

STRATEGIC PLAN (2018-2022)
Department of Civil, Environmental and Geomatics Engineering
(Approved by Faculty on April 9, 2018)

Vision

To be nationally recognized as an eminent engineering program with excellence in education, research and community engagement.

Mission

To provide our engineering students with a high-quality education on fundamental concepts and engineering design, and to conduct cutting-edge research in urban mobility/infrastructure and water resources/environmental sustainability in state-of-the-art learning environments to benefit communities in Florida and beyond.

Listed goals for the Strategic Plan (2018) will be revisited and revised, as necessary on a biannual basis. Measures of success will be collected and reported annually.

Goal 1 – Be Nationally Recognized for High-Quality Research

- **Objective 1.1 – Support existing centers and labs in the Department and develop new externally funded research centers**
 - **Strategy 1.1.1** – Evaluate existing research centers and labs in the Department and develop a plan to enhance productivity and visibility
 - *Measure of success: All existing centers and labs in the department meet performance metrics*
 - Plan:
 - Develop appropriate performance metrics for the research centers and labs of the Department.
 - **Strategy 1.1.2** – Sustain existing Department centers and labs
 - *Measure of success: All centers in the Department must have active and continuing research funding, support graduate students and provide ongoing outreach through technical publications and periodic seminars.*
 - Plan:
 - Reorganize existing research centers and labs with deficient performance
 - Oversight of existing research center/lab activities including partner institutions to maintain research and scholarly activities
 - Develop collaboration among existing Department research centers and across the College and University
 - Prioritize technical publications, outreach, and other scholarly activities related to research centers and labs in the Department
 - Organize an outreach seminar annually per center (one option would be “Lunch and Learn” seminar with professional development hours (PDHs))
 - **Strategy 1.1.3** – Secure funding for new centers in the emerging areas of research

- *Measure of success: One new State or federally funded center of excellence within a five-year period*
 - Plan:
 - Identify emerging research areas of national significance
 - Identify potential partners within and outside university
 - Develop multidisciplinary, multiple college, multi-university proposals
- **Objective 1.2 – Maintain a sustainable funding level to support faculty, research, and teaching assistants**
 - **Strategy 1.2.1 – Implement research incentive program**
 - *Measure of success: Percentage of faculty taking advantage of incentive program > 50%*
 - Plan:
 - Identify research funding requirements for faculty members to achieve their stated goals
 - Evaluate and adjust teaching load and TA support based on the research productivity
 - Identify funding mechanisms that help faculty achieve research funding goals through external fundraising, securing gifts from foundations, providing professional development training, certificate programs, and special events.
 - Provide faculty professional development incentives (for licensure, continuing education, committee membership in professional societies, attendance to major conferences, etc.)
 - **Strategy 1.2.2 – Recruit additional faculty to strengthen emerging areas of potential research funding, such as environmental, transportation, and structural engineering**
 - *Measure of success: Number of research-active faculty > 75%*
 - Plan:
 - Evaluate and address immediate strategic faculty hiring needs in the areas of environmental and transportation. Specifically, focus next two faculty hires:
 - 1) in air pollution to interface between the UTC/urban mobility focus group and the environmental focus group (note there is significant regulatory funding at the state and federal level that are available for research related to air pollution from vehicles, multi-modal transportation systems, landfills, treatment facilities and contributions to coastal waterways from fallout), and
 - 2) in transportation to strengthen areas outside of freight mobility and intelligent transportation systems that will make FAU highly competitive for the next round of UTC competition
 - Address future strategic faculty hiring needs in infrastructure and materials which is the area where future innovations will be focused due to changing climate and oceanic water quality considerations
 - For any junior faculty member, the Department will reduce his/her teaching load to one course first semester until they secure tenure. The Department will also provide him/her with travel funds to visit funding agencies.

