Transportation Engineering II - Video course

Introduction to Transportation Engineering (4 lectures)
• Elements of Transportation Engineering (e.g.: vehicle, dr iver, way, terminal, and control)
• Transportation modes
• Development and transportation
• Various aspects of transportation engineering (e.g., pavement design, traffic engineering, transport planning, public transportation, etc.)
Layout, Orientation, and Geometric Design (12 lectures)
• Geometric Design of highways and railways (e.g., horizontal alignment, vertical alignment, etc.)
• Geometry of hill roads
• Orientation of runways, and geometry of taxiways
• Curve layout
Pavements and Rail Tracks (12 lectures)
• Types of pavements
• Analysis and design of flexible pavements
• Pavement drainage
• Construction and maintenance of flexible pavements
• Introduction to design of rail tracks
Traffic Engineering (**7 lectures)**
• Parameters characterizing traffic flow (e.g. density, speed, flow)
• Data collection techniques for traffic parameters and delay studies
• Introduction to traffic flow theory (including description of speed-density, speed-flow, and flow density relations)
• Introductions to concept of capacity and level of service
Transportation and the Environment (5 lectures)
Course Outline for Transportation II
Overview of Transportation (I3 lectures)
• Basic concepts of pavement analysis and design
• Basic concepts of traffic engineering

Pavements (12 lectures)
• Cement as a pavement material
• Analysis and design of rigid pavements
• Design of runways, taxiways, apron, etc.
• Construction of rigid pavements
• Quality control in pavement construction
• Comparative study of rigid versus flexible pavements
• Modern materials in pavements

Traffic Engineering (12 lectures)
• Theory of uninterrupted and interrupted traffic flow
• Delay analysis
• Capacity and level-of-service analysis for various facilities
• Design of traffic facilities (like, expressways, channelization, unsignalized and signalized intersections, airport circulation, parking facilities, etc.)
Travel demand analysis and transportation planning (**10 lectures)**
• The planning process
• Sequential demand analysis
• Models of trip generation, distribution, traffic assignment, and modal split
Transportation economics (**3 lectures)**

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Civil Engineering

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