



THE CITADEL
SCHOOL OF ENGINEERING

SCHOOL OF ENGINEERING 2024 – 2029 STRATEGIC PLAN



A Message From Our Dean

I am delighted to share our new strategic plan, which will guide the School of Engineering's vision and direction for the next five years. I am especially excited about this plan, as it represents our commitment to excellence and our dedication to the success of our cadets, students, faculty, and community.

Through this plan, we aim to strengthen our community, innovate for the future, expand our partnerships, and increase the positive impact we have on industry and humanity.



This five-year School plan is well aligned with the Citadel's strategic plan, Our Mighty Citadel. Through our focus on excellence in engineering education, we will advance The Citadel's mission, vision, and values. This School of Engineering plan includes 11 ambitious goals in four strategic focus areas:

1. Infrastructure
2. Innovation
3. Interdisciplinary Collaboration
4. Impact and Outreach

These goals align well with the broader Our Mighty Citadel strategic initiatives:

- Educate and develop principled leaders.
- Enhance the learning environment through academic programs of distinction and student success services.
- Advance The Citadel as the Senior Military College and Graduate College of Choice.
- Create and maintain safe and secure campus facilities to advance student learning, innovation, and campus operations.
- Ensure The Citadel has the leadership, talent, diversity, and inclusive culture to accomplish its mission.
- Enhance the region's social, educational, and economic development through meaningful community and corporate collaborations.

I am grateful to all the cadets, evening and graduate students, alumni, faculty and staff, and advisory board members who provided input to this plan. It truly represents the thinking of our entire community. I am excited to put this plan into action over the next five years and all the collaboration that will take us to our vision.

Colonel Andrew B. Williams, PhD, MBA, SCM
Dean of Engineering & Louis S. LeTellier Chair

Our mission

The Citadel School of Engineering
educates, inspires and cultivates principled engineering leaders
to make a positive impact in their communities and around the world.



What sets us apart:

We consistently demonstrate a relentless passion for supporting the success of our students through engaging learning experiences and active mentorship. Our class size, advising, and school culture intentionally support the active engagement between students and faculty members who are proven leaders in their field, have practical experiences, and authentically care about the success of every student.

We offer a diverse set of learning experiences at the undergraduate and graduate levels, for cadets, evening undergraduate students, graduate students, and those in professional development programs. Our curriculum and teaching approaches provide a solid engineering foundation while allowing learners to explore emerging technologies in pursuit of the high calling of engineering. Our curriculum satisfies the learning requirement for all students based on their career plans and socioeconomic background.

We also offer project management and leadership interdisciplinary studies and degree programs to foster forward-thinking engineers and business professionals who excel in their technical expertise and possess the skills to tackle real-world challenges. We actively work in partnership with other distinguished engineering institutions to nurture an entrepreneurial mindset among our students.

We are nationally recognized for our exceptional 4-year graduation rate achieved through the dedication of our students, unwavering faculty support, and a commitment to fostering an environment of academic excellence. Our students gain clarity, focus, critical thinking, and discipline to emerge as principled leaders who are socially responsible and can identify and solve the most challenging problems. Our learners go on to create, innovate, and advance solutions for industry, our military, our economy, and our communities.

Our Vision for Our Impact and Reputation

**Building on our strengths and proven success,
we will continue growing, enhancing, and expanding our impact.**



As we look to the future, we envision that our graduates will continue to excel in applying their engineering education to address societal challenges, gaining recognition through our successes. Our graduates will be recognized on a local, national, and global scale for being models of principled, ethical leadership. Our success will be respected in unrivaled student outcomes (such as retention, graduation, employment, and starting salaries).

Our impact will draw attention to the School of Engineering programs for excellence and consistently delivering impactful results. The School of Engineering will stand out as the preeminent choice for those seeking an engineering or Citadel education, reflecting its prominence and desirability.

The School of Engineering will be known for its significant contribution to the local and national economy by generating entrepreneurs and civic leaders. We will be central to addressing the impending shortage of engineering talent and fulfilling the high demand for engineers who bring a solid work ethic and critical thinking skills. Our programs will attract learners who want to develop new knowledge and skills, at all stages of their lifecycle.

Our Vision for Our Thriving SoE Community

**Building on our strengths and proven success,
we will continue to cultivate an inclusive, collaborative, and innovative
School of Engineering community.**



Building on our excellence in teaching, we will continue to innovate in our curriculum, teaching methods, learning experiences, and student support services. We aspire for our students to have even greater opportunities to engage in projects and competition teams that feed their diverse interests and are at the cutting edge of engineering design. The School of Engineering will be a catalyst for application and creation of new and emerging technologies such as artificial intelligence, mixed reality, and much more.

As we look ahead, we see a community of students, faculty, and staff that reflect the diversity of talent in the world around us. Our community of faculty and staff members will be strongly unified through our common mission and values. They will proactively collaborate across engineering departments and The Citadel programs and they will consistently feel valued, rewarded, and motivated to grow.

