Name of Faculty	:	Faculty of Engineering & Technology
Name of Program	:	Master of Technology (M. Tech)
Course Code	:	2MEE03
Course Title	:	Air and Noise Pollution
Type of Course	:	Programme Core (PC)
Year of Introduction	:	2023-24

Prerequisite	:	Basics & Fundamentals of air and noise pollution
Course Objective	:	Select appropriate technology to control the emission of pollutants.
Course Outcomes	:	At the end of this course, students will be able to:
	CO1	Evaluate the impacts of air pollution on human, vegetation, and animal.
	CO2	Prepare plan strategies to control and reduce air pollution.
	CO3	Understand the concepts of Vehicular & Noise Pollution

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	SEE	CIA	SEE	CIA	
3	0	2	4	70	30	30	20	150

Legends: ***L****-Lecture;* ***T****–Tutorial/Teacher Guided Theory Practice;* ***P*** *– Practical,* ***C*** *– Credit,* ***SEE*** *– Semester End Examination,* ***CIA*** *- Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.))*

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with CO
1	**Air pollution:** Definition, sources and types of air pollution, effects of air pollution, measurement unit of air pollution, Ambient air quality standards, air quality indices, global and local level scenario of air pollution.	5	10%	CO1 CO2
2	**Meteorology:** Introduction, Role of meteorology in environmental engineering, types of lapse rates, stability conditions, wind velocity profile, maximum mixing depth, wind rose diagram, inversion, plume rise and plume behaviour.	7	15%	CO1 CO2
3	**Modelling of Dispersion of Air Pollutants:**	7	18%	CO1 CO2

	Wind Dispersion, Dispersion models, Gaussian Plume Equation with assumptions, Point source dispersion formula, other mathematical modelling for dispersion of air pollutants, determination of effective stack height.			
4	**Sampling and control methods for Particulate Pollution and Gaseous pollution:** Atmospheric sampling and analysis for grit, dust, smoke, Sulphur dioxide, Carbon Monoxide, Hydrocarbon, Oxides of Nitrogen, Ozone, Types of Gaseous Pollution Control Methods – Absorption, Adsorption and Combustion Processes.	9	24%	CO1 CO2
5	**Vehicular pollution:** Vehicular Pollution, Emission Standards for Indian Context, Influencing Parameters for Vehicular Emissions, Remedial Measures, Catalytic Converters, Exhaust Gas Recirculation, Current Practices for Controlling Emissions	7	18%	CO3
6	**Noise Pollution:** Sources and Effects of Noise Pollution, Noise Emission and Emission, Measurement of Noise, Legislative Standards, Path and Receptors of Noise, Noise Barrier	7	15%	CO3

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	**10**	**40**	**30**	**20**	**0**	**0**

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorial	Teaching Hours
1	Experiment based on Instrument of High-Volume Air Sampler (PM 10) and PM2.5 for Ambient Air Quality Monitoring of Different locations.	2
2	Experiment based on Stack Monitoring Kit for Stack Monitoring in different Industries.	4
3	Experiment on Noise level Measurement of Different Areas.	4
4	Exercise on effects of combination of different sound.	4
5	Report of a noisy area of a township and creation contour of loudness.	4
6	Visit to field for noise pollution.	4

7	Preparation report of field visit.	2
8	Presentation of report	4

Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	Noise Meter
2	High Volume Sampler (PM 10 & PM 2.5)
3	Stack monitoring kit

Suggested Learning Websites

Sr. No.	Name of Website
1	http://elearning.vtu.ac.in/
2	www.nptel.iitm.ac.in/courses/

Reference Books

Sr. No.	Name of Reference Books
1	Air Pollution by M. N. Rao Tata Mc-Graw Hill Publication
2	Air Pollution control Engineering by Noel de Nevers, Mc-Graw Hill Publication, New York
3	Environmental Engineering by Peavy and Rowe, Mc-Graw Hill Publication
4	Environmental Engineering by Davis. Mc-Graw Hill Publication
5	Environmental Engineering Handbook by Lee and Liptak Chiltan Book Co., Philadelphia.
6	Rao C.S., Environmental pollution control Engineering, New age international Ltd, New Delhi, 1995.
7	Air Pollution and Control By K.V.S.G.Murali Krishna, Kindle Edition
8	Environmental Pollution Control Engineering by C. S. Rao, New Age International Publication
9	Control of Noise Pollution by N. S. Kamboj, Deep & Deep Publications
10	Noise Measurement and Control by Lord N Thomas, HEYWOOD & Company Ltd
11	Noise Control in Industry by E. & F. N. Spon, Sound Research Laboratories Ltd.