates / to the teacher. Students will be evaluated on the basis of activities participated for the semester II.

#### 1.6 Modules at Glance – Semester II

| Module No.                | Unit | Content                                                             | No. of Practical Hours |
|---------------------------|------|---------------------------------------------------------------------|------------------------|
| 1                         | I    | <b>Importance of Physical Education and Sports</b>                  | 15                     |
|                           | II   | <b>Participation in any physical activities</b>                     | 15                     |
| 2                         | III  | <b>Volunteering in any sports events or fitness events</b>          | 15                     |
|                           | IV   | <b>Participation in University or any other Sports competitions</b> | 15                     |
| <b>Total No. of Hours</b> |      |                                                                     | <b>60</b>              |

| Module No. | Unit | Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | I    | <b>1.1 Importance of Physical Education and Sports &amp; Yoga</b> <ul style="list-style-type: none"> <li>• Development of physical health as well as mental health through Physical Activities.</li> <li>• Group Sports &amp; Fitness Activities</li> <li>• Fitness activities conducted by any sports/fitness instructor such as Yoga, Zumba, Aerobics etc.</li> </ul>                                                                                                            |
|            | II   | <b>1.2 Participation in any Physical activities</b> <ul style="list-style-type: none"> <li>• Participation in any sports practice sessions conducted by our college/ any club / any institution</li> <li>• Completion of any Yoga/ Pilates/ Gym course/ any fitness related course</li> <li>• Participation in any other physical activities of the interest of student</li> </ul>                                                                                                 |
| 2          | III  | <b>2.1 Volunteering in any sports events or fitness events</b> <ul style="list-style-type: none"> <li>• Volunteering done in sports or fitness events organized by the college</li> <li>• Volunteering in any other fitness or sports activities organized by NGO or local clubs</li> </ul>                                                                                                                                                                                        |
|            | IV   | <b>2.2 Participation in University or any other Sports competitions</b> <ul style="list-style-type: none"> <li>• Participation in University Intercollegiate/ Inter Zonal / West Zone/ All India / National / State tournaments organized by University of Mumbai or State or District Sports Federation</li> <li>• Participation in any other intra college competition organized by college</li> <li>• Participation in any recognized Sports or Fitness competitions</li> </ul> |

### Scheme of Evaluation

The Scheme of Examination shall be of 50 marks. It will be divided into Internal Evaluation (20 marks) and Semester End Examination (30 Marks).

Students will submit a brief report of 60 hours spent for Semester II in any of the physical activities along with geo tagged photo, receipt, sports training session's attendance, course certificates, etc. Report should include the explanation of the following questions. A report can have multiple physical activities done for the completion of 60 hours per semester. For eg. A student can enroll himself/ herself in Yoga/ Gym and any sport simultaneously and can give proof of the attendance for the same in the report. A student must complete 60 hours in any physical activity. Students should also enroll themselves as volunteers for any sports and fitness events held in the college.

1. Why did the student select a physical activity mentioned in the report?
2. What were the benefits and experience after the completion of the 60 hours of physical activity?
3. What were the challenges faced by the student during the activity?
4. Geotagged photos of the activity clicked in the beginning, during and on the last day of the activity.
5. Enrollment receipts, ID card, certificate of the activity.
6. Conclusion remark by the student.

### Semester II (50 Marks - 2 Credits)

#### Internal Evaluation (20 Marks)

| Sr. No. | Particulars                                                                                                                                                             | Marks |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1       | Presentation<br><b>OR</b><br>Project<br><b>OR</b><br>Assignment<br><br>(Students must include the Geo Tagged photos, Enrolment receipt, Certificate etc. in the report) | 10    |
| 2       | Volunteering in any Sports / Fitness activities conducted by college or local clubs or NGO                                                                              | 10    |