- An official mentor will also be assigned to incoming junior faculty. Faculty mentors will receive time release which will be specified in annual assignment
- Conduct an annual evaluation of strategic hiring needs that aligns with State and national priorities
- Recruiting non-tenure track faculty such as high calibre visiting/adjunct faculty and research faculty addressing the needs of the Department
- **Strategy 1.2.3** – Increase research productivity
 - *Measure of success: External funding support > External funding support in 2018 (target research expenditure \$150K/faculty)*
 - Plan:
 - Meet at least once per year with FAU lobbyist
 - Identify potential funding opportunities that meet with faculty strengths to take advantage of the unique combination of faculty expertise to compete for high profile research opportunities like UTC
 - Identify co-collaborators at FAU and other institutions, and host interdisciplinary forum events with potential collaborators from other universities and industry
 - Create periodic research update seminars on current research in the department, and identify areas faculty want to move their research into (i.e. what are they interested in)
 - Engage in local professional societies and local community affairs to learn of opportunities, use contacts to develop potential projects (FDOT, local business, local governments), engage with DAC/GEPAC/AAC on potential areas of collaboration
 - Improve laboratories and address technician hiring needs
- **Objective 1.3 – Increase output of scholarly activities**
 - **Strategy 1.3.1** – Recognize departmental scholarly work
 - *Measure of success: Number of scholarly work products (books, monographs, and other peer-reviewed publications) > 100*
 - Plan:
 - Encourage faculty to publish books, submit three peer reviewed papers per year, and three conference papers per year
 - Develop incentives for scholarly work, fund support for travel, and use presentations for recruitment purposes
 - Increase the number of journal editors among faculty members
- **Objective 1.4 – Provide state-of-the-art research laboratories and facilities**
 - **Strategy 1.4.1** – Develop laboratory improvement plan
 - *Measure of success: Graduate exit and faculty survey results show satisfaction in laboratories and facilities*
 - Plan:
 - Develop a laboratory maintenance, acquisition, and upgrade priority list that is updated annually
 - Address the need to hire laboratory technicians
 - Create a fund for laboratory improvement and launch \$450K campaign

- Explore the possibility of utilizing FAU Engineering and Technology Core services
 - **Strategy 1.4.2** – Hire laboratory technicians for structures and environmental laboratories
 - *Measure of success: Number of laboratory technicians > Two*
 - Plan:
 - Address the need to hire laboratory technicians
 - Create a fund for laboratory improvement, launch \$450K campaign
 - Create oversight/safety/security management policies
- **Objective 1.5 – Raise the visibility of the Department in the local and national stages**
 - **Strategy 1.5.1** – Disseminate faculty research success
 - *Measure of success: Publish Research News Letter twice a year*
 - Plan: Compile and distribute to the professional community a bi-annual newsletter to provide the research community with timely update on the important progresses on research and faculty achievements
 - **Strategy 1.5.2** – Encourage faculty to serve on national and international level of technical committees
 - *Measure of success: Each faculty serves at least one national or international committee*
 - **Strategy 1.5.3** – Encourage faculty to publish books, prepare fee-based short courses, webinars (e.g., ASCE) and workshops.
 - **Strategy 1.5.4.** – Provide three professional development training (i.e., Lunch and Learn workshops or meetings), one certificate program and one special event per year.

Goal 2 – Be Nationally Recognized for High-Quality Education

- **Objective 2.1** – Improve undergraduate curricula to prepare students for a challenging and competitive work environment
 - **Strategy 2.1.1** – Improve FTIC student retention rate and graduation rate
 - *Measure of Success: 2nd year retention rate for FTIC students $\geq 80\%$, and four-year graduation rate $\geq 50\%$*
 - Plan:
 - Closely work with academic advisors to monitor student progress in the areas of math and physics and provide them with proper advice on the career path
 - In addition to the Fundamentals of Engineering (FE) class, students should be exposed to CEGE major areas at early semesters
 - Improve program curricula by increasing the number of technical electives through cross-listing with graduate courses, and provide flexibility in course offerings to students to increase student knowledge in core areas
 - Reevaluate the pre-professional requirements and pre- and co-requisites
 - **Strategy 2.1.2** – Improve outcomes on the licensing exams (FE/FS)
 - *Measure of Success: Annual FE/FS pass rate for CEGE $\geq 70\%$*
 - Plan:

