ENGR 5101  Engineering Seminar I  
1 Semester Credit Hour  
The course focuses on developing professional research skills typically not provided in formal coursework such as methods for research, literature review, presenting scientific research, research ethics.

ENGR 5102  Engineering Seminar II  
1 Semester Credit Hour  
Continuation of topics from ENGR 5101. Students get experience in presenting research to peer audiences. Peer-review process, professional society engagement.  
Prerequisite: ENGR 5101.

ENGR 5302  Numerical Methods for Engineers  
3 Semester Credit Hours (3 Lecture Hours)  
This course introduces students to algorithms and methods that are commonly needed in scientific computing. The mathematical construction of these methods is emphasized as much as their algorithmic aspects. This class will enable graduate students obtain the knowledge and competence in the design of mathematical models that can properly help develop their research objectives and experimentation through mathematical modeling and simulation. Topics cover mathematical preliminaries, computer arithmetic, solution of nonlinear equations, solving systems of linear equations, selected topics in numerical linear algebra, approximating functions, numerical differentiation and integration, numerical solution of ordinary differential equations, numerical solution of partial differential equations, and linear programming and related topics. This course work is enabled by the utilization of MATLAB as the main tool to compute the students work.

ENGR 5305  Experimental Methods and Design in Engineering  
3 Semester Credit Hours (3 Lecture Hours)  
Experimental methods in engineering. Includes measurement techniques, instrumentation, data acquisition, signal processing, and linear and digital electronics; uncertainty analysis. Design and analysis of experiments.

ENGR 5311  Thesis Research  
3 Semester Credit Hours  
This course is for MS in Engineering students choosing the thesis option. This course is only credit/no credit. Student will be given a grade of In-Progress until the thesis is successfully completed.

ENGR 5312  Thesis  
3 Semester Credit Hours  
This course is for MS in Engineering students choosing the thesis option. A student should register for this course in the semester in which the student plans to present and defend the MS thesis.  
Prerequisite: ENGR 5311.

ENGR 5313  Capstone Project  
3 Semester Credit Hours (3 Lecture Hours)  
This course is for MS in Engineering students choosing the non-thesis option. Culminating research or design project under supervision of faculty member. Should be taken in last semester of residence in the MS in Engineering (non-thesis option) program. Final report and presentation required. Permission of instructor.

ENGR 5390  Special Topics  
3 Semester Credit Hours (3 Lecture Hours)  
Study of advanced topics in engineering. May be repeated. Topics vary by semester and offering.