#### Semester End Examination (30 Marks)

| Question No. | Particulars                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Marks |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1            | VIVA Conducted by teacher/ Sports In charge/ Sports Director regarding participation in Physical / Sports / Fitness activities / Fitness or Yoga Course completed by students<br><br><b>OR</b><br>Participation in Sports Competitions Conducted by University at State or National Level<br>(Students who have represented Mumbai University or College at Intercollegiate / Inter Zonal / West Zone Inter University / All Indi Inter University/ International tournament)<br><br>Students who have represented in the above mentioned competitions should be exempted from VIVA and should be evaluated on the basis of his/ her performance in the above mentioned competitions. | 30    |
| <b>Total</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 30    |

## References –

1. Bucher, C. A. (n.d.) Foundation of physical education. St. Louis: The C.V. Mosby Co. Deshpande, S.H. (2014). Physical Education in Ancient India. Amravati: Degree college of Physical education.
2. Mohan, V. M. (1969). Principles of physical education. Delhi: Metropolitan Book Dep. Nixon, E. E. & Cozen, F.W. (1969). An introduction to physical education. Philadelphia: W.B. Saunders Co.
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12. D.M Jyoti, Athletics (2015) lulu.com3101, Hills borough, NC27609, United States

# University of Mumbai

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Academic Authorities,  
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Tel. 022-68320033

Re- accredited with A ++ Grade (CGPA 3.65) by NAAC  
Category- I University Status awarded by UGC

No. AAMS\_UGS/ICC/2024-25/ 2\9

Date: 31<sup>st</sup> January, 2025

## CIRCULAR:-

Attention of all the Principals of the Affiliated Colleges, Directors of the Recognized Institutions and the Head University Departments is invited to this office Circular No. AAMS\_UGS/ICC/2024-25/04 dated 11<sup>th</sup> June, 2023 relating to the NEP UG & PG Syllabus.

They are hereby informed that the recommendations made by the Ad-hoc Board of Studies in N.C.C./N.S.S./Sports Co-Curricular at its meeting held on 23<sup>rd</sup> November, 2024 and subsequently passed by the Board of Deans at its meeting held on 30<sup>th</sup> December, 2024 vide item No. 8.1 (N) have been accepted by the Academic Council at its meeting held on 27<sup>th</sup> January, 2025 vide item No. 8.1 (N) and that in accordance therewith to introduce 2 Credit Programme Co-Curricular Course Foundation and Exploration of Performing Fine Arts Sem II as per appendix (NEP 2020) with effect from the academic year 2024-25.

(The said circular is available on the University's website [www.mu.ac.in](http://www.mu.ac.in)).

MUMBAI – 400 032  
31<sup>st</sup> January, 2025

(Dr. Prasad Karande)  
REGISTRAR

To,

The Principals of the Affiliated Colleges, Directors of the Recognized Institutions and the Head, University Departments.

AC 8.1 (N) /27/01/2025

Copy forwarded with Compliments for information to:-

- 1) The Chairman, Board of Deans,
- 2) The Dean, Faculty of Interdisciplinary,
- 3) The Chairman, Ad-hoc Board of Studies in N.C.C./N.S.S./Sports Co-Curricular,
- 4) The Director, Board of Examinations and Evaluation,
- 5) The Director, Department of Students Development,
- 6) The Director, Department of Information & Communication Technology,
- 7) The Director, Centre for Distance and Online Education (CDOE), Vidyanagari,
- 8) The Deputy Registrar, Admissions, Enrolment, Eligibility & Migration Department (AEM).

