



**Shiv Chhatrapati Shikshan Sanstha's**  
**Rajarshi Shahu Mahavidyalaya (Autonomous), Latur**  
**Structured Work Plan for Teaching**  
**(Jul– 2020 to Nov 2021)**

Details of Classes to be taught

| Sr. No. | Class   | Name of Assit. Prof. | Subject | Paper                                                        |
|---------|---------|----------------------|---------|--------------------------------------------------------------|
| 1       | M.Sc.II | D.R.Awad             | Botany  | BO 3.1 Angiosperms Systematics                               |
| 2       | M.Sc.II |                      |         | B.O 3.2 Molecular Biology                                    |
| 3       | M.Sc.II |                      |         | B.O 3.3 Immunology, Plant Nanotechnology and Forensic Botany |

**Summary of Lesson Plan**

Name of Teacher: D.R.Awad

Class: M.Sc.II (Third Semester)

| Sr. No. | Subject                                                              | Unit and Chapter to be covered                                                                                                                                                                                                                                                                                                                                                                | Date                       | No. of Lectures              | Academic activities to be organized | No. of Test / Assignment with topic and date |
|---------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|-------------------------------------|----------------------------------------------|
| 1       | <b>Credit-II: Modern Trends in Taxonomy and Classification (15L)</b> | 1. Aims, principles and practices in taxonomy. Botanical Nomenclature: Brief history, Scientific name<br>ICN, Principles, Taxonomic hierarchy.<br>2. Taxonomy in relation to morphology and anatomy.<br>3. Overview of pre- and post-Darwinian systems of classification.<br>4. Artificial systems of classification - Linnaeus.<br>5. Natural system of classification - Bentham and Hooker. | 13-07-20<br>To<br>13-08-20 | 03<br><br>03<br>03<br><br>03 | Book Reading                        |                                              |

|   |                                                                       |                                                                                                                                                                                                                                                                                      |                            |              |  |              |
|---|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------|--|--------------|
|   |                                                                       | 6. Phylogenetic systems of classification – Takhtajan.                                                                                                                                                                                                                               |                            | 03           |  |              |
| 2 | <b>Credit - IV Regulation of gene expression: (15L) (B.O 3.2 MOB)</b> | 1 Regulation of transcription –<br>i) Operons, repressors and inducers (Catabolic and Anabolic)<br>ii) Positive and Negative control.<br>iii) Regulation of lytic and lysogenic cycles in phages.<br>2. Regulation of gene expression at translational and post-translational level. | 13-08-20<br>To<br>13-09-20 | 08<br><br>07 |  | Unit Test-II |

## M. Sc. II

| Sr. No. | Subject                                                 | Unit and Chapter to be covered                                                                                                                                                                                                                                                                                                                              | Date                       | No. of Lectures                              | Academic activities to be organized | No. of Test / Assignment with topic and date |
|---------|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------|-------------------------------------|----------------------------------------------|
| 1       | Credit- I: Plant Nanotechnology and Its Concepts: (15L) | 1. Plant Nanotechnology: An Overview on Concepts, Strategies, and Tools<br>2. Physical and Chemical Nature of Nanoparticles.<br>3. Effects of Nanoparticles on Plant Growth and Development<br>4. Agri-Nanotechniques for Plant Availability of Nutrients<br>5. Utilization of Nanoparticles for Plant Protection<br>6. Nanotechnology in Soil-Plant System | 13/09/20<br>To<br>30/09/20 | 03<br><br>02<br><br>03<br>03<br><br>02<br>03 | Book Reading                        |                                              |
|         |                                                         | 1. Introduction to forensic botany. Botanical evidence on legal                                                                                                                                                                                                                                                                                             |                            | 03                                           |                                     | Activity based Unit Test-I                   |

|   |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                            |               |  |
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| 2 | Credit- II:<br>Introduction to<br>Forensic Botany:<br>(15L) | <p>investigations .Legal plant definition.<br/>Botanical evidence in legal investigations</p> <p>2. The Use of Botanical Evidence in Criminal Investigations.</p> <p>3. Evidence collection and analysis:<br/>i. Documentation of botanical evidence<br/>ii. Collection information needed for each botanical sample<br/>iii. How to have botanical evidence analyzed<br/>iv. Evidence analysis<br/>v. Laboratory report</p> <p>4. Fundamentals of wildlife forensic. Significance of wildlife forensic</p> | 01/10/20<br>To<br>22/10/20 | 02<br>07                   |               |  |
| 3 | Credit- III:<br>Immunology-I<br>(15L)                       | <p>1.Cells and molecules involved in innate and adaptive immunity,</p> <p>2. Antigens, antigenicity and immunogenicity</p> <p>3. B and T cell epitope, structure and function of antibody molecules.</p> <p>4. Generation of antibody diversity, monoclonal antibodies, antibody engineering, antigen antibody interaction MHC molecules.</p> <p>5. Antigen processing and presentation, activation and differentiation of B and T cells.</p>                                                               | 23/10/20<br>To<br>28/10/20 | 03<br>03<br>03<br>03<br>03 | Guest Lecture |  |

