Semester	4		
Course Code	ENCM 22762		
Course Name	Air Quality Management		
Credit Value	2		
Status	Compulsory		
Pre-requisites	ENCM 12742		
Co-requisites	None		
Hourly Breakdown	Theory	Practical	Independent Learning
	26	12	62

Intended Learning Outcomes:

After completion of this course unit, the student will be able to;

1. explain the dispersion of air pollutants,
2. describe the sink and natural removal processes of air pollutants,
3. describe the approaches of air quality monitoring and assessment,
4. describe the strategies of air pollution control and management, and
5. demonstrate skills in evaluating the strategies of air pollution control and management.

Course Content:

Criteria and non-criteria (including other toxic and hazardous) air pollutants and an overview on air quality management; Sinks and removal processes of air pollutants; Air pollution meteorology: Inversions and their types, sea and land breezes; Major dispersive characteristics of the atmosphere: valley effect, mountain effect, chimney effect, urban heat islands effect etc.; Local air pollution dispersion; Dispersion modelling; Large scale transport and dispersion; Air Quality Standards; Ambient Air Quality Monitoring: Sampling of $PM_{2.5}$ and PM_{10}, NO_2, SO_2, O_3, CO, Heavy metals; Analysis, Quantification of emissions; Air quality monitoring at work place; Environmental noise, odour and their control measures; Stationary source monitoring and control approaches: Monitoring, Source reduction, Management and operational Changes, fuel and fuel modifications, Combustion modifications, Gas control techniques, Particulate control techniques; Mobile source monitoring and control approaches: Emissions in spark ignited (SI)engines, Diesel Ignition emission characteristics, Hybrid vehicles, Electric vehicles , Monitoring, Emission Control techniques: Engine operation and design, engine-based control systems, Exhaust gas control systems.

Teaching /Learning Methods:
A combination of lectures, laboratory and field practical sessions, computer based learning, self-studies, field based assignments and small group discussions.

Assessment Strategy: Continuous assessment and end of semester examination. Percentage given for each sub component indicates the percent contribution to the final marks.

Continuous Assessment 30 %		Final Assessment 70 %		
Details:		Theory	Practical	Other
Quizzes	10	70	-	-
Assignments	10			
Practical and Field reports	10			

Recommended Readings:

1. Griffin R.D. (2013). Principles of Air Quality Management 2nd Edition. CRC press.
2. Godish, T. (2003). Air Quality. 4th Edition. Lewis Publishers. INC.
3. Nesaratnam S.T and Taherzadeh S. (2014). Air Quality Management, John Wiley & Sons, NJ.
4. Current review papers on air quality management published by reputed publishers.