| <b>Copy forwarded for information and necessary action to :-</b> |                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                                                                | The Deputy Registrar, (Admissions, Enrolment, Eligibility and Migration Dept)(AEM),<br><a href="mailto:dr@eligi.mu.ac.in">dr@eligi.mu.ac.in</a>                                                                                                                                    |
| 2                                                                | The Deputy Registrar, Result unit, Vidyanagari<br><a href="mailto:drresults@exam.mu.ac.in">drresults@exam.mu.ac.in</a>                                                                                                                                                             |
| 3                                                                | The Deputy Registrar, Marks and Certificate Unit,. Vidyanagari<br><a href="mailto:dr.verification@mu.ac.in">dr.verification@mu.ac.in</a>                                                                                                                                           |
| 4                                                                | The Deputy Registrar, Appointment Unit, Vidyanagari<br><a href="mailto:dr.appointment@exam.mu.ac.in">dr.appointment@exam.mu.ac.in</a>                                                                                                                                              |
| 5                                                                | The Deputy Registrar, CAP Unit, Vidyanagari<br><a href="mailto:cap.exam@mu.ac.in">cap.exam@mu.ac.in</a>                                                                                                                                                                            |
| 6                                                                | The Deputy Registrar, College Affiliations & Development Department (CAD),<br><a href="mailto:deputyregistrar.uni@gmail.com">deputyregistrar.uni@gmail.com</a>                                                                                                                     |
| 7                                                                | The Deputy Registrar, PRO, Fort, (Publication Section),<br><a href="mailto:Pro@mu.ac.in">Pro@mu.ac.in</a>                                                                                                                                                                          |
| 8                                                                | The Deputy Registrar, Executive Authorities Section (EA)<br><a href="mailto:eau120@fort.mu.ac.in">eau120@fort.mu.ac.in</a><br><br>He is requested to treat this as action taken report on the concerned resolution adopted by the Academic Council referred to the above circular. |
| 9                                                                | The Deputy Registrar, Research Administration & Promotion Cell (RAPC),<br><a href="mailto:rapc@mu.ac.in">rapc@mu.ac.in</a>                                                                                                                                                         |
| 10                                                               | The Deputy Registrar, Academic Appointments & Quality Assurance (AAQA)<br>dy.registrar.tau.fort.mu.ac.in<br><a href="mailto:ar.tau@fort.mu.ac.in">ar.tau@fort.mu.ac.in</a>                                                                                                         |
| 11                                                               | The Deputy Registrar, College Teachers Approval Unit (CTA),<br><a href="mailto:concolsection@gmail.com">concolsection@gmail.com</a>                                                                                                                                                |
| 12                                                               | The Deputy Registrars, Finance & Accounts Section, fort<br><a href="mailto:draccounts@fort.mu.ac.in">draccounts@fort.mu.ac.in</a>                                                                                                                                                  |
| 13                                                               | The Deputy Registrar, Election Section, Fort<br><a href="mailto:drelection@election.mu.ac.in">drelection@election.mu.ac.in</a>                                                                                                                                                     |
| 14                                                               | The Assistant Registrar, Administrative Sub-Campus Thane,<br><a href="mailto:thanesubcampus@mu.ac.in">thanesubcampus@mu.ac.in</a>                                                                                                                                                  |
| 15                                                               | The Assistant Registrar, School of Engg. & Applied Sciences, Kalyan,<br><a href="mailto:ar.seask@mu.ac.in">ar.seask@mu.ac.in</a>                                                                                                                                                   |
| 16                                                               | The Assistant Registrar, Ratnagiri Sub-centre, Ratnagiri,<br><a href="mailto:ratnagirisubcentre@gmail.com">ratnagirisubcentre@gmail.com</a>                                                                                                                                        |
| 17                                                               | The Director, Centre for Distance and Online Education (CDOE),<br>Vidyanagari,<br><a href="mailto:director@idol.mu.ac.in">director@idol.mu.ac.in</a>                                                                                                                               |
| 18                                                               | Director, Innovation, Incubation and Linkages,<br>Dr. Sachin Laddha<br><a href="mailto:pinkumanno@gmail.com">pinkumanno@gmail.com</a>                                                                                                                                              |
| 19                                                               | Director, Department of Lifelong Learning and Extension (DLLE),<br>Dlleuniversityofmumbai@gmail.com                                                                                                                                                                                |

**Copy for information :-**

|   |                                                                                                                     |
|---|---------------------------------------------------------------------------------------------------------------------|
| 1 | P.A to Hon'ble Vice-Chancellor,<br><a href="mailto:vice-chancellor@mu.ac.in">vice-chancellor@mu.ac.in</a>           |
| 2 | P.A to Pro-Vice-Chancellor<br><a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>                              |
| 3 | P.A to Registrar,<br><a href="mailto:registrar@fort.mu.ac.in">registrar@fort.mu.ac.in</a>                           |
| 4 | P.A to all Deans of all Faculties                                                                                   |
| 5 | P.A to Finance & Account Officers, (F & A.O),<br><a href="mailto:camu@accounts.mu.ac.in">camu@accounts.mu.ac.in</a> |