|   |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                                    |               |
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| 4 | Credit- IV:<br>Immunology- II (15L) | 1. B and T cell receptors, humoral and cell mediated immune responses, primary and secondary immune responses,<br>2. The complement system.<br>3. Toll-like receptors, cell mediated effector functions, inflammation, hypersensitivity and autoimmunity,<br>4. Immune response during bacterial (tuberculosis), Parasitic (malaria) and viral (HIV) infections congenital and acquired immunodeficiencies,<br>5. Vaccines. | 30/10/20<br>To<br>21/11/20 | 04<br><br>02<br>04<br>03<br><br>02 | Unit Test -II |
|---|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------|---------------|

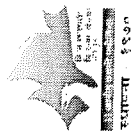
  
Teacher

  
Head

Department of Botany  
UG, PG and Research Centre  
Rajarshi Shahu Mahavidyalaya (Autonomous),  
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Principal  
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**Rajarshi Shahu Mahavidyalaya (Autonomous), Latur**  
**Structured Work Plan for Teaching**  
**(Jan– 2021 to May 2021)**

Details of Classes to be taught

| Sr. No. | Class   | Name of Assit. Prof. | Subject | Paper                                                       |
|---------|---------|----------------------|---------|-------------------------------------------------------------|
| 1       | B.Sc.II | D.R.Awad             | Botany  | Paper-VII Environmental Biology; Gardening and Land Scaping |
| 2       | M.Sc.I  |                      |         | B.O 1.2 Diversity of Microbes and Cryptogams                |
| 3       | M.Sc.II |                      |         | BO 4.2: Plant Biotechnology & Genetic Engineering           |
| 4.      | B. Sc I |                      |         | Paper-III: Histology, Anatomy and Embryology of Angiosperms |

Summary of Lesson Plan

Name of Teacher: D.R.Awad

Class: B.Sc.II (Third Semester)

| Sr. No. | Subject                                                 | Unit and Chapter to be covered                                                                                                                                                                                      | Date                       | No. of Lectures      | Academic activities to be organized           | No. of Test / Assignment with topic and date |
|---------|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------|-----------------------------------------------|----------------------------------------------|
| 2       | <b>UNIT – I:<br/>Environmental Biology-I<br/>(12 L)</b> | <b>1.</b> Ecology – Definition and Scope<br><b>2.</b> Structure of ecosystem (Abiotic and Biotic)<br><b>3.</b> Types of ecosystem (Pond ecosystem and Forest ecosystem)<br><b>4.</b> Ecological pyramids and energy | 22-02-21<br>To<br>18-03-21 | 02<br>02<br>02<br>02 | Preparation of<br>Charts- Food<br>chain, Food |                                              |

|  |                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                  |                            |                                  |                                |                               |
|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------|--------------------------------|-------------------------------|
|  | flow<br>5. Food chain and Food web<br>6. Morphological and anatomical adaptations of plants to water stress conditions<br>i. Hydrophytes – Lotus leaf (petiole), Hydrilla.<br>ii. Xerophytes – Nerium leaf, Casuarina stem. |                                                                                                                                                                                                                                                                                                                                  |                            | 01<br>04                         | web and Ecological pyramids    |                               |
|  | <b>UNIT – II:<br/>Environmental Biology-<br/>II (10 L)</b>                                                                                                                                                                  | 1. Pollution: Causes, effects and control measures of:<br>i. Water pollution,<br>ii. Soil pollution<br>iii. Air pollution<br>2. Afforestation and deforestation<br>3. Chipko movement                                                                                                                                            | 20-03-21<br>To<br>10-04-21 | 06<br><br>02<br>02               |                                | Activity based Unit<br>Test-I |
|  | <b>UNIT – III: Gardening<br/>(13 L)</b>                                                                                                                                                                                     | 1. Scope and objectives of gardening.<br>2. Style of gardens: Formal, Informal.<br>3. Types of gardens: English, Mughal, Hindu-Buddhist and Japanese.<br>4. Components of garden.<br>5. Pots and container.<br>6. Essentials of pot culture.<br>7. Potting compost.<br>8. Potting.                                               | 12-04-21<br>To<br>2-05-21  | 02<br>02<br>02<br>01<br>02<br>02 | Preparation of Potting compost |                               |
|  | <b>UNIT – IV:<br/>Landscape Designs<br/>(10 L)</b>                                                                                                                                                                          | 1. Landscape Design: Definition, Landscape elements of construction.<br>2. Computer application in landscape.<br>3. Hedges for gardens & farms.<br>4. Lawns & Grasses: Planting methods, maintenance and pest management.<br>5. Development of flowerbeds and their designs.<br>6. Preparation of Bonsai and Flower Arrangement. | 04-05-21<br>To<br>31-05-21 | 02<br>02<br>02<br>02<br><br>02   |                                | Unit Test -II                 |

