



C. U. SHAH UNIVERSITY, WADHWAN CITY.

Faculty of: **Sciences and Life Sciences**

Course: **Bachelor of Science (Microbiology)**

Semester: **I**

Subject Code: **MDC201-1C**

Subject Name: **Ecosystem And Natural Resources**

Sr. No	Category	Subject Code	Subject Name	Teaching hours/ Week			Credit hours	Credit Points	Evaluation Scheme/ Semester								
				Th	Tu	Pr			Theory				Tutorial / Practical				Total
									Continuous and Comprehensive Evaluation		End Semester Exams		Internal Assessment		End Semester Exams		
									Marks	Marks	Marks	Duration	Marks	Duration	Marks	Duration	
4	MDC	MDC201-1C	Ecosystem and natural resources	3	-	2	5	4	10	Assignment	50	2	25	1	-	-	100

AIM :

- Aware students of the history of microbiology
- Acquaint the basic concept of microbiology as a subject.
- Basic concepts related to sterilization.
- Learn basic laboratory skills for handling glassware

COURSE CONTENTS

Course Outline for Theory

UNIT	COURSE CONTENT	TEACHING HOURS
I	Ecosystem: Concept of ecosystem, structure of ecosystem: inorganic aspect, organic compound, climate regimes, producer, Macro-consumer, Micro-consumer. function of ecosystem: energy cycle, food chains, diversity -interlinkage between organism, biogeochemical cycles. Evolution. producers, consumers and decomposer	12
II	Types of ecosystems: terrestrial ecosystem: types of terrestrial ecosystem (forest, grassland, tundra & desert ecosystem) aquatic ecosystem: freshwater & marine ecosystem. Ecological succession. food chain, food web and ecological pyramids.	10
III	Natural resources Introduction to natural resources, categories of natural resources: according to continual utility, origin & geographical location of natural resources.	10
IV	Natural resources and associated problems: Forest resources and associated problems :(Use and over-exploitation, Deforestation, Timber extraction, Mining and its effects on forest, Dams and their effects on forests and tribal people. Water resources and associated problems:(Use and overutilization of water. Floods,	13

	<p>droughts, Conflicts over water, Dams and problems)</p> <p>Mineral resource and associated problems: Use and exploitation. Environmental effects of extracting and using minerals.</p> <p>Food resources and associated problems: World food problems, Changes caused by agriculture and over-grazing, Effects of modern agriculture, Fertilizer-pesticide problems, Water logging and salinity.</p> <p>Energy resources and associated problems: Growing energy needs</p> <p>Land resources and associated problems: Land degradation, Man-induced landslides, Soil erosion and desertification</p>	
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Course Outline for Practical

SR. NO	COURSE CONTENT	HOURS
1	Water Analysis: - Dissolved oxygen (DO), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total dissolved (TDS), pH, turbidity, Hardness, heavy metals.	30
2	Fuel technology: - proximate analysis of fuel (coal, wood samples), calorific values of solid and liquid fuel.	
3	Rocks and minerals: - identification of various types, forms their characteristics.	
4	Atmosphere Analysis: - Sox, Nox, and suspended particulate matters, carbon dioxide content of a gas sample and climate change.	

TEACHING METHODOLOGY:

- Conventional method (classroom blackboard teaching)
- ICT Techniques
- Teaching through the classroom, laboratory work
- Variety of learning styles and tools (PowerPoint presentations, audio-visual resources, e-resources, seminars, workshops, models) Teaching through laboratory work.

LEARNING OUTCOME:

- The course provide knowledge regarding conservation of environment which is very crucial in the present-day scenario.
- Obtain the knowledge about types of ecosystems.
- Understanding the natural resource and associated problem.
- To gain a knowledge about ecosystem.

Arrangement of lectures duration and practical session as per defined credit numbers:

Units	Lecture Duration (In Hrs.)		Calculation of Credits (In Numbers)		Total Lecture Duration	Credit Calculation
	Theory	Practical	Theory	Practical		
Unit – 1	12	30	3	1	45+30	3+1
Unit – 2	10					
Unit – 3	10					
Unit – 4	13					
TOTAL	45	30	3	1	75	4

Evaluation:

Theory Marks	Practical Marks	Total Marks
75	25	100

Reference Book:

1. **Singh, D., P.K Chhoker and R.N. Pandey.** Plant, Water Analysis: A methods Manual. IARI
2. **Helmer, Richard. 1998.** Water pollution Control: A Guide to the use of water Quality Management Principles. Spon press.
3. **Ritter, William F. 2000.** Agriculture Nonpoint Source Pollution: Watershed Management and Hydrology. CRC Press.