- Include licensure information in all department courses, introduce FE/FS manual on day 1, encourage use of the FE/FS manual for reference materials in course exams, and include FE/FS style questions for part of the grade in the course
- Increase design content of design core classes (4000-level) in all core areas
- Conduct annual review of course syllabi and topics taught in all courses to ensure FE/FS topics are being covered
- Coordinate with professional student clubs in the department to schedule faculty or industry-professional led FE/FS review classes.
- **Strategy 2.1.3** – Provide state-of-the-art learning environments and laboratories
 - *Measure of success: Graduate exit survey and course outcome survey results show satisfaction in laboratories and facilities*
 - Plan:
 - Provide a laboratory maintenance, acquisition, and upgrade priority list that is updated annually
 - Address the need to hire laboratory technicians
 - Create a fund for laboratory improvement and launch \$450K campaign
 - Manage laboratory fee budgets
 - Pursue lab certification for establishing core facilities for within the university and for the community
- **Strategy 2.1.4** – Improve teaching assistant performance
 - *Measure of success: Teaching assistant survey results show satisfaction*
 - Plan:
 - Create a TA selection committee and evaluate the TA requirements of the Department
 - Provide TA training each semester, require lab safety training, require students to attend class they are assigned to (if never took the course), and specify teaching load responsibilities
 - Provide a letter grade on the TA performance from the instructor for each class taught
 - Consider hiring undergraduate graders
- **Strategy 2.1.5**– Increase diversity of faculty and students
 - *Measure of success: Percentage of underrepresented faculty $\geq 30\%$ and Percentage of underrepresented students $\geq 50\%$*
 - Plan:
 - Implement targeted faculty hiring and targeted student recruitment
 - Create a plan for a professor of practice in the future who can serve as liaison between industry and academia
- **Strategy 2.1.6** – Increase graduate job placement or continuing education in engineering-related fields
 - *Measure of success: Percentage of graduates employed full-time in engineering or pursuing graduate degree $\geq 90\%$*
 - Plan:

- Identify key industry members, elected officials, lobbyists, etc. that should be on the Department Advisory Council (DAC), Geomatics Program Advisory Council (PAC) and Alumni Advisory Councils (AAC)
- Meet with industry recruiters and employers and Alumni Advisory Council (AAC) regarding lessons learned since graduation and encourage alumni to meet with students regarding importance of education and licensure
- Invite professionals to evaluate student work, particularly in 4000-level coursework
- Provide networking opportunities in coursework and engagement activities, and develop a schedule of lectures/talks by professionals from industry on topics related to job search, resume writing and interviewing skills, current trends in the industry, etc.
- **Objective 2.2 – Improve MS curricula**
 - **Strategy 2.2.1 – Provide flexibility to expand opportunities for working professionals to better prepare them for the career**
 - *Measure of success: MS degree completions per year ≥ 20*
 - Plan:
 - Create a non-thesis, non-project (course only) option of 30 credits to help students in career advancement and readiness to sit for the PE exam
 - Include the possibility of waiving standardized tests (e.g., GRE) on a case-by-case basis
 - Increase the number of online courses and explore the possibility of creating online degree programs and weekend programs.
 - Contact all students who have completed a minimum of 9 credits of graduate coursework at FAU but did not complete the degree, to notify them that they can switch to the course only option to finish their degree on-line
 - Conduct periodic review of the 5-year course offering plan schedule
 - Meet with DAC, GEPAC, AAC to encourage their working professionals to pursue graduate study and create active recruiting quotas for DAC, GEPAC, AAC
 - Simplify assessment procedures for SACS, ABET, FLBOG, etc.
 - Explore the possibility of weekend Master's program.
 - **Strategy 2.2.2 – Develop a marketing plan to support recruiting**
 - *Measure of success: MS candidate headcount ≥ 80*
 - Plan:
 - Create marketing materials for MS degree options and faculty research to distribute via website and direct email contacts
 - Encourage working professionals to pursue course-only MS degree option and improve pathway by which working professionals can engage with CECE faculty through the MS program
 - Advertise end of semester thesis presentations and defenses to encourage undergraduate students to attend
 - Actively use travel dollars for recruiting purposes

