

Rajarshi Shahu Mahavidyalaya, Latur

(Autonomous)

Structured Work Plan for Teaching

(September 2021 to December 2021)

Details of Classes to be taught

Sr. No.	Class	Name of Asstt. Professor	Subject	Paper
1.	M. Sc. I	Dr. Sanghapal Kshirasagar	Biotechnology	Course Title: Cell & cancer Biology Course Code: P-CCB-134

Name of Teacher: Dr. Sanghapal S. Kshirasagar

Class : M.Sc. BT. I (First 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	Cell and cancer biology	Unit I: 15L Cell as the basic unit of life, History & Evolution, Salient features of cell. Prokaryotes vs eukaryotes, Plant cell vs Animal cell. Scheilden & Schwann's cell theory, Modern cell theory, Significance of cell theory. Structure and function of cell membrane, Fluid-Mosaic Model and its components. Membrane Transport: Non-mediated transport, Mediated transport - Passive transport, Active transport, Bulk transport. Membrane Potential & Transmission of nerve impulse.	21-09-21 To 16-10-21	02 02 03 04 02 02	Home Assignments	Assignment I: 15-10-21

		<p>Unit II: 12L</p> <p>Structural organization & functions of intracellular organelles: Cell wall, Nucleus, Mitochondria, Golgi bodies, Lysosomes, Endoplasmic reticulum, Peroxisomes, Plastids and chloroplast, Vacuoles.</p> <p>Function & structure of cytoskeleton & its role in motility.</p>	<p>18-10-21 To 13-11-21</p>	<p>03 06 03</p>		
		<p>Unit III: 08L</p> <p>Cell Signalling: Introduction, Stages of cell signalling.</p> <p>Signal transduction: Concept, Factors determining signal transduction pathways.</p> <p>Signal amplification process.</p> <p>Cell receptors: Introduction and Types of receptors.</p> <p>Second messengers: Introduction & classes of second messengers.</p> <p>G - Proteins in signal transduction.</p>	<p>15-11-21 To 27-11-21</p>	<p>01 02 01 01 02 01</p>	<p>Home Assignment</p>	<p>Assignm ent II: 26-11 21</p>

		<p>Unit IV: 10L</p> <p>Cell cycle: Introduction, Phases of cell cycle, Cell cycle regulation, Cell Cycle checkpoints.</p> <p>Mechanism of apoptosis.</p> <p>Cancer: Introduction, Benign tumor, malignant tumor, Properties of cancer cells.</p> <p>Molecular basis of cancer: Cancer critical genes; proto-oncogenes, tumor suppressor genes, carcinogen, oncovirus.</p> <p>Therapeutic interventions of uncontrolled cell growth.</p>	<p>29-11-21</p> <p>To</p> <p>31-12-21</p>	<p>02</p> <p>02</p> <p>01</p> <p>03</p> <p>02</p>		

Sr. No.	Subject	Practicals	Date	No. of Practical
1	Cell and cancer biology	Cellular diversity	21/09/21	02
2		Cellular permeability		02
3		To study Penetration rate of alcohol in erythrocytes		02
4		Study of Mitosis (root tips)		02
5		Study of Meiosis (anthers)		02
6		Isolation of Chloroplast		02
7		Isolation of Mitochondria		02

8		Estimation of chlorophyll content	to	02
9		Lipid solubility of membrane	31/12/21	02
10		Isolation of chloroplast.		02
11		vital staining of glycogen	Batch A and B	02
12		Vital staining of lipid		02
13		Vital staining of vacuoles		02
14		Vital staining of mitochondria		02
15		Cell types of plants- Microtomy/ maceration of various tissue explants and identification		04

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(Dec. – 2022 to April 2022)

Details of Classes to be taught

Sr. No.	Class	Name of Asstt. Professor	Subject	Paper
1	M.Sc. II	Dr. S. S. Kshirasagar	Biotechnology	Course Title: Environment Biotechnology Course Code:P-ENB-435 Course Title: Lab Course XIV Course Code: P-LAC-437

Name of Teacher: Dr. S. S. Kshirasagar

Class : M.Sc. BT. II (Fourth 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	Environment Biotechnology	Unit-I: Ecology & Environment: Ecosystem structure and functions, abiotic and biotic component. Energy flow, food chain, food web. Ecological Pyramids-types. Biogeochemical cycles. Ecological succession, Ecads and ecotypes. Sustainable management and conservation of environment. Agro ecology; cropping pattern as indicators of environments.	16-12-21 To 16-01-22	12 02 04 04 02	Group Discussion	Unit – I 16/01/22
		Unit-II: Environmental Pollution:		11	Home Assignment	Unit – II 15/02/22

	<p>Classification of pollutants. Air pollution and their properties,</p> <p>Water pollutants and their properties.</p> <p>Environmental pollution and associated hazards to crops, animals and humans.</p> <p>Greenhouse effect and global warming</p>	<p>17-01-22 To 15-02-22</p>	<p>03 01 02 05</p>		
	<p>Unit-III :</p> <p>Biotechnological processes: Waste water treatment plant. Physical, Chemical and Biological unit operations/processes-overview,</p> <p>Activated Sludge Process, Trickling Filters, anaerobic biological treatment process.</p> <p>Biotechnology in Remediation: Introduction to bioremediation, Advantages, limitations and applications</p> <p>Types of Bioremediation Microbial Bioremediation: Natural, Engineered, Ex-situ and in-situ</p> <p>Phytoremediation & its types.</p> <p>Energy & Biofuels: Non conventional or renewable</p>	<p>16-02-22 To 15-03-22</p>	<p>12 02 02 02 01 03</p>	<p>Quiz</p>	<p>Unit –III 15/03/22</p>

		sources of energy, Energy from Biomass. Biofuel cells.				
		Unit IV Advancement in environmental technology Remote sensing and GIS- Principal, terminologies and objectives. Types of remote sensing. Applications of Remote sensing Environmental Impact Assessment with case Study.	16-03-22 To 14-04-22	10 04 03 03	Group discussion	Unit –III 14/04/22

Sr. No.	Subject	Practical	Date	No. of practical
1	Environment	Estimation of T.S. / T.D.S. from given water sample.	16/12/22 to 14/04/22	02
2	Biotechnology	Estimation of Hardness of given water sample.		02
3		Determination of Presumptive test		02
4		To perform Confirmed test		02
5		Analysis of Completed test		02
6		Gram staining of coliform group of bacteria		02
7		Determination of Biological Oxygen Demand of polluted water.		02
8		Determination of Dissolved Oxygen of polluted water.		02
9		Determination of Chemical Oxygen Demand of polluted water.		02
10		Isolation of pathogens from air		02
11		Isolation of pathogens from water		
12		Estimation of alkalinity of given sample.		02