**To,**

|   |                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | The Chairman, Board of Deans<br><a href="mailto:pvc@fort.mu.ac.in">pvc@fort.mu.ac.in</a>                                                                                                                                                                                                                                                                                                                                 |
| 2 | <b>Faculty of Humanities,</b><br><b>Dean</b><br>1. Prof.Anil Singh<br><a href="mailto:Dranilsingh129@gmail.com">Dranilsingh129@gmail.com</a><br><b>Associate Dean</b><br>2. Dr.Suchitra Naik<br><a href="mailto:Naiksuchitra27@gmail.com">Naiksuchitra27@gmail.com</a><br>3.Prof.Manisha Karne<br><a href="mailto:mkarne@economics.mu.ac.in">mkarne@economics.mu.ac.in</a>                                               |
|   | <b>Faculty of Commerce &amp; Management,</b><br><b>Dean</b><br>1. Dr.Kavita Laghate<br><a href="mailto:kavitalaghate@jbims.mu.ac.in">kavitalaghate@jbims.mu.ac.in</a><br><b>Associate Dean</b><br>2. Dr.Ravikant Balkrishna Sangurde<br><a href="mailto:Ravikant.s.@somaiya.edu">Ravikant.s.@somaiya.edu</a><br>3. Prin.Kishori Bhagat<br><a href="mailto:kishoribhagat@rediffmail.com">kishoribhagat@rediffmail.com</a> |

|   |                                                                                                                                                                                                                                                                                                                                                                     |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | <b>Faculty of Science &amp; Technology</b><br><b>Dean</b><br>1. Prof. Shivram Garje<br><a href="mailto:ssgarje@chem.mu.ac.in">ssgarje@chem.mu.ac.in</a><br><b>Associate Dean</b><br>2. Dr. Madhav R. Rajwade<br><a href="mailto:Madhavr64@gmail.com">Madhavr64@gmail.com</a><br>3. Prin. Deven Shah<br><a href="mailto:sir.deven@gmail.com">sir.deven@gmail.com</a> |
|   | <b>Faculty of Inter-Disciplinary Studies,</b><br><b>Dean</b><br>1. Dr. Anil K. Singh<br><a href="mailto:aksingh@trcl.org.in">aksingh@trcl.org.in</a><br><b>Associate Dean</b><br>2. Prin. Chadrashekhhar Ashok Chakradeo<br><a href="mailto:cachakradeo@gmail.com">cachakradeo@gmail.com</a>                                                                        |
| 3 | Chairman, Board of Studies,                                                                                                                                                                                                                                                                                                                                         |
| 4 | The Director, Board of Examinations and Evaluation,<br><a href="mailto:dboee@exam.mu.ac.in">dboee@exam.mu.ac.in</a>                                                                                                                                                                                                                                                 |
| 5 | The Director, Board of Students Development,<br><a href="mailto:dsd@mu.ac.in@gmail.com">dsd@mu.ac.in@gmail.com</a> DSW <a href="mailto:directr@dsw.mu.ac.in">directr@dsw.mu.ac.in</a>                                                                                                                                                                               |
| 6 | The Director, Department of Information & Communication Technology,<br><a href="mailto:director.dict@mu.ac.in">director.dict@mu.ac.in</a>                                                                                                                                                                                                                           |

## As Per NEP 2020

# University of Mumbai



### Syllabus for Basket of OE

Ad- hoc Board of Studies in N.C.C./N.S.S./Sports Co-Curricular

UG First Year Programme - Co-Curricular Course

Semester

II

Title of Paper

Credits

Foundation and Exploration of  
Performing Fine Arts

2

From the Academic Year

2024-25

**Semester II**  
**As per NEP 2020**

# **Foundation and Exploration of Performing and Fine Arts**

**Syllabus for Two Credits Programme**

**With effect from Academic Year 2024-2025**

### Aims and Objectives

- To study the foundation and essentials of performing arts.
- To understand the chronicles of Indian Artistry.
- To comprehend the modern art forms.
- To explore various career opportunities in fine arts.

