Electrical Engineering - Graduate

**EEGR 6316** Fields and Waves (3 semester credit hours) Study of electromagnetic wave propagation beginning with Maxwell's equations; reflection and refraction at plane boundaries; guided wave propagation; radiation from dipole antennas and arrays; reciprocity theory; basics of transmission line theory and waveguides. Prerequisite: **EE 4301** or equivalent. (3-0) Y

**EEGR 6381 (MECH 6391)** Computational Methods in Engineering (3 semester credit hours) Numerical techniques and their applications in engineering. Topics will include: numerical methods of linear algebra, interpolation, solution of nonlinear equations, numerical integration, Monte Carlo methods, numerical solution of ordinary and partial differential equations, and numerical solution of integral equations. Prerequisites: **ENGR 2300** and **ENGR 3300** or equivalent, and knowledge of a scientific programming language. (3-0) R

**EEGR 6397** Convex Optimization (3 semester credit hours) Introduction to convex optimization, with a focus on recognizing and solving convex optimization problems that arise in applications. Convex sets, convex functions, operations preserving convexity, convex optimization problems, quasi-convex, linear, and quadratic optimization, geometric and semi-definite programming, generalized inequalities, vector optimization, the Lagrange dual problem, optimality conditions, sensitivity analysis, applications in approximation and fitting, statistical estimation, and geometric problems, overview of numerical linear algebra, descent methods, Newton's method, handling equality constraints, introduction to interior point methods. (3-0) R

**EEGR 6V88** Special Topics in Electrical Engineering (1-6 semester credit hours) May be repeated for credit as topics vary (9 semester credit hours maximum). ([1-6]-0) R

**EEGR 6V98** Thesis (3-9 semester credit hours) Pass/Fail only. May be repeated for credit. Instructor consent required. ([3-9]-0) S

**EEGR 8V40** Individual Instruction in Electrical Engineering (1-6 semester credit hours) Pass/Fail only. May be repeated for credit. Instructor consent required. ([1-6]-0) R

**EEGR 8V70** Research in Electrical Engineering (3-9 semester credit hours) Pass/Fail only. May be repeated for credit. Instructor consent required. ([3-9]-0) R

**EEGR 8V99** Dissertation (3-9 semester credit hours) Pass/Fail only. May be repeated for credit. Instructor consent required. ([3-9]-0) S