

Enrollment Options

Qualified students can begin classes by registering as a non-degree student for the following term. Consult the departmental graduate advisor about procedures for non-degree status and for transferring non-degree credits earned to a regular degree program.

For More Information

The UF EDGE Web site offers extensive information about our programs, as well as the application and registration process. Visit <http://ufedge.eng.ufl.edu> to:

- Sign up for a free online preview to sample a course
- Use the “Contact us” link to get further information regarding course content and ask specific questions

For current information about tuition and financial aid, visit the UF Graduate School Web site at <http://gradschool.rgp.ufl.edu/>.

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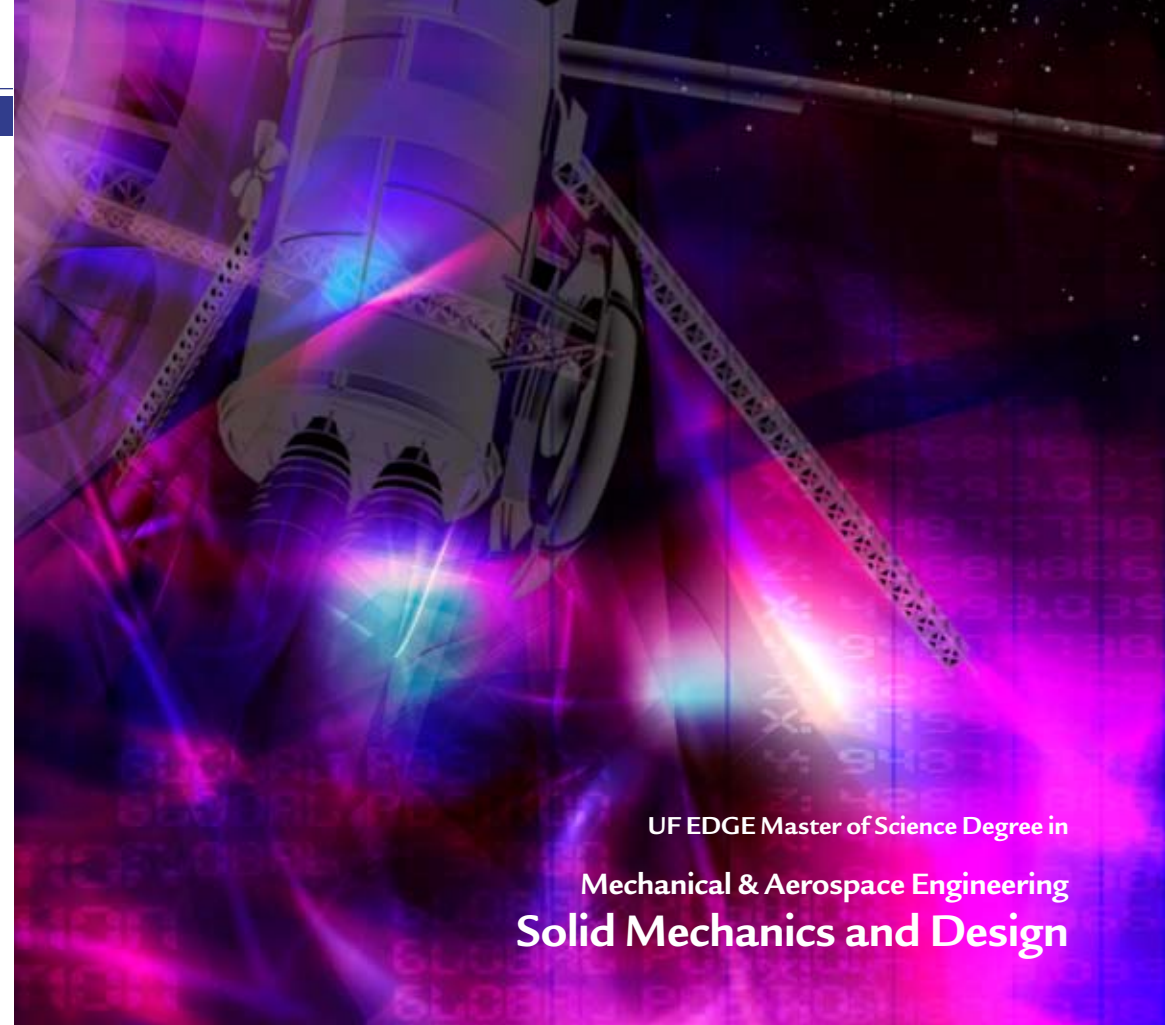
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UF EDGE Master of Science Degree in
Mechanical & Aerospace Engineering
Solid Mechanics and Design

Give Your Career that UF EDGE

Professional engineers can earn a master's degree at a time and place convenient to them through programs from UF EDGE (University of Florida Electronic Delivery of Graduate Engineering). UF EDGE helps technical professionals update core knowledge in their engineering disciplines, learn about emerging technologies, and acquire new skills in related engineering areas.

