SYSTEMS ENGINEERING (SEE)

SEE 500. The Practice of Systems Engineering. (3 Units)
The course provides an overview Systems Engineering professional competencies. Content and case studies present Systems Engineering as a multi-faceted discipline that draws upon human, organizational and technical resources to define, develop and deploy systems.
Offered Fall, Spring, Summer

SEE 510. Introduction to Systems Engineering I. (3 Units)
Co-requisite: SEE 501 required.Systems engineering processes, principles and tools used during a project¿s life cycle. Risk assessment that addresses technical, schedule, cost, and performance risks. Role of engineering sub-disciplines in the fulfillment of mission requirements. Risk and reliability in complex systems. A-B/NC grading.
Offered Fall

SEE 515. Introduction to Systems Engineering II. (3 Units)
Prerequisite(s): SEE 510. Course covers processes, principles and tools utilized throughout a system's life cycle. Topics include the role of requirements engineering, risk management, supportability and logistics in the development of complex systems. A-B/NC grading.
Offered Fall, Spring, Summer

SEE 520. Analytics in Systems Engineering. (3 Units)
Prerequisites: SEE 500, MAT 131 or MAT 321 or an introductory course in statistics and probability; CSC 121 or an introductory programming course Statistical methods used in data analytics with a focus on decision making in engineering applications.
Offered Fall

SEE 530. Quantitative Methods in Systems Engineering. (3 Units)
Prerequisite: MAT 131 or MAT 132 or an introductory course in probability and statistics and SEE 510. Probability and statistics for engineering project cost estimates, system risk assessments, life cycle models and management plans.
Offered Spring

SEE 540. Economic Factors in Systems Engineering. (3 Units)
Co-requisite: SEE 510 required. Principles of engineering economics; impact of economic factors for systems engineers, tools for understanding and analyzing these factors, fundamental quantitative analysis of cash flow, system life-cost estimating; parametric cost models.
Offered Fall

SEE 550. Modeling and Simulation. (3 Units)
Prerequisite: SEE 530 required. Application of computer simulation to engineering (sub)systems; systems structure, system analysis, model construction, data collection, and computer simulations tools.
Offered Summer

SEE 560. Model Based Systems Engineering. (3 Units)
Prerequisite: SEE 530, SEE 540, SEE 550. Co-requisite: SEE 550 required. Application of model curation, model repositories and model integration in MBSE; distinction between engineering models and model-based systems engineering is emphasized.
Offered Summer

SEE 570. Complex Systems Architecture. (3 Units)
Prerequisite: SEE 515 required. Holistic approach to the process of architecting systems in various engineering disciplines. Architectural as they relate to adaptive, complex and resilient systems.
Offered Spring

SEE 580. System-of-Systems Engineering. (3 Units)
Prerequisite: SEE 550, SEE 560, SEE 570 required. Critical issues associated with the integration of systems and/or systems-of-systems.
Offered Fall

SEE 590. Master's Project. (3 Units)
Prerequisite: SEE 504, SEE 505 (may be taken concurrently) and consent of graduate advisor. Co-requisite: SEE 585 required. Individual research on a systems engineering topic under the direction of graduate faculty. Repeatable course.
Offered Spring

SEE 595. Special Topics in Systems Engineering. (1-3 Units)
Advanced course of special interest to graduate students in Systems Engineering. Topic and content will vary as announced. Repeatable course. One to three hours of lecture each week.
Offered Fall, Spring, Summer

SEE 600. Graduate Continuation Course. (1 Units)
Prerequisite: Signature of graduate program coordinator required. Graduate students, who have completed their course work but not their thesis, project, or comprehensive examination, or who have other requirements remaining for the completion for their degree, may attain continuous enrollment by enrolling in this course.
Offered Fall, Spring