## M. Sc-I

| Sr. No. | Subject                                          | Unit and Chapter to be covered                                                                                                                                                                                                                                                                                                                                                                                                                                      | Date                       | No. of Lectures        | Academic activities to be organized | No. of Test / Assignment with topic and date |
|---------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|-------------------------------------|----------------------------------------------|
|         | Credit-I: Viruses, Bacteria and Mycoplasma (15L) | <b>1. Viruses:</b> General characters, Ultra structure of plant viruses (TMV), Transmission of plant viruses and Economic importance of viruses.<br><b>2. Bacteria:</b> General characters, Ultra Structure, Nutrition (Autotrophic, Heterotrophic and Symbiotic), Reproduction (Binary fission, Transduction and Transduction ), Economic Importance of Bacteria.<br><b>3. Mycoplasma:</b> General characters, Ultra structure, Economic importance of Mycoplasma. | 01-01-21<br>To<br>24-01-21 | 04<br><br>07           | Guest Lecture                       |                                              |
|         | Credit-II: Fungi- (15L)                          | <b>1.</b> General characters of Fungi.<br><b>2.</b> Biodiversity and Taxonomy of the Phyla Zygomycota ( <i>Rhizopus</i> ), Ascomycota ( <i>Aspergillus</i> ), Basidiomycota ( <i>Polyporus</i> ), Oomycota ( <i>Saprolegnia</i> ), Dueteromycota ( <i>Alternaria</i> )<br><b>3.</b> Economic importance of Fungi.                                                                                                                                                   | 25-01-21<br>To<br>18-02-21 | 03<br><br>10<br><br>02 |                                     | Activity based Unit Test-I                   |
|         | Credit-III: Algae. (15L)                         | <b>1.</b> Thallus organization<br><b>2.</b> Cell structure, Reproduction, Pigments, Reserve food, Flagella.<br><b>3.</b> Salient Features of Chlorophyta ( <i>Volvox</i> ), Bacillariophyta ( <i>Pillularia</i> ), Pheophyta ( <i>Sargassum</i> ) and Rhodophyta ( <i>Batrachospermum</i> ).                                                                                                                                                                        | 20-02-21<br>To<br>12-03-21 | 03<br>03<br><br>08     | Book Reading                        |                                              |

|  |                                     |                                                                                                                                                                                                                                                                                                                                                                                                        |                            |                              |  |               |
|--|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------------|--|---------------|
|  |                                     | <b>4. Economic importance of Algae.</b>                                                                                                                                                                                                                                                                                                                                                                |                            | 02                           |  |               |
|  | <b>Credit- IV: Bryophytes (12L)</b> | <b>1. Introduction and Origin of Bryophytes.</b><br><b>2. Distribution, Habit, Morphology, Reproduction, Phylogeny, and Inter - relationship of the orders Marchantiales (<i>Riccia</i>), Anthocerotales (<i>Antheceiros</i>), Jungermanniales (<i>Porella</i>), Sphagnales (<i>Sphagnum</i>).</b><br><b>3. Economic importance of Bryophytes.</b><br><b>4. Bryophytes as indicators of pollution.</b> | 13-03-21<br>To<br>31-03-21 | 02<br>09<br><br>02<br><br>02 |  | Unit Test -II |

