

		National Institute of Technology Meghalaya An Institute of National Importance							CURRICULUM	
Programme		Master of Technology					Year of Regulation		2025	
Department		Civil Engineering					Semester		II	
Course Code	Course Name	Pre-requisite	Credit Structure				Marks Distribution			
			L	T	P	C	INT	MID	END	Total
CE 532	Air and Noise Pollution Management: Effects and Control	NIL	3	0	0	3	50	50	100	200
Course Objectives	1. Ability to describe the effect air pollution and noise pollution; discuss the method to solve the problems. 2. This course provides a comprehensive overview of air and noise quality and the science and technology associated with the monitoring and control. 3. Ability to explain the principal of equipment’s for participate, air pollution treatment, ventilation system and reduce noise pollution in the industry. 4. Ability to explain the principal of equipment’s for participate, air pollution treatment, ventilation system and reduce noise pollution in the industry	Course Outcomes	CO1	Able to get concept of participates, air pollutants, natural and artificial methods of ventilation; the concept of noise pollution						
			CO2	Be able to calculate the units for participates and air pollution treatment						
			CO3	Be able to understand the concepts involved in control technologies						
			CO4	Be able to calculate the units for participates and air pollution treatment.						
			CO5	Be able to Select suitable technology for noise pollution control; participates, air pollution treatment system; ventilation system						
SYLLABUS										
No.	Content						Hours		COs	
I	Introduction: Sources and classification of air pollutants Atmospheric meteorology, structure of atmosphere and layer classification, Global air pollution, Kyoto protocol, Carbon credit and carbon trading; Legislations and regulations: Ambient air quality standards, Emission standards, emission inventory, and Acts, wind profiles, topographic effects, temperature profiles in atmosphere, stability, inversions, plume behavior, turbulent diffusion, concept of mixing height and determination of stability class application of acoustic sounding (SODAR) technique.						14		CO1, CO 2	
II	Air quality monitoring - Objectives, time and space variability in air quality; air sampling design, analysis and interpretation of air pollution data, guidelines of network design in urban and rural areas. Stack monitoring, Air pollution standards and indices, Dispersion of air pollutants and modelling – Types and classification of models, purpose of air quality modelling, Box models, Gaussian dispersion model – Assumptions, modifications for ground reflection, line sources and complex terrain. Physics of plume rise, Holland's equation, Briggs equation, etc. Indoor air quality modelling, Features and application of regulatory models.						14		CO2, CO3, CO4	
III	Noise Pollution: Basics of acoustics and specification of sound; sound power, sound intensity and sound pressure levels; plane, point and line sources, multiple sources; outdoor and indoor noise propagation; noise criteria, effects of noise on health, annoyance rating schemes; special noise environments: Infra-sound, ultrasound, impulsive sound and sonic boom; noise standards and limit values; noise instrumentation and monitoring procedure. Noise indices.						14		CO2, CO3, CO4	
Total Hours							42			
Essential Readings										
1. A. K. Srivastava and P. K. Gupta, Air Pollution: Sources, Impacts and Controls, 2nd ed., New Delhi, India: Oxford Book Company, 2023.										
2. K. N. Rao and S. L. Patil, Noise Pollution and Its Control, 1st ed., New Delhi, India: Daya Publishing House, 2022.										
3. M. Khare, Air Pollution: Health and Environmental Impacts, 2nd ed., Boca Raton, FL, USA: CRC Press, 2021.										
Supplementary Readings										
1. M. R. Islam, H. B. Baskaya, and A. Kumar, Environmental Pollution Control Engineering, 1st ed., Singapore: Springer, 2023.										
2. Wark, K. and Warner, C.F., Air Pollution, Its Origin and Control, Harper and Row, New York, 1981.										
3. Rao, C. S., Environmental Pollution Control Engineering, New Age Int. Pubs, 1991, Reprint, 2005.										
4. Richard C. Flagan và John H. Seinfeld, Fundamentals of Air pollution Engineering, Prentice-Hall, Inc., 2012										
5. S. P. Singal, Noise Pollution and Control Strategy, 1st ed., New Delhi, India: Alpha Science International Ltd., 2023.										