- Schedule open houses/workshops to highlight faculty research
- Develop web page listing of department alumni, student testimonials, research group presentations to different agencies (e.g., FDOT or others), and lab facilities
- **Strategy 2.2.3** – Increase research output for thesis-option MS students
 - *Measure of success: Each MS candidate publishes one paper per year*
 - Plan:
 - Increase funding for support of MS student RAs
 - Develop a graduate course to help thesis option students with design of experiments, literature review and data analysis
 - Add additional requirements to MSCV (require end of the semester progress presentations to thesis committees with assessment; a Satisfactory grade “S” in thesis credits can only be awarded after the progress presentation, and assessment forms are filed with the CECE staff, require one research article or conference proceedings paper submitted for publication for each thesis-option student before he/she applies for graduation)
 - Increase participation at local conferences for student/faculty
- **Objective 2.3 – Improve doctoral program by establishing an independent Ph.D. program**
 - **Strategy 2.3.1** – Develop Ph.D. program focused on urban mobility/infrastructure and water resource/environmental sustainability topic areas
 - *Measure of success: Ph.D. degree completions per year ≥ 3*
 - Plan:
 - Prepare Ph.D. program proposal and submit new program for approval
 - Develop means for working professionals to participate in the Ph.D. program
 - Develop research trainee partnerships with industries that hire Ph.D. graduates (i.e., SFWMD, NOAA, USGS, etc.)
 - Increase guaranteed funding for Ph.D. student support
 - **Strategy 2.3.2** – Develop a marketing plan and implement a recruiting strategy
 - *Measure of success: Ph.D. headcount ≥ 15*
 - Plan:
 - Increase Ph.D. student headcount in OME program until they can be migrated to the independent Ph.D. program
 - Create marketing materials for Ph.D. options and faculty research to distribute via website and direct email contacts
 - Encourage working professionals to pursue Ph.D. and improve pathway by which working professionals can engage with CECE faculty through the BS/Ph.D. and MS/Ph.D. program
 - Advertise end of semester dissertation presentations and defenses to encourage undergraduates and MS candidates to attend
 - Actively use travel dollars for recruiting purposes
 - Schedule open houses/workshops to highlight faculty research
 - Develop web page listing of department alumni, student testimonials, research group presentations to different agencies (e.g., FDOT or others), and lab facilities
 - **Strategy 2.3.3** – Increase research output for Ph.D. students

- *Measure of success: Each Ph.D. student publishes two papers per year*
- Plan:
 - Increase funding for support of Ph.D. student RAs
 - Develop a graduate course to help thesis option students with design of experiments, literature review and data analysis
 - Add additional requirements to Ph.D. (require end of the semester progress presentations to dissertation committees with assessment; a Satisfactory grade "S" in dissertation credits can only be awarded after the progress presentation, and assessment forms are filed with the CEGE staff, require two research articles or conference proceedings paper submitted for publication for each Ph.D. student before he/she applies for graduation
 - Increase participation at local conferences for student/faculty

Goal 3 – Be Recognized for Community and Industry Engagement

- **Objective 3.1 – Engage community, DAC, GEPAC and AAC in curriculum development, design, research, internships, and job placement**
 - **Strategy 3.1.1 – Increase activities with DAC, GEPAC, and AAC**
 - *Measure of success: Number of event activities > three per year*
 - Plan:
 - Set end-of-semester meetings (at the beginning of each semester) to update DAC, PAC, and AAC on department activities, provide interaction with graduating students via senior design presentations and encourage industry members to stay for more than one senior design presentation
 - Provide an annual mechanism for curricular input and industry engagement with faculty
 - Encourage fund raising activities via student organizations and other events on campus to host large industry events, such as Infrastructure Night and Concrete Expo
 - Launch \$450K campaign to raise funds to improve laboratory conditions
 - Develop/distribute departmental highlights and points of pride each semester on social media
 - **Strategy 3.1.2 – Organize outreach events to highlight research**
 - *Measure of success: Number of events > three*
 - Plan:
 - Encourage faculty speaking engagements guided toward the local community
 - Create events where faculty can discuss research and collaboration with industry partners
 - Encourage faculty to have links to the Department webpages
- **Objective 3.2 – Increase community engagement activity**
 - **Strategy 3.2.1 – Utilize curriculum to facilitate community interaction with outside mentors/clients**
 - *Measure of success: Number of academic service learning offerings > ten*

- Plan:
 - Encourage academic service learning opportunities
 - Require community engagement discussions/presentations (public hearing, public presentation, or other meeting) with the community involved with class projects
- **Strategy 3.2.2** – Encourage student organizations to pursue community engagement
 - *Measures of success: Number of students participating > 50%*
 - Plan:
 - Identify community engagement opportunities, post information on department website to encourage students to attend, provide photographs and audio to FAU outreach groups, provide one student group interview with public media per year
 - Encourage students to join at least one professional organization and attend off-campus professional meetings each year, provide FAU branding to highlight event
 - Encourage students/faculty to participate in regional competitions
- **Strategy 3.2.3** – Establish partnerships with other universities
 - *Measures of success: Number of partnerships > two*
 - Plan:
 - Encourage national and international peer exchange by inviting national/international scholars for short and long-term visits and encourage our CECE faculty to do the same
 - Encourage each faculty member to reach out to at least one institution to facilitate MOU process for faculty exchange and graduate student recruitment