844 Highway and Traffic Safety
Fall of odd years. 3(3-0)

846 Statewide Transportation Network Evaluation
Spring of odd years. 3(3-0)
Transportation system measures, needs studies, sufficiency ratings. Cost allocation models, programming and budget constraints. Corridor analysis, transportation economics, demand elasticity.

847 Simulation Models for Transportation Applications
Fall of even years. 3(3-0)
Simulation models for analysis and optimization of transportation systems. Experimentation with planning and traffic simulation models for signal timing and capacity analysis.

849 Transportation Research Methods
Spring. 3(3-0)
Application and interpretation of quantitative methods and design of experiments for transportation research: ANOVA, non-parametric, discriminant analysis, factor analysis, multivariate regression, SPSS.

850 Intelligent Transportation Systems (ITS)
Fall of odd years. 3(3-0) RB: Traffic and Transportation engineering Technical and policy aspects emerging from the application of advanced technologies to transportation problems. Intelligent Transportation Systems (ITS) user services requirements, available and emerging technologies, case studies of ongoing operational tests, legal institutional and planning issues related to ITS development and deployment.

851 Transportation and the Environment
Spring of even years. 3(3-0) RB: Traffic and Transportation engineering R: Open only to graduate students in the College of Engineering. The impact of transportation systems on the environment. Elements of Environmental Impact Statements. Policy options and their consequences. Alternatives for reducing environmental impact.

872 Finite Element Method
Fall, Spring, 3(3-0) Interdepartmental with Mechanical Engineering. Administered by Department of Mechanical Engineering. SA: AE 809, MSM 809 Theory and application of the finite element method to the solution of continuum type problems in heat transfer, fluid mechanics, and stress analysis.

890 Independent Study in Civil Engineering
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to Civil Engineering master's students. Approval of department. Research problems of limited scope not pertaining to thesis accomplished under CE 899 or CE 999.

891 Selected Topics in Civil Engineering
Fall, Spring, Summer. 2 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. Selected topics in new or developing areas of civil engineering.

982 Master's Research Project
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Open only to master's students in the Civil Engineering major. Approval of department. Master's degree Plan B individual student research project. Original research, research replication, or survey and reporting on a research topic.

983 Master's Design Project
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to master's students in the Civil Engineering major. Approval of department. Master's degree Plan B individual student civil engineering design project.

989 Master's Thesis Research
Fall, Spring, Summer. 1 to 8 credits. A student may earn a maximum of 24 credits in all enrollments for this course. Master's thesis research.

990 Independent Study in Civil Engineering
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open only to Civil Engineering doctoral students. Research problems of limited scope not pertaining to thesis accomplished under CE 999.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 72 credits in all enrollments for this course. Doctoral dissertation research.