

The course introduces the basic theoretical knowledge about design, construction and maintenance of road infrastructures, considering the main principles of safety and environmental, economic and social sustainability. Exercises, which may be practical exercises or essays on specific topics, must be submitted on a weekly basis, by each student. A written examination is preceded by an evaluation of the exercises to be delivered at least ten days before the date of the examination.

Course Program:

1. Introduction (Social, environmental and economic challenges for sustainable roads)
2. Road Classification System and Vehicle Classification
3. Horizontal alignment (straight lines, circular arcs, clothoids and their limits)
4. Vertical alignment (maximum gradients, construction and limits) and section rotation
5. Cross section and sight distances
6. Works of excavation and backfilling (earth-moving)
7. Pavement types (Flexible pavement and Rigid pavement)
8. Pavement design
9. Pavement management - maintenance
10. Pavement management - rehabilitation
11. Soil Bio-Engineering
12. Noise basics