| CECX60 | URBAN AND INDOOR AIR QUALITY MANAGEMENT | L | T | P | C |
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**OBJECTIVES:**

- To understand the concepts of air quality assessment methods.
- To get the knowledge on various air pollution monitoring systems, its software and modeling.
- To understand the components in indoor air quality.
- To impart knowledge on the techniques to control and prevent air pollution.

**MODULE I MONITORING AND MANAGEMENT** **7**

Monitoring and measuring - air quality indicators - Air quality assessment methods - Monitoring objectives - Functions - Air quality assurance and air quality control

**MODULE II MONITORING SYSTEMS** **8**

Types of monitoring systems - Monitoring levels - Critical analysis of the existing monitoring systems - Software for air quality monitoring - Quality modeling and decision-making: Air quality and pollution sources - from assessment to management

**MODULE III INDOOR AIR QUALITY** **7**

Indoor activities of inhabitants - Levels of pollutants in indoor and outdoor air- Design and operation of buildings for improvements of public health- IAQ policy issues- sustainability. Air pollutants in indoor environments- private residences- offices- schools-public buildings- ventilation- Effect of pollutants on occupants and building materials.

**MODULE IV POLLUTION & CONTROL** **8**

Indoor air pollution from outdoor sources- particulate matter and ozone- Combustion byproducts-Radon and its decay products- Volatile organic compounds- odours and sick-building syndrome- Humidity- Bio aerosols- infectious disease transmission- Special indoor environments- A/C units in indoor- Measurement methods- Control technologies- Control strategies.

**Total Hours –30**

**TEXT BOOKS:**

- Griffin, R. D, “Principles of Air Quality Management”, CRC Press, ISBN 0-8493-7099-X, 2006.
- Thad Godish , “Indoor Environmental quality”, Lewis Publisher , Washington DC, 2016
- Nazaroff W.W. and L. Alvarez-Cohen, “Environmental Engineering Science”, Wiley sons, Newyork, 2001

**REFERENCES:**

- Robert J. H., John M. Cimbala,” Indoor Air Quality Engineering: Environmental Health and Control of Indoor”, Prentice hall, Inc, Newyork, 2003
- Richard A. Wadden, and Peter A. Scheff, "Indoor Air Pollution - Characterization, Prediction, and Control", John Wiley & Sons,2006.

**OUTCOMES:**

At the end of the course, students will be able to

- explain hazardous atmospheric conditions.
- evaluate atmospheres relative to health and environmental standards.
- model air emissions to predict atmospheric concentrations and recommend appropriate controls and management strategies to reduce or eliminate pollutants and their effects.
- describe the measurement methods and control strategies.