TRAFFIC ENGINEERING

PROF. BHARGAB MAITRA

Department of Civil Engineering

IIT Kharagpur

PRE-REQUISITES : Any B.E/BTech in Civil Engineering/ Transportation Engineering/ Construction Engineering or equivalent at U.G level

INTENDED AUDIENCE : M.E. / MTech. Students of Transportation Engineering or equivalent specialization

INDUSTRIES APPLICABLE TO : This is a core course in all IITs, NITs and universities offering M.E. / M.Tech in Transportation Engineering and therefore, recognized by companies/industries in relevant areas.

COURSE OUTLINE :

Traffic Congestion has become a serious 'urban illness' in the modern era of urbanization especially in emerging countries such as India. This results in an increase in travel time, rise in traffic accidents, rise in fuel depletion, excessive exhaust emissions, etc. which can retard the growth of any city and its sustainable development. This NPTEL course will help in capacity building amongst master students, policy makers, practitioners, etc. to understand traffic engineer's role in all relevant dimensions, and develop strategies, programs and projects accordingly.
The course will consist of following nine modules: Module-A: Traffic Components and Characteristics; Module-B: Traffic Stream Parameters and their Relationships; Module-C: Shockwave and Queuing; Module-D: Capacity and LOS; Module-E: Traffic Control at Intersections; Module-F: Car Following Models and Traffic Simulation; Module-G: Traffic Control and Management; Module-H: Parking Management / Traffic Safety; Module-I: Traffic Safety

ABOUT INSTRUCTOR :

Prof. Bhargab Maitra is a Professor in Civil Engineering Department, Indian Institute of Technology Kharagpur, India. He completed his M. Tech from Indian Institute of Technology Kanpur and Ph.D. from Indian Institute of Technology Bombay with specialization in Transportation Engineering. He is an Alexander von Humboldt Fellow and DAAD Fellow. He also received Pt. Jawaharlal Nehru Birth Centenary Award from the Indian Roads Congress. He has published nearly 150 technical papers and case studies in various journals, proceedings of conferences, seminars and workshops on several topics such as traffic congestion, public transportation system, traffic and parking management, travel behavior, transport policy, etc. He has carried out several sponsored research and consultancy projects in the area of traffic and transportation system. His research interest includes travel behavior, public transportation system, traffic management, traffic control at intersection, traffic safety, etc.

COURSE PLAN :

Week 1: Module-A: Traffic Components and Characteristics.
Week 2: Module-B: Traffic Stream Parameters and their Relationships.
Week 3: EIA Procedure - Scoping & Screening and Establishing Baseline Conditions
Week 3: Module-C: Shockwave and Queuing.
Week 4: Module-D: Capacity and LOS (U.S HCM-2016).
Week 5: Module-D: Capacity and LOS (INDO-HCM-2016).
Week 6: Module-E: Traffic Control at Intersections.
Week 7: Module-E: Traffic Control at Intersections (Continued…).
Week 8: Module-E: Traffic Control at Intersections (Continued…).
Week 9: Module-F: Car Following Models and Traffic Simulation.
Week 10: Module-G: Traffic Control and Management.
Week 11: Module-H: Parking Management.
Week 12: Module-I: Traffic Safety.