MRS. KMPM VOCATIONAL COLLEGE JAMSHEDPUR

PROGRAM OUTCOMES (PO) AND COURSE OUTCOMES (CO)

BACHOLAR OF SCIENCE IN ENVIRONMENT & WATER MANAGEMENT

(B.Sc. EWM) PROGRAM

Program Outcomes:

After completion of Program the students will:

- Have deep Knowledge on Air, water, Noise, Solid waste, other wastes pollution with their control and management solutions.
- Develop deeper understanding in environmental laws and environment Impact assessment and Environment Audit.
- Understand the concept and increase the consciousness about Green Marketing and Green Products
- Acquire knowledge on environment society, sustainable development, disaster management and Industrial safety
- Acquire deep knowledge on Environmental statistics
- Have the ability to choose methods appropriate to research aims and objectives.
- Develop the ability to identify and differentiate between renewable and non-renewable resources.
- Acquire awareness of Environmental organization, climate change, pollution control technologies.
- Understand the principles and the practical approaches and techniques required to effectively monitor the chemical elements of water quality.
- Acquire awareness on tourism within broader cultural, environmental, political and economic dimensions of society.
- Develop the basic understanding of the ecosystem and its structural and functional aspects.

Program Specific Outcomes:

After completion of each program the student will:

- Develop technical skills to use statistical tools and software in environmental data analysis
- Develop technical skills to use statistical tools and software in environmental data analysis
- Be able to determine pollution using environmental analytical techniques in laboratory.
- Understand solid waste and hazardous waste management, beginning from source generation to waste disposal in a system of municipality organizational structure.
- Concepts in Hydraulics, Hydrology waste wastewater and aw waste treatment methods.
- Will develop basic concepts of solid waste and hazardous waste management, beginning from source generation to waste disposal in a system of municipality organizational structure.
- Recognize and advocate for civic engagement and inclusive practices for applying sustainability principles to local issues
- Develop the means to indicate how sustainability issues are impacting their immediate social, economic, and political environment.
- Analyse the effects on a global scale, such as ozone hole & global warming. Understand major geological processes occurring in the near surface of the Earth.
- Develop a sense to serve the environment as a resource, through service, outreach and engagement.
- To understand the fundamentals and basic concepts of Climate change science.
- Be able to demonstrate the ability to apply the scientific method and critical thinking in measuring and analysing the losses and know the water abstraction from the rainfall
- Acquire knowledge to select the most appropriate types of membrane processes for tertiary treatment of wastewater.

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COURSE OUTCOMES

SEMESTER- 1			
SL NO.	**PAPER**	**PAPER CODE**	**COURSE OUTCOMES**
01	Environmental Pollution	MJ-1	Understand the causes and effects of various types of environmental pollution (air, water, noise, soil etc.) Analyze pollutant types, sources and their environmental and health impacts.
02	Disaster Management & Industrial Safety	MN-1A	Students will understand the fundamental concepts of disasters, their types, risks and vulnerabilities. Demonstrate awareness of Industrial safety measures legislation and professional safety practices.
SEMESTER- 2			
01	Ecology and Ecotourism	MJ–2	Students will be able to explain core ecological concepts such as ecosystems, biodiversity, and conservation, and relate them to sustainable natural resource management. Students will critically evaluate ecotourism models, assess their environmental and socio-economic impacts, and propose strategies for responsible and community-based ecotourism development.
02	Environment & Society	MJ–3	Students will be able to explain core ecological concepts such as ecosystems, biodiversity, and conservation, and relate them to sustainable natural resource management. Students will critically evaluate ecotourism models, assess their environmental and socio-economic impacts, and propose strategies for responsible and community-based ecotourism development.
03	Water Resource Management-I	MN-2A	Students will be able to explain the hydrological cycle, surface and groundwater resources, and their significance in sustainable water management. Students will evaluate traditional and modern water conservation methods, irrigation systems, and watershed management practices for efficient water utilization.

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SEMESTER- 3			
01	Fluid Mechanics	MJ–4	Students will be able to explain fundamental fluid properties and apply basic principles such as pressure, buoyancy, and flow types in environmental and engineering contexts. Students will analyze fluid flow through pipelines and open channels using Bernoulli's equation, continuity equation, and flow measurement techniques for practical problem-solving.
02	Waste Management	MJ–5	Students will be able to identify various types of solid, liquid, and hazardous wastes and evaluate their environmental and health impacts. Students will analyze and propose appropriate methods for waste collection, segregation, recycling, treatment, and disposal in line with sustainable and regulatory practices.
03	Sustainable Development	MN-1B	Students will be able to explain the key concepts of sustainable development, including environmental, economic, and social dimensions, and their interdependence. Students will critically assess global and local sustainability challenges and propose strategies for sustainable resource management, development planning, and policy implementation.
SEMESTER- 4			
01	Hydrology-I	MJ–6	Students will be able to explain the components of the hydrologic cycle—including precipitation, evaporation, infiltration, runoff, and groundwater flow—and their role in water resource assessment. Students will use hydrological data and tools to estimate rainfall, streamflow, and infiltration, and apply them in solving basic water balance and catchment-related problems.

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02	Air Pollution & Meteorology	MJ–7	Students will be able to identify major air pollutants, their sources, dispersion mechanisms, and impacts on health, environment, and climate. Students will interpret meteorological data (e.g., wind patterns, temperature inversion, atmospheric stability) and assess their influence on air quality and pollution dispersion.
03	Green Technologies	MJ–8	Students will be able to explain the concepts and applications of green technologies aimed at minimizing environmental impact and promoting sustainability. Students will assess various green technologies such as renewable energy systems, waste-to-energy processes, and eco-friendly materials, and propose practical solutions for environmental challenges.
04	Water Resource Management-II	MN-2B	Students will be able to evaluate advanced irrigation methods, water harvesting, and watershed management practices for enhanced water conservation and sustainable use. Students will develop integrated water resource management strategies considering environmental, social, and economic factors to address regional water challenges.

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