### Learning Outcomes

The course will enable the learner to

- Identify and trace the historical evolution of Indian performing and fine arts.
- Analyze the transition from traditional to modern art forms in performing arts.
- Identify and describe a range of career paths in the fine and performing arts.

### Modules at Glance

#### Semester I

| Module No.         | Unit | Content                                 | No. of Hours |
|--------------------|------|-----------------------------------------|--------------|
| 1                  | I    | Foundation of Performing Arts           | 08           |
|                    | II   | Essential Skill Sets in Performing Arts | 07           |
| 2                  | III  | Chronicles of Indian Artistry           | 08           |
|                    | IV   | Contemporary and Modern Art             | 07           |
| Total No. of Hours |      |                                         | 30           |

| Module No. | Unit | Content                                                                                                                                                                                                                                            |
|------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1          | I    | <b>1.1 Foundation of Performing Arts</b> <ul style="list-style-type: none"><li>• Introduction to Performing Arts</li><li>• Historical Evolution and Cultural Significance of Performing Arts</li><li>• Basic Elements of Performing Arts</li></ul> |
|            | II   | <b>1.2 Essential Skill Sets in Performing Arts</b> <ul style="list-style-type: none"><li>• Character Development and Analysis</li></ul>                                                                                                            |

|          |            |                                                                                                                                                                                                                                                                                   |
|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |            | <ul style="list-style-type: none"> <li>• Emotional Exploration and Expression</li> <li>• Fundamentals of Voice Modulation and Projection</li> <li>• Improvisation Skills</li> <li>• Scene Study and Script Interpretation</li> <li>• Career Options in Performing Arts</li> </ul> |
| <b>2</b> | <b>III</b> | <b>2.1 Chronicles of Indian Artistry</b> <ul style="list-style-type: none"> <li>• Indus Valley Civilization</li> <li>• Folk and Tribal Art Forms</li> <li>• Impact of Aesthetic Art on Sacred Architecture</li> <li>• Revival and Preservation of Ancient Indian Art</li> </ul>   |
|          | <b>IV</b>  | <b>2.2 Contemporary and Modern Art</b> <ul style="list-style-type: none"> <li>• Modern Trends in Indian Art</li> <li>• Eminent Contemporary Artists of India</li> <li>• Career Options in Fine Arts</li> </ul>                                                                    |

### Scheme of Evaluation

The Scheme of Examination shall be of 50 marks. It will be divided into Internal Evaluation (20 marks) and Semester End Examination (30 Marks).

### Semester I (50 Marks - 2 Credits)

#### Internal Evaluation (20 Marks)

| <b>Sr. No.</b> | <b>Particulars</b>                                                                                                                                                                                                                      | <b>Marks</b> |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1              | Presentation<br><b>OR</b><br>Project<br><b>OR</b><br>Assignment                                                                                                                                                                         | 15           |
| 2              | Participation in Workshop / Conference / Seminar (as decided by the Teacher)<br><b>OR</b><br>Participation in Online Workshop / Conference / Seminar (as decided by the Teacher)<br><b>OR</b><br>Field Visit<br><b>OR</b><br>Attendance | 5            |

**Semester End Examination (30 Marks)**

| <b>Question No.</b> | <b>Particulars</b>                                                                                                                                | <b>Marks</b> |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 1                   | <b>Objective Type Questions (All Units)</b>                                                                                                       | 06           |
| 2                   | <b>Descriptive Question(s) on Unit I</b><br><br>The Question may be divided into sub questions:<br><br>Attempt any 2 out of 4 (Each of 3 Marks)   | 06           |
| 3                   | <b>Descriptive Question(s) on Unit II</b><br><br>The Question may be divided into sub questions:<br><br>Attempt any 2 out of 4 (Each of 3 Marks)  | 06           |
| 4                   | <b>Descriptive Question(s) on Unit III</b><br><br>The Question may be divided into sub questions:<br><br>Attempt any 2 out of 4 (Each of 3 Marks) | 06           |
| 5                   | <b>Descriptive Question(s) on Unit IV</b><br><br>The Question may be divided into sub questions:<br><br>Attempt any 2 out of 4 (Each of 3 Marks)  | 06           |
| <b>Total</b>        |                                                                                                                                                   | 30           |

