SUSTAINABLE TRANSPORTATION SYSTEMS

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Department of Civil Engineering
IIT Roorkee

TYPE OF COURSE : New | Elective | PG
EXAM DATE : 23 Oct 2021

INTENDED AUDIENCE : PG/Pre-PhD
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 :
Dr. 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.

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