

Computer Engineering (CESC)

CESC 500 Engineering Project Management 3 Credits (3,0)

Fundamental concepts, principles, methods, and best practices of project management. Requirement analysis and technical planning; workload and time estimation; resource allocation and budget analysis; project organization and risk management; integration in the context of systems engineering life cycle. Case studies of software project management.

Course Offered at: Daytona Beach

CESC 510 Digital Signal Processing 3 Credits (3,0)

Specification, design, and implementation of offline and real-time signal processing systems using digital signal processing microprocessors (DSPs). Review of sampling theory, filter design, and DSP core architectures. Applications to modern communication and control systems.

Course Offered at: Daytona Beach

CESC 526 Sensor Data Fusion 3 Credits (3,0)

Techniques to exploit sensor data from multiple sources, system state estimation using statistical techniques, artificial neural networks for multisensor fusion, and fuzzy set theory for sensor data fusion.

Course Offered at: Daytona Beach

CESC 527 Mobile Sensor Networks 3 Credits (3,0)

Development of wireless sensor networks using autonomous/uncrewed systems. Topics include low-power communication, timing synchronization, mesh networking, and more.

Course Offered at: Daytona Beach

CESC 528 Networks 3 Credits (3,0)

Fundamental concepts in computer networks, including design, implementation, OSI Reference Model, TCP/IP model, network protocols, wireless networks, and security. Exploration of research in uncrewed systems networking.

Course Offered at: Daytona Beach

CESC 530 Image Processing and Machine Vision 3 Credits (3,0)

Fundamental topics of image processing and machine vision, including geometric transformations, linear filtering, edge detection, segmentation, feature-based alignment, object recognition, motion estimation, and stereo vision. Concepts of machine learning and AI applied to machine vision.

Course Offered at: Daytona Beach

CESC 599 Special Topics in Computer Engineering 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in computer engineering.

Course Offered at: Daytona Beach, Prescott

CESC 600 Computer System Safety 3 Credits (3,0)

Concepts, principles, methods, and processes for developing safety-critical and mission-critical software-intensive systems. Discussion of safety requirements, hazard analysis, risk analysis, fault tolerance, verification, validation, and certification. Introduction to safety standards and tools supporting safety and reliability assessments.

Course Offered at: Daytona Beach

CESC 610 State and Parameter Estimation 3 Credits (3,0)

Autoregressive and moving-average models, state estimation, parameter identification, least squares and maximum likelihood formulations, Kalman prediction filtering, nonlinear filtering algorithms, and online estimation techniques.

Prerequisites: ELEC 510 and ELEC 515

Course Offered at: Daytona Beach

CESC 690 Graduate Research Project 3 Credits (3,0)

Master-level research project under advisor supervision. Focus on advanced topics in computer engineering. Requires faculty advisor and program coordinator approval of goals, plan, and deliverables.

Course Offered at: Daytona Beach

CESC 699 Special Topics in Computer Engineering 1-6 Credit (1-6,0)

Individual, independent, or directed studies of selected topics in computer engineering.

Course Offered at: Daytona Beach, Prescott

CESC 700 Graduate Thesis 1-9 Credit (1-9,0)

Master-level research project in computer engineering conducted under supervision of research advisor and thesis committee approved by the program coordinator. Thesis committee approval of an oral defense and final thesis report is required at the culmination of the research project.

Course Offered at: Daytona Beach