**Reference Books**

- Hennessey, B. (2019). *The artist's career handbook: A guide to building your career as a visual artist*. Allworth Press.
- Kapila, V. (2002). *Indian art: A history*. Penguin India.
- Mitter, P. (2001). *Indian art*. Oxford University Press.
- Chekhov, M. (2002). *To the actor: On the technique of acting*. Routledge.
- Strasberg, L. (1987). *A dream of passion: The development of the method*. Plume.
- Dehejia, V. (1997). *Indian art*. Phaidon Press.
- Nath, A. (2013). *Preservation of art and architecture in ancient India*. Bharatiya Kala Prakashan.
- Chawla, K. (2010). *Opportunities in fine arts careers*. Vikas Publishing House.
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- *Dalmia, Y. (2001). The making of modern Indian art: The progressives. Oxford University Press.*

AC –28/06/2024

Item No. – 5.7 (N)

# University of Mumbai



## Syllabus for Extension Work in Vertical VI - CC

Board of Studies in Extension Work

UG First Year Program

Semester

II

Title of Paper

Credit

Extension Work

2

From the Academic Year

2024-25

## Introduction

The National Education Policy (NEP) 2020 is a comprehensive framework introduced by the Government of India to revamp the country's education system. It has replaced the previous National Policy on Education, which has aim to ensure universal access to quality education from preschool to higher education, including vocational education. NEP 2020 emphasizes a more holistic, multidisciplinary, and flexible curriculum which lay emphasis on conceptual understanding rather than rote learning allowing students to choose subjects across disciplines without strict boundaries.

The National Education Policy (NEP) 2020 of India addresses the role of higher education institutions in fostering community engagement and extension work. It highlights the social responsibility of higher education institutions towards their communities. It encourages institutions to engage with local communities, address societal challenges, and contribute to sustainable development. The policy promotes the implementation of outreach programs by higher education institutions to disseminate knowledge, provide services, and support community development. These programs may include literacy campaigns, career development programs, social issues awareness programs, health and hygiene initiatives, skill development workshops, and technology-oriented activities. The policy suggests integrating extension work into the curriculum of higher education programs. This allows learners to gain practical experience, develop leadership skills, and contribute to community development while pursuing their studies. It recognizes incentives to encourage active engagement in community service and extension activities.

Overall, NEP 2020 recognizes the significant role of higher education institutions in promoting community engagement, social responsibility, and sustainable development through extension work. By integrating extension activities into their mission and operations, institutions can contribute to building inclusive and resilient societies.

*Extension work in the context of education refers to the activities and programs conducted by educational institutions to engage with communities, address societal needs, and promote social development.*

### Aim of Extension Work under NEP:

- Extension work aims to identify and address the specific needs and challenges faced by communities. NEP 2020 encourages higher education institutions to engage with local communities and contribute to their development by offering programs and services that

address social needs, such as literacy programs, health awareness campaigns, and vocational training.

- Extension work aims to empower communities by providing them with the knowledge, skills, and resources they need to address their own requirements and improve their quality of life.

*Key objectives of Extension Work under NEP:*

- To ensure equal access to quality education and educational opportunities to aspirants.
- To support the government initiatives in achieving universal foundational literacy and numeracy as per sustainable development program.
- To organize remedial programs to address the learning breaches among the youth and provide unending education opportunities.
- To offer more holistic, multidisciplinary, and flexible curricular activities with an emphasis on conceptual understanding and personality development.
- To offer a wide range of activities & promote critical thinking, creativity, and innovation.
- To provide aspirants with multiple pathways for skill development and employment.
- To implement outreach programs to disseminate knowledge, provide services, and support community development.

