SUSTAINABLE TRANSPORTATION SYSTEMS

PROF. BHOLA RAM GURJAR

Department of Civil Engineering
IIT Roorkee

INTENDED AUDIENCE : PG/Pre-PhD (UG Students, Professionals and Policy Makers can also attend)

INDUSTRIES APPLICABLE TO : Automobile, road and transportation related other industries may find this course informative.

COURSE OUTLINE :

The objective of the course is to impart knowledge and skills of environmental issues related to transportation systems, concept of sustainability and related issues. The course includes the various environmental aspects of mass rapid transportation systems, air quality management through transportation planning in mega cities and current case studies regarding the same.

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 for Chemistry (MPIC) in Mainz, Germany. He is a Professor of Environmental Engineering in Civil Engineering Department and a Joint Faculty in Centre of Excellence for Sustainable Transportation Systems (CTRANS) at I.I.T. Roorkee. He has been Dean of Resources and Alumni Affairs (DORA) from June 2017 - April 2021 and Head of CTRANS from February 2015 - February 2018 at IIT Roorkee. 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 to Environmental Impact Assessment (EIA) and Transportation systems
Week 2: Land-use plans, zoning schemes and provisions
Week 3: Urban and regional transport planning
Week 4: Impacts on humans, flora and fauna, soil, water, air, climate and landscape
Week 5: Establishment of baseline conditions w.r.t soil, water and air quality
Week 6: Noise, air and water pollution modelling
Week 7: Modelling of impacts and scenario-based analysis
Week 8: Assessment of potential project impacts including indirect, cumulative and synergistic impacts
Week 9: Decision support systems for EIA of transport infrastructures
Week 10: Abatement measures
Week 11: Sustainable transportation systems
Week 12: Case studies of highway, railway and airport projects, OpenLCA tool for life Cycle Assessment, STAN for material flow analysis