University of Florida
UF EDGE
Electronic Delivery of Graduate Engineering

www.ufedge.eng.ufl.edu



Florida's Best Engineering College

The UF College of Engineering is ranked as the #1 engineering college in Florida and as one of the top 25 in the nation by U.S. News & World Report magazine. Our faculty is recognized internationally for doing cutting-edge research. They bring their expertise and enthusiasm into the classroom to provide students with the most up-to-date knowledge in the field.

Learn Anywhere, Anytime

UF EDGE brings this exciting learning experience to a worldwide audience of place-bound engineers through a variety of distance learning technologies accessible at the workplace, home, and other sites.

UF EDGE programs are delivered either via streaming video or DVD directly to the student. These are the same courses taught by University of Florida College of Engineering faculty on campus. Courses are supplemented by additional course material and interaction.

The degree can be completed in as little as 24 months.

Master Degrees Do Pay Off

A master's degree in engineering can be worth \$2.5 million over the course of your career, according to a recent U.S. Commerce Department Census Bureau study that compares educational level to work-life earnings.

The investment of time and tuition dollars toward a master's degree can bring a terrific return in total income. Starting salaries for engineers with a master's can be \$8,000 \$10,000 higher than for those with only a bachelor's degree. Over a lifetime, the income advantage of a master's degree averages more than \$400,000.

Admission

Admission is coordinated by the Mechanical & Aerospace Engineering department.

Applicants must have:

- A bachelor of science degree in mechanical or aerospace engineering with a cumulative undergraduate GPA of a least 3.0 on a 4.0 scale
- Satisfactory scores on the general portion of the Graduate Record Examination (GRE) with a minimum score of 1200

For international students whose first language is not English, a minimum score of 600 on the Test of English as a Foreign Language (TOEFL) is required to be excused from English language course requirements.

Curriculum for the Master of Science Degree in Mechanical & Aerospace Engineering

Master's degree programs offered through UF EDGE are non-thesis. A non-thesis master's degree requires the completion of ten 3-semester credit hour courses as outlined in the degree curriculum. A minimum cumulative GPA of 3.00 is required for graduation.

Solid Mechanics and Design

Fall

EML 6939 Failure of Materials in Mechanical Design

Fatigue life of machine elements subjected to steady and alternating multi-axial stresses; Fatigue life analysis using stress-life approach, local strain-life approach, and fracture mechanics; high cycle and low cycle fatigue; Damage tolerant life prediction methods.

EGM 6611 Continuum Mechanics (3)

Tensors of stress and deformation. Balance and conservation laws, thermodynamic considerations. Examples of linear constitutive relations. Field equation and boundary conditions of fluid flow.

EGM 6570 Principles of Fracture Mechanics (3) [Prereq is EGM 6611]

Introduction to the mechanics of fracture of brittle and ductile materials. Linear elastic fracture mechanics; elastic-plastic fracture; fracture testing; numerical methods; composite materials; creep and fatigue fracture.

EGM 6321 Principles of Engineering Analysis I (3)

Solution of linear and nonlinear differential equations. Methods of Frobenius, classification of singularities. Integral representation of solutions. Treatment of the Bessel, Hermite, Legendre, hypergeometric, and Mathieu equations. Asymptotic methods including the WBK and saddle point techniques. Treatment of nonlinear autonomous equations. Phase plane trajectories and limit cycles. Thomas-Fermi, Emden, and van der Pol equations.

EGM 6341 Numerical Methods of Engineering Analysis I (3)

Finite-difference calculus; interpolation and extrapolation; roots of equations; solution of algebraic equations eigenvalue problems; least-squares method; quadrature formulas; numerical solution of ordinary differential equations; methods of weighted residuals. Use of digital computer.

Spring

EML 5526 Finite Element Analysis and Applications (3)

Fundamentals, including discrete system analysis, dynamic analysis of structures, steady state and transient heat transfer analysis, and incompressible fluids analysis. Modeling, analysis, and design using FEA software.

EGM 5533 Applied Elasticity and Advanced Mechanics of Solids (3)

Bars, beams, thin-walled structures, and simple continua in the elastic and inelastic range. Virtual work approaches, elastic energy principles, plastic limit theorems, creep deformation procedures, introduction to instability and fracture mechanics. Design applications.

EML 6267 Structural Dynamics of Production Machinery (3)

Review of mechanical vibrations with two degrees of freedom. Natural and forced vibrations of multi-degree-of-freedom systems. Experimental and computational modal analysis and synthesis. Vibrations of machine tools, rolling mills, and robots.

Summer

EGM 6341 Numerical Methods of Engineering Analysis I (3)

Finite-difference calculus; interpolation and extrapolation; roots of equations; solution of algebraic equations eigenvalue problems; least-squares method; quadrature formulas; numerical solution of ordinary differential equations; methods of weighted residuals. Use of digital computer.

Plus two courses selected from any graduate course in the College of Engineering curriculum in consultation with advisor.