**Extension Work Activities:**

Extension Work activities introduced by DLLE are a crucial aspect of the educational environment, offering multifaceted benefits that extend beyond academic learning. Many extension activities focus on social issues, sustainability, and environmental conservation. These activities educate the communities on sustainable practices which promote inclusivity and social justice. These activities focus especially on training women in various skills, including entrepreneurship and digital literacy through various vocational skill-oriented projects offered by the department. These activities have significantly contributed to skill development among community members, leading to improved employment opportunities and personality development. Learners participate in extension work activities as part of their curriculum, to gain practical experience and to contribute to community development. Thus, engaging in extension work fosters a sense of social responsibility and civic engagement among the learners and facilitators.

### **THE EXTENSION DIMENSION (Reach to Unreached)**

The college students are enrolled for extension work projects and perform various activities for the **social awareness based on various issues / problems in the society such as Save Girl Child, Pollution, Aids, Global Warming, Environment, Tree Plantation, Importance of Education, Illiteracy, Child Labour, Dowry Deaths, Malnutrition, Watershed Management and so many.** The students are creating awareness about these social problems / issues through various activities such as Street Play, Exhibition, Poster Making, Songs, Speech, Survey, Elocution, and participation in Seminar & Conferences. For this purpose, students are going to remote areas and involve the community and make them aware of our role in eradicating social problems faced by the society and trying to convince the people human duties as an ideal citizen.

To facilitate the sensitization of the student to the socio-cultural realities, the Department offers extension work projects encompassing social issues for the student. There are many Extension Work Projects being offered by the department under the two different units for enhancing the employability and IT skills of the student. The projects are given below for which the details are available on DLLE website at [www.mudlle.ac.in](http://www.mudlle.ac.in)

#### **I) Vocational Career Oriented Projects**

1. Career Project [CP]
2. Industry Orientation Project [IOP]
3. Anna Poorna Yojana [APY]
4. Skill Development (SD)

#### **II) Community Oriented Projects**

1. Population Education Club (PEC)
2. Survey Research
3. Education for All (EFA- NIOS, IDOL)
4. Environment Education
5. Civic Sense (CS)
6. Consumer Guidance

Given below are the activities / programs to be conducted by the colleges as a part of Extension Work as enlisted topics. The learner will focus on enlisted topics and participate in following activities during Semester II in this academic year.

