

**Rajarshi Shahu Mahavidyalaya, (Autonomous) Latur**  
**Department of Microbiology**  
**Teaching Plan**  
**Academic year :2022-23**

**Name of the Faculty:** Mrs. Amruta B. Dhaigude

**Subject:** Microbiology

**Class:** M.Sc. II (Sem. IV)

**Course Title:** Ecology and Environmental Microbiology

**Paper No.:** XIV

**Course Code:** P-EEM-478

**Details of the Classes to be taught**

Sr. No.	Class	Name of teacher	Subject	Paper
1	M.Sc. I	Mrs. A.B.Dhaigude	Microbiology	Paper :VIII ,P-MDE-283
2	M.Sc. II			Paper: XIV, P-EEM-478

Unit	Unit and the chapter to be covered	No. of Lectures	Date	Academic activities to be organized	Test/Assignments
I	<b>Environment and Ecosystem</b> 1.1 Definitions : Biotic and Abiotic Environment, Microbial Habitat 1.2 Dispersal : Active and Passive 1.3 Communities and Ecosystems, Community Succession, Competition, Adaptations 1.4 Biomass and Biofilms 1.5 Quorum Sensing	15	09/12/2022 to 29/12/2022	Seminars	Assignment

	1.6 Metagenomics 1.7 Food chains, Food webs, Trophic structures, Ecological Pyramids 1.8 Primary production and Energy flow				
II	<b>Waste water and Solid waste treatments</b> 2.1 Need of water management 2.2 Sources of water pollution, Types of solid and liquid waste 2.3 Waste characterization: physical, chemical and biological 2.4 Waste treatments: Primary, Secondary and Tertiary treatments 2.5 Aerobic : Trickling filters, Oxidation ponds 2.6 Anaerobic : Anaerobic digestion, Anaerobic filters, Up flow anaerobic sludge digester 2.7 Effluent treatment schemes for – Dairy, Distillery, Tannery, Sugar & Paper, Textile 2.8 Bioconversion of solid waste and utilization as fertilizers 2.9 Bioaccumulation of heavy metals	15	30/12/2023 to 25/01/2023	Seminars	Assignment
III	<b>Biodeterioration and Biotransformation</b> 3.1 Concept of Biodeterioration 3.2 Biodeterioration of paints, paper and leather 3.3 Biochemistry and Microbes involved in recovery	15	27/01/2023 to 22/02/2023	Seminars	Assignment

	of metals 3.4 Microbial transformation of Mercury and Arsenic 3.5 Bioremediation of xenobiotics in the environment 3.6 Biosensors as environmental monitors				
IV	<b>Ecology and Agricultural Microbiology</b> 4.1 PGPR : Mechanism of Plant growth promotion 4.2 Effect of inoculation with PGPR on the plant soil-microbe ecosystem 4.3 Interactions between PGPR and other microbes 4.4 PGPR: Bacillus, Diazotrophic bacteria, Pseudomonas, Cyanobacteria, Microalgae, AM Fungi 4.5 Biocontrol of plant diseases by genetically modified microorganisms.	15	23/02/2023 to 01/04/2023	Seminars	Class Test

**Note:** Five extra lectures are required for the completion of syllabus

Ameeta  
Subject Teacher

[Signature]  
**HEAD**  
Dept. of Microbiology  
Rajarshi S. N. Chaudhary

[Signature]  
**Principal**