We will create energizing spaces for the School of Engineering community to connect and collaborate with each other, with other Schools across The Citadel, and with our community partners. We will continuously strive to operate efficiently and effectively, raising the standard for performance across The Citadel's campus.

Our Vision for Our Partnerships

**Building on our strengths and proven success,
we will continue to develop mutually beneficial partnerships
with employers, educational institutions, industry, and communities.**



Through partnerships we will make a significant contribution to meeting market needs for engineering talent. The Citadel School of Engineering will be the first thought for employers actively seeking talent for well-compensated internships and highly competitive employment opportunities. Our faculty will provide sought-after thought leadership to partner with industry in developing new solutions that only engineers can offer.

We envision that our industry-focused discovery and collaboration will lead to quantitative and qualitative value for our partners while solving major community challenges. In turn, they will invest in our students through sponsorships and scholarships that broaden participation in engineering careers and expand the impact of our graduates.

We will assist K-12 and technical education providers in preparing their students to become successful School of Engineering students. Our partners, donors, and alumni will create more opportunities for students to learn by contributing resources to support them in our programs and by providing student financial assistance.

Our Values: What We Stand For



- **Honor** - We are committed to moral and ethical behavior and doing the right thing always. We apply integrity to our teaching and prepare our cadets and students to be principled leaders. We must be consistently honest, accurately representing our own work, following through on our commitments, admitting our mistakes and learning from them, and showing empathy for others.
- **Duty** - We fulfil our duty to our cadets and students, accomplish our academic and professional responsibilities, accept the consequences of our actions, and hold others accountable for theirs. We abide by the highest standards of ethics and continually strive for excellence. We are persistent and resilient in the face of adversity.
- **Respect** - We treat other people with dignity and worth, including a healthy respect for one's self. We are intentionally collaborative and make teamwork and support for each other's success a priority. We strongly reject any form of prejudice, discrimination, or harassment and are committed to nurture a community where everyone feels a sense of belonging.
- **Dedication to Cadets and Students** - We are relentlessly passionate about the success of our cadets and other students. We take time to provide 1:1 help when needed. We show care and concern for their well-being beyond their class work, and demonstrate empathy for every one.
- **Innovation for the Future** - We pursue continuous improvement while applying creativity and flexibility to find solutions to internal and external challenges. We cultivate curiosity through flexible teaching approaches that inspire learning across a range of learning styles. We engage broadly with other thought leaders to gain new insights and practices while calibrating what and how we teach to adapt to changing market needs.
- **Impact on Humanity** - Engineering has a positive human impact through meaningful, well-paid careers that broadly benefit the world. Our cadets and students engage in learning experiences that make a difference in communities, building technical and social skills to lead wherever they go. We are conscious of the human impact of technological advancement and mitigate negative impacts of that advancement wherever possible.

These values are aligned with and embody the Engineering Code of Ethics:

As an Engineer, I pledge to practice integrity and fair dealing, tolerance and respect; and to uphold devotion to the standards and the dignity of my profession, conscious always that my skill carries with it the obligation to serve humanity by making the best use of the Earth's precious wealth. As an Engineer, I shall participate in none but honest enterprises. When needed, my skill and knowledge shall be given without reservation for the public good. In the performance of duty and in fidelity to my profession, I shall give my utmost.

Our Infrastructure Goals



Goal 1: Create dynamic physical and virtual learning environments that advance cooperation, collaboration, and innovation between students, faculty, industry partners, and community leaders.

- 1.1 Actively engage alumni, students, faculty, staff, and partners in the conceptual and schematic design of the Engineering Replacement Building (ERB).
- 1.2 Acquire and leverage leading-edge laboratory spaces and equipment to provide students and faculty with opportunities for applied research and practical experience.
- 1.3 Expand our tools and methods for delivering exceptional virtual learning experiences.
- 1.4 Launch a Center for Artificial Intelligence, Algorithmic Integrity, and Autonomy Innovation (AI3).

Goal 2: Develop the capacity to grow our enrollment and increase program participation.

- 2.1 Acquire and leverage resources to expand marketing, promotion, and outreach efforts to increase enrollment in evening undergraduate, graduate, and professional development programs.
- 2.2 Increase capacity to initiate and nurture industry partnerships to ensure balance of faculty workload.
- 2.3 Explore and pursue the benefits of offering distance learning options for graduate and leadership program participation.
- 2.4 Strengthen relationships across the Citadel to ensure that cadets are fully informed about the opportunities and benefits an engineering education can offer.

Goal 3: Attract, develop, and retain diverse faculty and staff to meet the evolving advancement of technology, educational needs of students, and demands of the engineering profession.

- 3.1 Position the Citadel School of Engineering as an employer of choice to attract leading engineering scholars and educators.
- 3.2 Engage faculty and staff in creating strategies to improve employee wellbeing by fostering healthy and productive workplace practices.
- 3.3 Promote and support the ongoing professional development of faculty and staff with a focus on building knowledge, skills, and abilities in emerging technologies and foundational and innovative methods for teaching and learning.

Our Innovation Goals



Goal 1: Effectively leverage the Engineering Replacement Building (ERB) as a productive, hands-on, and cutting-edge learning space for student learning and faculty and student discovery.

