## **National Institute of Technology Meghalaya CURRICULUM** An Institute of National Importance **Master of Technology** Year of Regulation Programme 2025 Department Semester II **Civil Engineering** Credit Structure Marks Distribution Course Course Name Pre requisite Code C L **INT** MID **END** Total 0 1 2 100 **CE 584** Air Pollution Monitoring Lab **NIL** 100 1. To provide practical exposure to techniques and instruments used for Able to Understand principles and practices of air quality monitoring. CO<sub>1</sub> air pollution sampling and measurement. 2. To analyze gaseous and particulate pollutants and evaluate ambient air Able to Operate and calibrate instruments like CO<sub>2</sub> high-volume samplers, gas analyzers, etc. 3. To understand calibration, sampling protocols, and national standards Course Able to Analyze concentrations of SO<sub>2</sub>, NOx, Course $PM_{10}$ , $PM_{2.5}$ , and CO. CO<sub>3</sub> for air pollution control. Outcomes Objectives Able to Compare observed results with NAAQS CO<sub>4</sub> and WHO guidelines. Able to Recommend control measures based on CO<sub>5</sub> analytical findings. Mapping with Program Outcomes (POs) Mapping with PSOs COs No. PO<sub>1</sub> PO<sub>2</sub> PO<sub>3</sub> PO4 PO<sub>5</sub> PO6 PO7 PO8 PO9 PO10 PO11 PO12 PSO<sub>1</sub> PSO<sub>2</sub> 3 3 2 3 3 2 0 0 3 3 CO1 0 2 0 0 0 3 0 3 3 0 3 2 CO<sub>2</sub> 0 3 3 2 3 0 0 0 3 0 3 3 0 3 3 CO<sub>3</sub> 3 3 3 3 3 3 0 0 2 0 0 0 0 3 CO4 3 3 0 0 3 3 2 2 0 0 3 0 3 5 CO5 **SYLLABUS** No. Content Hours COs To Determine Ambient air sampling using High Volume Sampler CO1, CO3, 3 CO<sub>5</sub> To Measurement of PM<sub>10</sub> and PM<sub>2.5</sub> 3 II CO<sub>1</sub> Determination of sulfur dioxide using West-Gaeke method 3 III **CO1** Determination of nitrogen oxides using Jacob & Hochheiser method 3 IV CO1, CO3, Analysis of carbon monoxide using NDIR method 3 CO1, CO3, V **CO4**

PSO3

2

2

2

2

2

3

3

3

24

CO1, CO3,

**CO5** 

CO1, CO3,

**CO4** 

CO1, CO3,

**CO4** 

## **Essential Readings**

VI

VII

VIII

Indoor air quality assessment

Stack emission monitoring using isokinetic sampler

Calibration of air quality sensors (low-cost IoT sensors, if available)

1. APHA, AWWA, WEF – Standard Methods for the Examination of Water and Wastewater (relevant for gaseous pollutant absorption techniques)

**Total Hours** 

- 2. BIS (IS: 5182 series) Methods for Measurement of Air Pollution, Bureau of Indian Standards
- 3. M. Khare, Air Pollution: Measurement, Modelling and Mitigation, 4th ed., CRC Press, 2022