

**STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**

**Course Schedule: June - November 2024**

**Department** : Botany  
**Name/s of the Faculty** : <sup>1</sup>Dr. Shakila.H, <sup>2</sup>Dr.Antony Rose Immaculate & <sup>3</sup>Dr.S.Sathya Bama  
**Course Title** : Cell and Molecular Biology, Microbiology, Ecology and Environmental Biotechnology - Practical  
**Course Code** : 19BT/MC/P553  
**Shift** : 1

<b>Week &amp; No. of hours</b>	<b>Units &amp; Topics</b>	<b>Teaching Methodology</b>	<b>Text &amp; References</b>	<b>Method of Evaluation</b>
Jun 19 – 26, 2024 (Day Order 1 - 6)	<b>1.Cell and Molecular Biology</b> Squash Techniques <b>2. Microbiology</b> Working and use of Autoclave, Hot Air Oven, Water Bath and Laminar Air Flow <b>3.Ecology and Environmental Biotechnology</b> Construction of Quadrat - Calculation of Frequency Percentage and Density.	Individual Experiment  Demonstration  Field Survey	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi  Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
Jun 27 – July 4, 2024 (Day Order 1 - 6)	<b>1.Cell and Molecular Biology</b> Squash Techniques <b>2. Microbiology</b> Preparation of Nutrient Media and Broth <b>3.Ecology and Environmental Biotechnology</b> Construction of quadrat - Calculation of Abundance	Individual Experiment  Group activity  Field Survey	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi  Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
July 5 – 12, 2024 (Day)	<b>1.Cell and Molecular Biology</b> Squash Techniques <b>2. Microbiology</b>	Individual Experiment	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical</i>	

Order 1 - 6)	Inoculation Techniques to Isolate Bacteria: Streak Plate  <b>3.Ecology and Environmental Biotechnology</b> Construction of Belt Transect - Calculation of Frequency percentage, Density and Abundance	Individual – Hands on  Field Survey	<i>Botany</i> Vol. II, New Delhi  Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
July 15 – 23, 2024  (Day Order 1 - 6)	<b>1.Cell and Molecular Biology</b> Squash Techniques  <b>2. Microbiology</b> Inoculation Techniques to Isolate Bacteria: Pour Plate <b>3.Ecology and Environmental Biotechnology</b> Construction of Line Transect - Calculation of Frequency Percentage, Density and Abundance	Individual Experiment  Individual – Hands on  Field Survey	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi  Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
July 24 – 31, 2024  (Day Order 1 - 6)	<b>2. Microbiology</b> Inoculation Techniques to Isolate Bacteria: Spread plate  <b>3.Ecology and Environmental Biotechnology</b> Effect of Toxic Substances (Chemicals) on Mitogenic Property of Onion Root	Individual – Hands on  Individual Experiment	Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	<b>1.Cell and Molecular Biology CA Test (13 Marks)</b>
Aug 1 – 5, 2024  (Day Order 1 - 3)	<b>1.Cell and Molecular Biology</b> Extraction of DNA from Onion Cells	Group Activity	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi	

Aug 6 – 10, 2024	<b>C.A. Test – I</b>			
Aug 12 – 14, 2024 (Day Order 4-6)	<b>2. Microbiology</b> Inoculation Techniques to Isolate Bacteria: Slant and Stab <b>3.Ecology and Environmental  Biotechnology</b> Effect of Toxic Substances (Chemicals) on Mitogenic Property of Onion Root	Individual – Hands on  Individual Experiment	Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
Aug 16 – 23, 2024 (Day Order 1-6)	<b>1.Cell and Molecular Biology</b> Demonstrations: Plasmid DNA – Electrophoresis <b>2. Microbiology</b> Gram Staining and Wine production <b>3.Ecology and Environmental  Biotechnology</b> Morphological and Structural Adaptations of Hydrophytes -1	Demonstration  Individual and Group Activity  Sectioning and Drawing	Ashok Bendra and Ashok Kumar, <i>A Text  Book of Practical  Botany</i> Vol. II, New Delhi  Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
Aug 27 – Sep 3, 2024 (Day Order 1-6)	<b>2. Microbiology</b> Gram Staining  <b>3.Ecology and Environmental  Biotechnology</b> Morphological and Structural Adaptations of Hydrophytes -2	Individual – Hands on  Sectioning and Drawing	Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical Botany – Dr.B.P.Pandey	
Sep 4 – 11, 2024 (Day Order 1-6)	<b>1.Cell and Molecular Biology</b> Demonstrations: Restriction Enzyme <b>2. Microbiology</b> Isolation of Bacteria and Fungi from Soil on various media: Enrichment, Selective and Differential media <b>3.Ecology and Environmental  Biotechnology</b> Morphological and Structural Adaptations of Xerophytes -1	Demonstration  Group Activity  Sectioning and Drawing	KIT  Manual of Microbiology – Tools and Techniques – Kanika Sharma  Modern Practical	

			Botany – Dr.B.P.Pandey	
Sep 12 - 20, 2024 (Day Order 1- 6)	<b>1.Cell and Molecular Biology</b> Demonstrations: Restriction Enzyme  <b>3.Ecology and Environmental Biotechnology</b> Morphological and Structural Adaptations of Xerophytes -2	Demonstration  Sectioning and Drawing	KIT  Modern Practical Botany – Dr.B.P.Pandey	<b>Microbiol ogy</b> CA Test – (14 Marks)
Sep 23 - 26, 2024 (Day Order 1-4)	<b>1.Cell and Molecular Biology</b> Identification of various Cell organelles  <b>3.Ecology and Environmental Biotechnology</b> Morphological and Structural Adaptations of Halophytes - 1	Observation and Drawing  Sectioning and Drawing	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi  Modern Practical Botany – Dr.B.P.Pandey	
Sep 27 – Oct 3, 2024	<b>C.A. Test – II</b>			
Oct 4 – 5, 2024 (Day 5 & 6)	<b>2. Microbiology</b> Estimation of Lactic acid	Group Activity		
Oct 7 - 15, 2024 (Day Order 1 to 6)	<b>1.Cell and Molecular Biology</b> Identification of various Cell organelles  <b>2. Microbiology</b> Antimicrobial property using Antibiotic discs /Turmeric	Observation and Drawing  Group Activity	Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi  Manual of Microbioloy – Tools and Techniques – Kanika Sharma	<b>3.Ecology and Environm ental Biotechno logy</b>  CA Test (13 Marks)

<p>Oct 16 - 22, 2024 (Day Order 1 to 6)</p>	<p><b>1.Cell and Molecular Biology</b> Identification of various Cell organelles <b>2. Microbiology</b> Test for Coliforms and Methylene Blue Reductase Test <b>3.Ecology and Environmental Biotechnology</b> Submission of Record work and Revision</p>	<p>Observation and Drawing  Group Activity</p>	<p>Ashok Bendra and Ashok Kumar, <i>A Text Book of Practical Botany</i> Vol. II, New Delhi  Manual of Microbiology – Tools and Techniques – Kanika Sharma</p>	<p>Record (10 Marks)</p>
<p>Oct 23 - 24, 2024 (Day Order 1 to 2)</p>	<p><b>REVISION</b></p>			