AIR POLLUTION AND CONTROL

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IIT Roorkee

TYPE OF COURSE : New | Elective | Both
COURSE DURATION : 12 Weeks (24 Jan' 22 - 15 Apr' 22)
EXAM DATE : April 24, 2022

INTENDED AUDIENCE : UG and PG (including Pre-PhD)

INDUSTRIES APPLICABLE TO : Industries dealing with emissions and air pollution control may value this course.

COURSE OUTLINE :

The objective of the course is to impart the knowledge and understanding of causes and effects of air pollution and their controlling mechanisms. The course will provide a deeper understanding of air pollutants, pollution inventory and modelling. The course also imparts knowledge on the impacts of air pollution on different aspects such as policy, human health and various contemporary technological innovation for betterment of air quality.

ABOUT INSTRUCTOR :

Prof. Bhola Ram Gurjar holds a PhD in the area of Environmental Risk Analysis from India's premier technological institution I.I.T. Delhi followed by Postdoctoral research at the Max Planck Institute in Mainz (Germany). He is a Professor in Civil (Environmental) Engineering and Dean of Resources and Alumni Affairs at Indian Institute of Technology – IIT Roorkee. He has been Head of Centre for Transportation Systems (CTRANS) from 2015-2018. He has also headed the Max Planck Partner Group for Megacities & Global Change at IIT Roorkee from 2006-2011. Prof. Gurjar has about 30 years' progressive professional experience in industry, teaching, training, research, and consultancy. He is among the leading academics and researchers who have worked extensively in the area of environmental science and engineering specially focused on air and water pollution, and environmental quality and health risk assessment, which is reflected in his several highly cited research papers published on these themes. His present research interests include megacities; air and water pollution; environmental impact and risk assessment; atmospheric emissions and climate change; Biofuels and their emissions, and integrated cross-disciplinary study of science and policy issues of the environment, health, energy, economy, technology, infrastructure and resources – particularly from the global change, sustainable development and risk governance perspectives.

COURSE PLAN :

Week 1**:** Introduction and scope

Week 2**:** Emission sources-Stationary and mobile

Week 3**:** Types of air pollutants

Week 4**:** Indoor and ambient air quality

Week 5**:** Summer and winter smog, acid rain and climate change

Week 6**:** Air pollution and human health

Week 7**:** Air pollution emission standards, air quality standards, control laws, regulations and legislations

Week 8**:** Emission inventory

Week 9**:** Meteorology, transport, dispersion and transformation of pollutants in air

Week 10**:** Plume rise, effect of buildings and topography on the fate of air pollutants

Week 11**:** Air pollution dispersion models, point, line and area source models

Week 12**:** Receptor modelling