



# INFRARED SPECTROSCOPY FOR POLLUTION MONITORING

**PROF. J R MUDAKAVI**

Dept. of Chemical Engineering  
IISc Bangalore

**TYPE OF COURSE** : Rerun | Elective | PG

**COURSE DURATION** : 4 weeks (20 Jul'20 - 14 Aug'20)

**EXAM DATE** : 27 Sep 2020

**INTENDED AUDIENCE** : Chemists and Chemical Engineers, Environmental Engineers, Environmental Scientists, Civil Engineers, Pollution Control Administrators.

**PRE-REQUISITES** : 10+2 +3years of BE/BSC Basic knowledge of differential calculus and integration

**INDUSTRIES APPLICABLE TO** : Chemical industries, pollution control

**COURSE OUTLINE :**

Nowadays, Infra Red Spectroscopy is the most preferred technique for synthesis and monitoring almost all organic compounds. The course consists of : Introduction to pollution control monitoring, Atomic structure, Introduction to Infra Red Spectroscopy, Interaction of electromagnetic radiation with matter, Instrumentation for Infra Red Spectroscopy, Applications of Infra Red Spectroscopy for air pollution, organic compounds in the Industrial Effluents, Continuous Monitoring etc.

**ABOUT INSTRUCTOR :**

Prof. J R Mudakavi is a former faculty of Chemical engineering Dept, Indian Institute of Science, Bangalore. He has taught "Modern Instrumental Methods of analysis and Pollution Control" for 36 years. He is an authority on analytical instrumentation. He is the author of 2 books on Air Pollution and Hazardous Waste management. He has published more than 100 papers in National and International Journals, conferences, symposia etc. He is a member of several expert committees such as CSIR, DST, MOEF, KSPCB etc. He has offered two courses on instrumentation in NPTEL. He is a popular science writer, lecturer and environmentalist.

**COURSE PLAN :**

**Week 1:** Introduction to pollution control monitoring and Atomic structure.

**Week 2:** Atomic structure and Interaction of electromagnetic radiation with matter

**Week 3:** Interaction of electromagnetic radiation with matter and Instrumentation for Infra-red Spectroscopy.

**Week 4:** Infrared Spectroscopy and Application of Infra-red Spectroscopy for chemical analysis and air pollution monitoring.