

WORK PLAN FOR TEACHING


Course: MSc (WBAT)				
Subject: WT 4.1 Industrial Waste Treatment				
Semester: IV				
Period: May to June 2023, Marks: 100				
Sr. No.	Topic	Hours Allocated	Allocated to (Faculty)	Remarks (If any)
1	Biological treatment fundamentals Waste treatment methods- Types & Selection Criteria, Aeration principles, Aeration & types of system, Composting – microbial aspects & silent features, Economics consideration in composting process, Microbiology & Conversion process in anaerobic fermentation, Kinetics of methane fermentation, Energy generation and types of anaerobic system, Incineration – Theoretical, considerations, types, incineration systems in practice, Type of secondary treatment system.	15	Dr. R V Burase	--
2	Air pollution Air pollution control principles & equipments, Environmental Audit, Disposal of effluent & soil fertility, Environmental laws, Case studies.	15	Dr. V P Patil	
3	Waste generation & characteristics of effluent. IS norms. Water conservation in distilleries. Requirement of total water for process and non-process in typical 30 KLPD molasses and grain based distillery. Scope for water recycles of various streams for process. Cost economics of saving of water in distillery with typical case study. Importance of water conservation in distilleries. Concept of 3R System CREP norms. Define Zero liquid discharge (ZLD), Existing effluent treatment technologies for achieving ZLD in molasses and grain based distilleries as approved by Ministry of Environment & Forest and Climate Change (MoEF & CC) and Central Pollution Control Board. Importance of	15	Mr. D. A. Patil	--



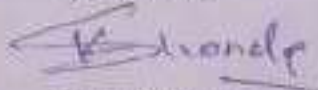
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	environmental clearance, Consent to establishment and consent to operate, Characteristics of spentwash generated in molasses based distilleries and whole stillage generated in grain based distilleries, Various polluted and non-polluted waste generated in distilleries; Its quantity and mode of disposal (solid/liquid/gas), Technologies for treatment of low strength waste generated in distilleries, Condensate polishing unit (CPU), Reverse osmosis, Environment norms for disposal of effluent on land.			
4	Winery & brewery sanitization and waste disposal regulations Winery sanitization- The importance of Cleaning and Sanitation in the Winery, Basic Cleaning, Water Quality, The Solution. Cleaning Compounds, Cleaning Equipment, Sanitizing and Sanitizers, Sterilizing and Sterilizers, Hardware: Tanks, Pumps, Hops, Walls, Floors, Ceilings, Drains, Solid and Liquid Waste Disposal, Government Regulations, Safety, OSHA, EPA, DNR, MSDS, Sanitation Plan. Waste Beer, solid waste materials, wastewater disposal and treatments. Sludge treatment, Disposal and Utilization, Land application of Brewery Effluents, Production of single cell protein from Brewery Effluents.	15	Mr. Vivek Khaire	

Prepared by:


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Approved by


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