Department: Civil & Environmental Engineering **Division: Civil engineering**
Level and Major: Graduate - Road and Transportation Engineering

Course Title: Advanced pavement analysis and design **Number of Credits: 3**
Prerequisite (Corequisite): Structural analysis (I), Concrete Technology **Lecturer: -**

Course Topic

- **Asphalt pavement analysis:** evaluation of pavement behavior by elastic method, viscoelastic, viscoplastic, distribution of stresses and strains due to traffic loading and temperature changes and how to load(static and dynamic), the type of traffic loading(single and compound), and their effect on the distribution of stresses and strains in pavement, pavement analysis by multi-layer system method and limited components
- **Concrete pavement analysis:** evaluate pavement behavior according to the type of loading, distribution of stresses and strains due to traffic loading, temperature changes, moisture and friction of slab and foundation, pavement analysis on elastic foundation and Winkler
- **Advanced methods of asphalt road pavement design:** attitude towards affective factors in design(traffic, weather factors, material,setc.) pavement design by AASHTO method, asphalt institute method, experimental mechanical method
- **Advanced methods of road concrete pavement design:** attitude towards affective factors in design(traffic, weather factors, material,s etc.), pavement design by AASHTO method, Portland cement association(PCA) and experimental mechanical method
- **Advanced airport asphalt pavement methods:** attitude towards affective factors in design(traffic, weather factors, materials, etc.), all-asphalt pavement design, pavement design by the method of group of engineers(FAA, LCN)
- **Airport concrete pavement design methods:** attitude towards affective factors in design(traffic, weather factors, material,setc.),pavement design by the method of FFA, PCA and group of engineers
- Application and relations of non-destructive-testing of pavement in the design of concrete and asphalt coatings
- **Methods of designing concrete and asphalt road and airport coatings:** overlay design by the method of equivalent thickness, method based on deflection, experimental mechanical method
- **The drainage design**
- **Road or airport pavement design project(completely)**

Course Description:
Reading Sources:
Course Goals and objectives:
Evaluation:
Course topics:
The course aims to: