

Course Title: Environmental Food Technology			
Course Code: NFE 411	Credit Hour: 3.0		Total Marks: 100
Learning Outcomes	Course Content	Teaching/ Learning Strategy	Assessment Strategy
Able to gain clear senses of environment and its pollution, biodegradation.	<p>1.Environment & Atmosphere: Sustainable development, biogeochemical transformations of C, N, S and P.</p> <p>2.Environmental Pollution : Définition, Nature and types of Polluants, origin, effects & control environmental pollutants.</p> <p>3.Biodegradation: Microbial degradation of cellulose, pesticides, aromatics and hydrocarbons.</p>	Lecture, Discussion, Problem based learning	Assignment, Q/A, MCQ, Problem solving
Able to gain knowledge on bioremediation, waste utilization and industrial by-product utilization	<p>1.Waste Utilization: Production of Single-cell protein, biogas, bio-fertilizers etc.</p> <p>2.Bioremediation: Pollution control of heavy metals; zinc, lead, mercury, copper and cadmium. Arsenic pollution: its effects and possible remedies.</p> <p>3.Industrial by-products from different food production plant.</p>	Lecture, Discussion, Problem based learning	Assignment, Q/A, MCQ, Problem solving
Able to understand water treatment methods and waste water management	<p>1.Water Supply and Treatment Methods: Introduction, softening, coagulation & flocculation, sedimentation, filtration.</p> <p>2.Water Quality</p>	Lecture, Discussion, Problem based learning	Assignment, Q/A, MCQ, Problem solving

	<p>Management: Introduction, water pollutant and their sources; water quality and standards.</p> <p>3.Waste Water Treatment: Waste water microbiology. Waste water characteristics of different sources. Pretreatment, primary treatment and secondary treatment. Advanced waste water treatment. Domestic, municipal and industrial waste water treatment systems. Sludge treatment and disposal.</p>		
<p>Able to understand the production of bio-pesticides, waste utilization, environment laws and legislation</p>	<p>1. Bio-pesticides Production: Fungi (Trichoderma spp. And Glycladium sp.) Bacteria (Bacillus sp.) Baculoviruses and Neem.</p> <p>2. Waste Utilization: Production of Single-cell protein, biogas, bio-fertilizers etc.</p> <p>3. Bchingio-lea, Bio-absorption and Fossil Fuel Processing: Concepts and application.</p> <p>4. Industrial by products from different food production plant</p> <p>5. Environmental Laws & Standards: Environmental legislation and regulation, environmental ethics.</p>	<p>Lecture, Discussion, Problem based learning</p>	<p>Assignment, Q/A, MCQ, Problem solving</p>