

**Department: Civil & Environmental Engineering**

**Division: Civil engineering**

**Level and Major: Graduate - Road and Transportation Engineering**

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**Course Title:** Road maintenance management

**Number of Credits: 3**

**Prerequisite (Corequisite):** Structural analysis (I), Concrete Technology **Lecturer: -**

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**Course Topic**

- A review of the issues raised in the pavement management system
- Systematic strategies in pavement management ,pavement life cyclic analysis and PMS goals
- How to prepare and manage databases: network segmentation methods to homogeneous components for PMS
- Estimating the list of required data, the list of data acquisition and how to prepare data
- Method and data acquisition equipment ,procedures and frequency of data acquisition
- Method of measuring roughness and measuring the level of pavement service
- Familiarity with non-destructive tests and their application in pavement evaluation ,measuring fluctuation and the procedures of preparing data
- Determining the structural capacity of pavement ,pavement design based on analysis of fluctuating data
- Identify pavement failures ,methods and equipment fo rmeasuring pavemen tfailures
- Harvesting and preparing pavement failure data
- Introducing analytical software and their application in pavement evaluation
- Equipment for traffic data acquisition: sampling and data preparation measuring friction of pavement
- Field operations, visual removal of pavement failure on representative parts and preparation of data
- Implementation of PMS at project level
- Methods of evaluating the condition of pavement and introducing the indicators of failure to determine the condition of pavement
- Demolition models of pavement status ,application of pavement failure models in pavement management
- Failure models and flexible pavements
- Models of rigid pavement failure
- Economic evaluation models, cost information, costs of road administrations (employer),costs of road users ,profits and net present capital value
- Vehicle operating cost models ,traffic delay cost models
- Decision-making criteria, maintenance time criteria, maintenance and improvement methods and their implementation effects , maintenance and improvement policies ,prioritization and optimization criteria
- PMS analysis ,1-year maintenance and improvement work plan: course of analysis ,budget and prioritization of multi-year maintenance and improvement operations ,PMS output report
- Implement of PMS output reports and its feedback ,system design ,implementation ,operation and management ,employee training
- Example of studies for the operation and implementation of PMS