Transportation Engineering II - Video course

Introduction to Transportation Engineering (4 lectures)
- Elements of Transportation Engineering (e.g.: vehicle, driver, 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 (13 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)