- 1.1 Provide the space, tools, and staffing for a state-of-the-art makerspace where students and faculty can realize imagined engineering solutions.
- 1.2 Ensure flexible spaces that offer opportunities for a variety of structured and unstructured education experiences.
- 1.3 Create and leverage environments for faculty, student, and community discovery and workforce development.
- 1.4 Use the design, construction and operations of the new building to build knowledge about the applications of engineering.

Goal 2: Drive innovation in teaching and learning by integrating new knowledge and technologies into the curricula and teaching methods.

- 2.1 Increase knowledge and responsible use of emerging technologies and tools, including generative AI, as part of the core engineering learning experiences.
- 2.2 Provide resources and support for faculty and students to engage in a regular cadence of curricular innovation that combines professional development with continuous improvement of course content and teaching methods.
- 2.3 Provide meaningful student learning experiences through effective undergraduate and graduate curriculum based on initiatives advanced by faculty.
- 2.4 Continue to advance the KEEN entrepreneurial mindset program tools.
- 2.5 Streamline and improve the value of evaluation, assessment and continuous improvement procedures.

Goal 3: Strengthen student success services, such as advising and tutoring, through innovative methods and technologies.

- 3.1 Provide impactful student support and educational enrichment as identified and coordinated by faculty.
- 3.2 Connect students in need of academic assistance with tutoring resources using efficient tools and technologies.
- 3.3 Apply the use of “just-in-time tutoring” using generative AI tools trained on current and past curriculum materials.
- 3.4 Support implementation of The Citadel Quality Enhancement Plan (QEP) focusing on student advising, within School of Engineering degree programs.

Our Interdisciplinary Collaboration Goals



Goal 1: Create dedicated discovery centers and bring faculty, students, and industry partners together to collaborate on addressing complex challenges.

- 1.1 Create forums to engage faculty, students, and industry partners in proactively identifying and examining complex challenges where the Citadel SoE can have the greatest positive impact.
- 1.2 Secure industry partners to sponsor targeted discovery programs that address the needs of industry through interdisciplinary solutions and thought leadership.
- 1.3 Acquire resources, funding, and administrative support to facilitate interdisciplinary research projects and foster cross-disciplinary partnerships.
- 1.4 Organize interdisciplinary seminars, workshops, and conferences where faculty members can exchange ideas, share expertise, and explore opportunities for joint research projects and interdisciplinary teaching initiatives.

Goal 2. Design and implement interdisciplinary undergraduate and graduate learning experiences that provide students with a comprehensive education inside and outside of the classroom.

- 2.1 Create interdisciplinary courses and programs that encourage students to explore diverse perspectives, develop critical thinking skills, and apply knowledge from different fields to solve real-world problems.
- 2.2 Support student-led initiatives that encourage collaboration across disciplines.
- 2.3 Promote interdisciplinary study abroad programs, internships, and service-learning projects to expose students to diverse perspectives and approaches to problem-solving.

Our Impact and Outreach Goals



Goal 1: Actively maintain a welcoming and inclusive learning environment that attracts a diverse population of students, faculty, and staff and fosters a sense of belonging for all.

- 1.1 Create an experiential engagement space in the engineering replacement building to foster curiosity and enthusiasm about engineering and student projects among visitors.
- 1.2 Broaden participation in engineering education through proactive partnerships with diverse community organizations, professional associations, and partnership programs.

Goal 2: Increase our contribution to meeting market demands for engineering talent by growing enrollment in evening undergraduate, graduate, and lifelong learning programs.

- 2.1 Evaluate and align existing programs with knowledge and skill needs in the marketplace.
- 2.2 Expand brand recognition about The Citadel SoE in the engineering marketplace by marketing academic programs and effectively recruiting students through engagement with partners and creation of partnerships.
- 2.3 Set and pursue annual enrollment targets for each program based on market data.

Goal 3: Expand and strengthen industry partnerships that benefit students and the engineering profession.

- 3.1 Increase scholarships and sponsorships through more integrated processes and proactive partnerships.
- 3.2 Establish the Citadel SoE faculty as thought leaders through engagement with industry, promotion of insight through publications, and convening dialogue for new knowledge development.

Strategic Planning Steering Committee Members:

- William J. Davis, Department Head, Department of Civil, Environmental and Construction Engineering
- Kevin Skenes, Department Head, Department of Mechanical Engineering
- Mark McKinney, Department Head, Department of Electrical and Computer Engineering
- David Greenburg, Department Head, Department of Engineering Leadership and Program Management
- Timothy Wood, Faculty Member, Department of Civil, Environmental and Construction Engineering
- Eva Singleton, Faculty Member, Department of Engineering Leadership and Program Management
- Gafar Abbas Elamin, Faculty Member, Department of Mechanical Engineering
- Thomas Morrison, Student, Department of Civil, Environmental and Construction Engineering
- Larry Melton, Executive Advisory Board Member, Civil Engineering Alumni
- Porter Johnson, Advisory Board Member, Electrical and Computer Engineering Alumni