### M. Sc.-II

| Sr. No. | Subject                                      | Unit and Chapter to be covered                                                                                                                                                                                                                                                                                                                                                                   | Date                       | No. of Lectures                                        | Academic activities to be organized | No. of Test / Assignment with topic and date |
|---------|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------|-------------------------------------|----------------------------------------------|
|         | <b>Credit I: Plant tissue culture: (15L)</b> | 1. History of plant tissue culture.<br>2. Laboratory condition requirement.<br>3. Tools and techniques for tissue culture.<br>4. Culture media and their constituents<br>5. Types of culture ( Anther, callus, Micropropagation) and application of tissue culture.<br>6. Somaclonal variation and its significance.<br>7. Protoplast culture and somatic hybridization.<br>8. Cryopreservation. | 22-02-21<br>To<br>18-03-21 | 02<br>02<br>02<br><br>02<br><br>02<br><br>02<br><br>01 |                                     |                                              |

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|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----|---------------|----------------------------|
| <b>Credit II: Recombinant DNA technology and gene cloning (15L)</b>   | 1. Introduction to recombinant DNA technology.                                                                       | 03 | Guest Lecture |                            |
|                                                                       | 2. Enzymes used in recombinant DNA technology.                                                                       | 03 |               |                            |
|                                                                       | 3. Recombinant technology                                                                                            | 03 |               |                            |
|                                                                       | 4. Use of vectors in cloning                                                                                         | 03 |               |                            |
|                                                                       | 5. DNA Sequencing methods (Maxam                                                                                     | 03 |               |                            |
|                                                                       | Gillbert, Sangers, Pyrosequencing and Next generation sequencing).                                                   | 03 |               |                            |
|                                                                       |                                                                                                                      |    |               |                            |
| <b>Credit III: Gene libraries and Screening of recombinants (15L)</b> | 1. Genomic and cDNA libraries – choice of vectors and construction.                                                  | 04 |               | Activity Based Unit test-I |
|                                                                       | 2. RNA Interference mechanism, synthesis and its application. Virus Induced Gene Silencing(VIGS).                    | 06 |               |                            |
|                                                                       | 3. Concept of genomics and proteomics.                                                                               | 03 |               |                            |
|                                                                       | 4. Concept of Human genome Project                                                                                   | 02 |               |                            |
| <b>Credit IV: Genetic transformation of plant (15L)</b>               | 1. Agrobacterium: Ti and Ri plasmids, transfer of DNA into host by Agrobacterium, vectors for marker-free selection. | 06 | Book Reading  | Unit Test -II              |
|                                                                       | 2. Transformation technique - Agrobacterium-mediated transformation, 3. Molecular markers and their applications.    | 05 |               |                            |
|                                                                       |                                                                                                                      |    |               |                            |
|                                                                       |                                                                                                                      |    |               |                            |

B. Sc. I

| Sr. No. | Subject                                         | Unit and Chapter to be covered                                                                                                                                                       | Date                       | No. of Lectures                        | Academic activities to be organized | No. of Test / Assignment with topic and date |
|---------|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------|-------------------------------------|----------------------------------------------|
| 1.      | <b>Unit – I: Histology</b><br>(12 L)            | A. Meristematic tissues and their classification<br>B. Permanent Tissues<br>I Simple Tissues:<br>II Complex Tissues<br>III Secretory Tissues                                         | 10-03-21<br>To<br>04-04-21 | 02<br><br>03<br>04<br>03               |                                     |                                              |
| 2.      | <b>UNIT – II: Anatomy</b><br>(12 Periods)       | 1. Anatomy of dicot Stem<br>2. Anatomy of monocot Stem.<br>3. Secondary growth in dicot stem.<br>4. Leaf anatomy of dicotyledons and monocotyledons<br>5. Anomalous secondary growth | 07-04-21<br>To<br>31-04-21 | 02<br><br>02<br>02<br>02<br>02         | Book Reading                        | Activity Based Unit test-I                   |
| 3.      | <b>UNIT –III: Embryology</b><br>–I (11 Periods) | 1 Structure of a Microsporangium<br>2. Structure of a Microspore.<br>3. Development of male gametophyte<br>4. Structure of a Megasporangium.<br>5. Anatropous ovule and Types        | 01-05-21<br>To<br>20-05-21 | 01<br>01<br>02<br>02<br>02<br>02<br>04 |                                     | Unit Test -II                                |
| 4.      | <b>UNIT – IV: Embryology</b><br>–II (10 L)      | 1. Fertilization.<br>2. Post fertilization changes.<br>3. Endosperm and its types.<br>4. Development of dicot embryo<br>5. Structure of Dicot seed.<br>6. Structure of Monocot seed. | 22-05-21<br>To<br>12-06-21 | 01<br>02<br>02<br>03<br><br>01<br>01   | Guest Lecture                       |                                              |

  
Teacher

  
Head

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