UNF
UNIVERSITY of NORTH FLORIDA

Division of Engineering

Bachelor of Science in Civil Engineering
Bachelor of Science in Electrical Engineering
Bachelor of Science in Mechanical Engineering

Academic Learning Compact

The faculty and staff of the Division of Engineering are dedicated to a partnership in teaching and learning with you, students in our Civil Engineering, Electrical Engineering, and Mechanical Engineering academic programs. This dedication is reflected in our Mission and Values statements shown below, and in our commitment to educational outcomes assessment and continuous improvement.

Our Mission

Academic programs in the UNF Division of Engineering provide our students the maximum opportunity for leadership, innovation, and success in their careers and lives. We do this by:

- providing a solid engineering education rooted in the fundamentals of the basic sciences, mathematics, and engineering sciences;
- developing critical thinking abilities through real, hands-on challenges in industry and/or research;
- giving context to the technical curriculum through a rigorous liberal arts education and a commitment to service learning;
- conducting research programs that enhance the education of our students, the professional development of our faculty and staff, the technical needs of our industrial partners, and the well being of society; and
- ensuring that all of our programs contribute significantly and measurably to the quality of life in Northeast Florida and beyond.

Our Values

All members of our learning community – students, faculty, staff, administrators, and our industry partners - foster individual and group success through continuous improvement,

mutual respect and support, and the highest expectations. Only the most rigorous standards of ethical behavior and collegiality are acceptable. Each member of our learning community is expected to think critically and imaginatively, to be responsible for one's own actions, to take the initiative to improve the common good, to have entrepreneurial spirit, and to work effectively in teams. We believe that only through exemplary service and leadership in the profession and society does the engineer become a true professional.

Educational Outcomes

All students completing a UNF Engineering degree will have:

- an ability to apply knowledge of mathematics, science, and engineering;
- an ability to design and conduct experiments, as well as analyze and interpret data;
- an ability to design a system, component, or process to meet desired needs;
- an ability to function on multi-disciplinary teams;
- an ability to identify, formulate, and solve engineering problems;
- an understanding of professional and ethical responsibilities;
- an ability to communicate effectively;
- the broad education necessary to understand the impact of engineering solutions in a global and societal context;
- a recognition of the need for, and ability to engage in, lifelong learning;
- a knowledge of contemporary issues;
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice;

In addition, students in **Civil Engineering** will have:

- proficiency in mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
- proficiency in a minimum of four (4) recognized major civil engineering areas;
- the ability to conduct laboratory experiments and to critically analyze and interpret data in more than one of the recognized major civil engineering areas;
- the ability to perform civil engineering design by means of design experiences integrated throughout the professional component of the curriculum; and
- an understanding of professional practice issues such as: procurement of work; bidding versus quality based selection processes; how the design professionals and construction professions interact to construct a project; the importance of professional licensure and continuing education; and/or other professional practice issues.

Students in **Electrical Engineering** will also have:

- a knowledge of probability and statistics and their applications in electrical engineering;

- a knowledge of mathematics through differential and integral calculus, and basic engineering sciences necessary to analyze and design electrical and electronic circuits and systems; and
- a knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.

Mechanical Engineering students will also have:

- a knowledge of chemistry and calculus-based physics with depth in at least one; the ability to apply advanced mathematics through multivariate calculus and differential equations; familiarity with statistics and linear algebra;
- the ability to work professionally in both thermal and mechanical systems areas including the design and realization of such systems; and
- been taught by faculty who are maintaining currency in their specialty area.

Assessment and Continuous Improvement

All UNF Engineering academic programs are accredited by the Engineering Accreditation Commission (EAC) of ABET[1]. Accreditation by the EAC requires that we maintain a rigorous program of educational outcomes assessment and continuous improvement. The faculty of the UNF Division of Engineering is concerned, first and foremost, with providing a high quality education for all of our students and thus we embrace the philosophy of continuous improvement. You are an important part of our effort to assess and improve our academic programs. We employ a number of tools to assess our programs – many in which you will be asked to participate. These tools are listed in Table 1.

Pursuit of Academic Excellence

The expectations of all in our learning community – students, faculty, staff, administrators, and industry partners – are high. Why? Because the principal goal of this community is to produce engineers – and citizens – that are innovators and leaders in the workplace, the profession, and in society. The UNF Engineering community welcomes you and looks forward to working with you to achieve this goal.

[1] Information about engineering accreditation is available through ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone: (410) 347-7700, Internet: www.abet.org.

Table 1. Tools Used to Assess Educational Outcomes

Assessment tool	Description
Graduating Senior Exit Survey	We gain valuable insights from you as you reflect upon your experiences at UNF and your program of study.
Senior Design Project Evaluations	Each student completes a "capstone" design project (usually in a group) which draws upon what he or she has learned in their engineering coursework. Your success in this project is a strong measure of program quality.
Achievement of Course Outcomes as Indicated by Grades	Grades are, of course, the main indicator of student performance and achievement of course learning outcomes.
Fundamentals of Engineering Examination Results	This the first examination required by the State of Florida for certification as a Professional Engineer. It generally tests students' knowledge in mathematics, basic sciences, and engineering fundamentals. Students are strongly encouraged to take this exam and we look to it as a measure of how well our programs prepared you for engineering practice.
Regional and National Competition Results	We encourage students, though our many student clubs, to participate in design competitions throughout the Southeastern US and the nation. Enthusiastic participation and good performance are indicators of your ability in engineering design.
Job Placement Data	We will ask you for information about your first job after graduation since the quality of the jobs and job offers our students receive is a measure of the quality of our academic programs.
External Surveys	We ask employers, alumni, and our Engineering Advisory Council to evaluate and assess our programs. This helps us gain insights from a fresh perspective.
Instructional Satisfaction Questionnaires	These are the course and instructor evaluations administered by UNF each semester for each course. Faculty members review the data in order to improve their classroom performance and their course materials.
Student Surveys of Course Outcomes Achievement	You will be asked in several engineering courses to specifically rate how well these course met the educational outcomes listed above.
Faculty Input and Self Assessment	Faculty members meet often to review assessment data (from the tools above) and discuss possible program improvements, as well as provide their own insights and observations.