Course Name:
Geometric Design of Highways

Course Number:
20553

Credit:
3

Course Content (outline):

- **Introduction**: design parameters, design team, road safety, environmental issues, urban vs. rural geometry

- **Road Classification**: functional classification, Un-signalized intersections, Signalized intersections, Alternative Intersections

- **Road Structures**: Bridges, Tunnels, Retaining walls, Culverts, Galleries, Gabions

- **Corridor Selection**: Human impact, Natural environment impact, Corridor alternatives, Case study

- **Sight Distance**: Stopping sight distance, Decision sight distance, Passing sight distance

- **Horizontal Alignment Design**: Superelevation, Side friction factor, Distribution of superelevation and side friction factor, Simple curves, Simple curve layout, Widening, Reverse curves, Broken-back curves, Compound curves, Spiral curves, Tangent-to-curve transition, Spiral curve transition

- **Vertical Alignment Design**: Vehicle Operating Characteristics on Grades, Maximum grades, Critical length of grade, Climbing lanes, Emergency ramps, General equations, Sight Distance

- **Cross-Section Elements**: Number of the lanes, Passing lane, Parking lane, Median treatment, Curb and gutters

- **Intersection Design**: Turn lanes, Traffic channelization, Roundabouts, Intersection sight distance

- **Interchanges Design**: Interchange types, Interchange spacing, Vertical separation, Ramps

References: