AEROSPACE SYSTEMS ENGINEERING (AESE)

AESE 165 Tools for Aerospace Systems Engineering (2 Units)
Pre/Corequisite: MATH 149. Computer applications, solid modeling, introduction to programming, and introduction to aerospace engineering program and curriculum; outside speakers; project involving design and construction of small RC aircraft. (Formerly 4900:165)

AESE 166 Aerospace Systems Project Management (2 Units)
Prerequisite: AESE 165. Teamwork and project planning; semester project involving continuation of design and construction of small RC aircraft in conjunction with SAE Aero Design. (Formerly 4900:166)

AESE 240 Aerospace Systems Engineering I (3 Units)
Prerequisite: MATH 223. An introductory systems course focusing on systems thinking, systems engineering tools, reliability, life-cycle analysis and statistics. (Formerly 4900:240)

AESE 320 Aerospace Systems Engineering II (3 Units)
Prerequisites: MECE 360, AESE 240 and full admission to an engineering program in the College of Engineering and Polymer Science. An extended study of systems topics including linear programming, optimization, decision making, critical path scheduling, and verification. (Formerly 4900:320)

AESE 336 Aerospace Structures (3 Units)
Prerequisites: CIVE 202, MATH 335. Basic theory and methods for analysis and design of aerostructures are covered. Topics include torsion, shear flow, buckling, fracture, and fatigue of beams and plates. (Formerly 4900:336)

AESE 340 Avionics I (3 Units)
Prerequisites: ELEN 307 and admission to an engineering major within the College of Engineering and Polymer Science. Electronics for aircraft applications. Amplifiers, filters, regulators, current sources, buffers, sensor and actuator circuits, transmitters, and receivers. (Formerly 4900:340)

AESE 380 Aerospace Materials (3 Units)
Prerequisites: CHEM 151, CHEM 152, CIVE 202 and admission to an engineering major within the College of Engineering and Polymer Science or permission. Theory in science and application of materials for aerospace structures, macroscopic behavior of materials, order and disorder in mechanical behavior, evaluating and quantifying mechanical response. (Formerly 4900:380)

AESE 420 Model-based Systems Engineering (3 Units)
Prerequisites: AESE 320 and admission to an engineering major within the College of Engineering and Polymer Science. This course introduces model-based engineering through SysML, a graphical systems modeling language that is being promoted as an alternative to the unified modeling language (UML) to address systems engineering. (Formerly 4900:420)

AESE 440 Avionics II (3 Units)
Prerequisites: AESE 340 and admission to an engineering major within the College of Engineering and Polymer Science. Pre/Corequisite: MECE 412. Communication and control for aircraft applications. Fourier analysis, AM and FM principles, modulators demodulators, communication systems. aircraft system dynamics, classical control system principles and applications. (Formerly 4900:440)

AESE 450 Aerospace Computations (3 Units)
Prerequisites: CIVE 202, MECE 315, MECE 360, MECE 411 and admission to an engineering major within the College of Engineering and Polymer Science or permission of instructor. Introduction to finite element and finite volume methods in aerospace engineering; fundamental principles of FEM and FVM discussed and illustrated through structural, and aerodynamic applications. (Formerly 4900:450)

AESE 460 Aerospace Systems Manufacturing (3 Units)
Prerequisites: MECE 360 or equivalent and admission to an engineering major within the College of Engineering and Polymer Science or permission of instructor. Using computer systems to assist in creation, modification, analysis, or optimization of engineering designs, planning, management and control of manufacturing, CAD software with manufacturing applications. (Formerly 4900:460)

AESE 491 Aerospace Design Project I (1 Unit)
Prerequisites: Senior standing and admission into the Aerospace Systems Engineering program. Preliminary senior design project including the design proposal, feasibility, cost analysis and preliminary design. (Formerly 4900:491)
Gen Ed: Capstone

AESE 492 Aerospace Design Project II (2 Units)
Prerequisite: AESE 491. Detailed senior design project. Final design, testing and implementation (Formerly 4900:492)

AESE 497 Aerospace Honors Project (2 Units)
Prerequisites: AESE 491 and a major in the College of Engineering and Polymer Science. Individual creative project in Aerospace Systems, supervised by faculty member of the department. Includes design, feasibility and cost analysis, final design and implementation. (Formerly 4900:497)