**ACTIVITIES FOR SEMESTER II = 2 Credits**

| Sr.<br>No. | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | No. of<br>Lectures                                                                               |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1.         | <p><u>Organising &amp; Participation in Training Session</u></p> <p>Every learner should attend the orientation / training session organised by their college for orientation of annual extension work program. Attendance is compulsory. <b>In this session the learners will be oriented about the activities to be conducted during the semester followed by question-and-answer session.</b> The learner must read resource material and guideline carefully and plan his / her activities for the semester during academic year.</p>                                                                                                                                                                                                                                                                                                                                                  | 2 Lectures                                                                                       |
| 2.         | <p><u>Participation in Project /Activities</u> (as given below)</p> <p><b>In this session learners will be oriented about any 5 Topics selected by college (preferably which are not taken in Semester 1) for awareness under Extension Work. The college may select more than 5 topics if the enrolment of learners is more than 200. The learners will participate in activities based on these topics selected by college.)</b></p> <ol style="list-style-type: none"> <li>1. Maharashtra Policy for women.</li> <li>2. Status of women in India. / Women achievers of modern India</li> <li>3. Banking procedures.</li> <li>4. Legal procedures.</li> <li>5. Violence against women / Laws protecting women/ Inheritance laws.</li> <li>6. Child Labour.</li> <li>7. Environment- pollution and its effect / Save Trees and Natural Resources</li> <li>8. Water Harvesting.</li> </ol> | 22 Lectures including guidance for practice session, preparations and actual conduct of program. |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <ol style="list-style-type: none"> <li>9. Pollution (Noise pollution / industrial pollution etc.)</li> <li>10. Issues related to LGBT.</li> <li>11. HIV –AIDS / Covid 19 etc.</li> <li>12. Consumer Awareness (Act 2019), Need and Importance</li> <li>13. E-waste management</li> <li>14. Stress and Harassment.</li> <li>15. Global warming</li> <li>16. Importance of Ethics and Values</li> <li>17. Old Age Homes / Status of Senior Citizens</li> <li>18. Distance Education Opportunities</li> <li>19. First Aid Awareness</li> <li>20. Voting rights / Human Rights</li> </ol> <p><b>Learners will be oriented and motivated to participate in minimum four activities given below based on above topics:</b></p> <ol style="list-style-type: none"> <li>1. Seminar /conferences, discussion sessions, debate, rallies</li> <li>2. Competitions (essay/creative writing, elocution, poster/ video/ rangoli making etc. – Minimum 2 competitions)</li> <li>3. Extension Work group activities of other groups in the college.</li> <li>4. Prepare your PPT, design your posters / charts.</li> <li>5. Survey / short term academic courses / innovative programs.</li> <li>6. Field visit / field work / case studies / developing innovative engineering models / projects</li> <li>7. Participation in Street Plays</li> <li>8. Event / hospitality / human resource management program /assignment</li> <li>9. Novel formulation development (pharmacy),</li> <li>10. Self-medication survey (pharmacy),</li> </ol> <p><b>Learners are required to prepare <u>short videos (duration 3-4 minutes)</u> of the activity where the college will organize such competition.</b></p> |  |
|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                        |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
|   | <p><b>The learners will be oriented about various career development opportunities in University of Mumbai, and schemes of student development by the Government.</b></p> <p><b><u>Learners will be oriented and given an opportunity for:</u></b></p> <ul style="list-style-type: none"> <li>- Script writing / Direction for street play.</li> <li>- Composing / Singing (Songs, Powada)</li> <li>- Playing Musical Instrument during the event.</li> <li>- Participation in various college and university level competitions.</li> <li>- Participate in Cultural Performance / Organising Committee for Festival / Programs / Event Management.</li> </ul>                                                                          |                                                                                                        |
| 3 | <p><b><u>Participation Video / Stage Performance / Assignment / Report Writing and submission</u></b></p> <ul style="list-style-type: none"> <li>- Present your report / video during the college program.</li> <li>- All learners enrolled in Extension Work can make activity video or stage performance (3-4 minutes duration) creating awareness about any social issues / topics enlisted here followed by assignment / report writing as per format.</li> <li>- <b>College will organise a program in the hall / classroom for all learners and give them an opportunity</b> to present their assignment / report with PPT / video presentation followed by question answer session / test / interview by the college.</li> </ul> | <p>6 Lectures including guidance for practice session, preparations and actual conduct of program.</p> |

### **Evaluation Pattern**

#### **Internal Assessment**

| <b>Sr. No.</b> | <b>Assessment Criteria</b>                                                                                                    | <b>Maximum Marks</b> |
|----------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------|
| 1              | Attendance, punctuality, completion of hours, participation in programs, presentations and feedback.                          | 10                   |
| 2              | Proficiency in required skill sets, overall performance, submission of written report / assignments and expected development. | 10                   |
|                | Total                                                                                                                         | 20 Marks             |

## **External Assessment**

**(Based on Extension Work guidelines and five enlisted topics chosen by the college.)**

### **Question Paper Pattern**

**Time: 1.00 Hours**

**Total Marks 30**

**Instructions: 1. All questions are compulsory.**

**2. Figures to the right indicate maximum marks.**

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Q.1. Rewrite the following statement by choosing correct alternative given below. - 06 Marks  
(6 statements. One mark each)

Q.2. Write short Notes On (Any Two out of Four) - 06 Marks

Q.3. Answer the following questions. (Any Three out of Five) - 18 Marks

### **References:**

- Guidelines for Extension Work published by Department of Lifelong Learning and Extension, University of Mumbai.
- Agricultural Extension: Principles and Methods" by "Ray V. Herren (2008)
- Agricultural Extension by G. S. R. Murthy (2010)
- Introduction to Agricultural Extension by S. S. Acharya (2015)
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- Extension Communication and Management by B. M. Panda (2016)

**Sign of BOS Chairman  
Prof. Kunal Jadhav  
Ad-hoc Board of  
Studies in Extension  
Work**

**Sign of the Offg.  
Associate Dean  
Dr. Suchitra Naik  
Faculty of  
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