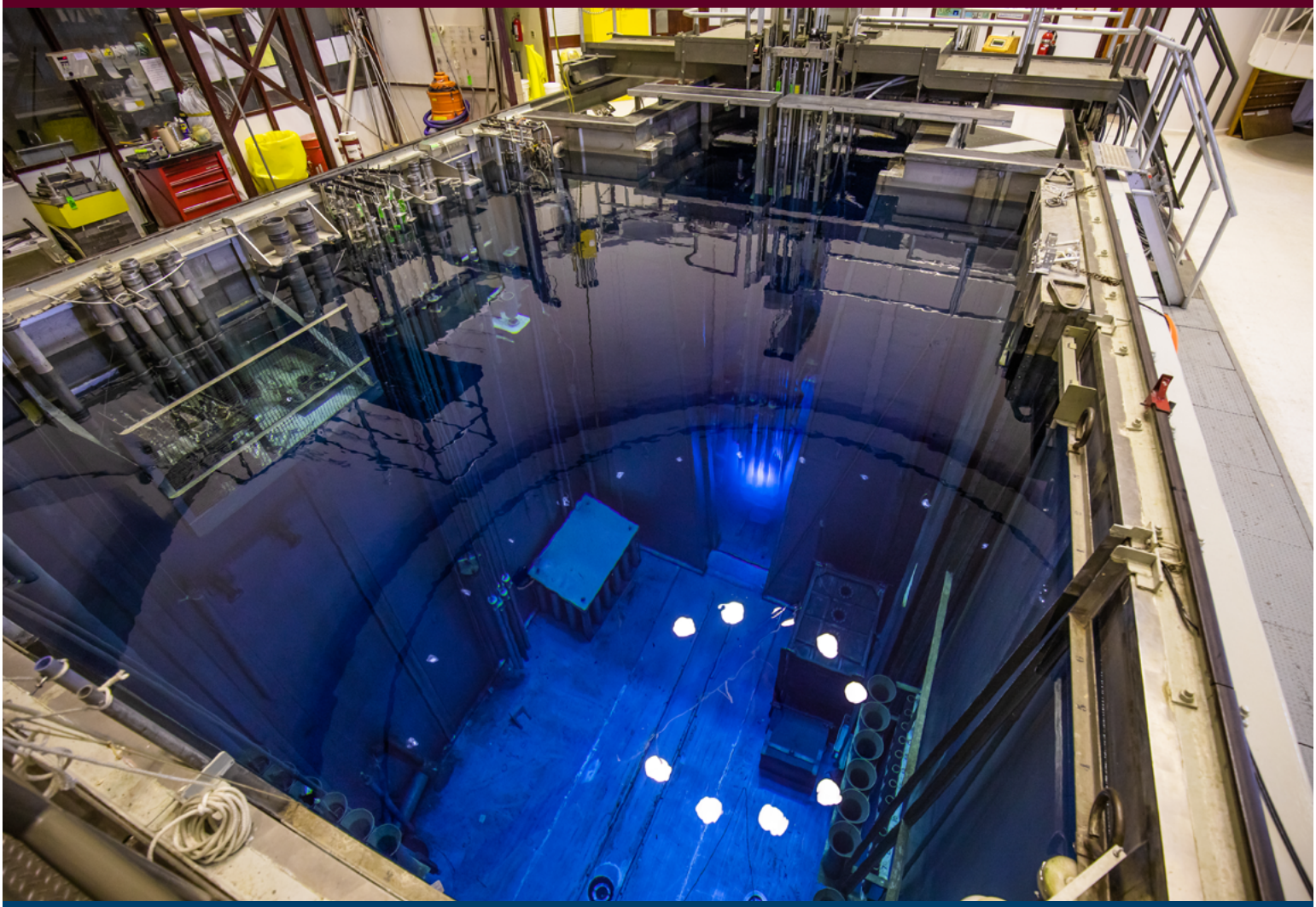
TEXAS A&M UNIVERSITY
Department of
Nuclear Engineering



NUCLEAR ENGINEERING STRATEGIC PLAN

2020-2025

DEPARTMENT OF NUCLEAR ENGINEERING
STRATEGIC PLAN

In fall 2019, with the arrival of Dr. Michael Nastasi as department head, the Department of Nuclear Engineering began a process to create a new strategic plan to set the department's course for the next five years. The process was guided by a steering committee of faculty and staff and was informed by appreciative inquiry and the SOAR method of strategic planning. Over the ensuing six months, our inclusive process engaged staff, students, faculty and Texas A&M University partners in data collection, structured conversations, a departmentwide SUMMIT and smaller workgroup activities. What follows represents a plan that will build on our collective strengths and help bring to fruition our collective aspirations.

Our plan includes the following four strategic initiatives and nine goals:

Strategic Initiative 1: Elevate Graduate and Undergraduate Programs	**Strategic Initiative 2:** Enhance Research Productivity and Relationships	**Strategic initiative 3:** Become a Best Place to Work and Learn	**Strategic Initiative 4:** Promote the Department's International Presence and Reputation
GOAL 1: Prepare students for productive nuclear engineering careers in academia and industry. **GOAL 2:** Modernize our teaching facilities.	**GOAL 3:** Produce world-class nuclear engineering research. **GOAL 4:** Develop strong relationships to support nuclear engineering research. **GOAL 5:** Secure external long-term funding to provide a base of support and growth.	**GOAL 6:** Create and sustain a diverse, inclusive, supportive, welcoming professional environment where students, staff and faculty can thrive. **GOAL 7:** Champion development of skills and competencies necessary for staff to grow personally and professionally throughout their career. **GOAL 8:** Create and sustain a supportive environment where faculty are productive and engaged.	**GOAL 9:** Tell our story to the world in order to attract faculty, students, partnerships and financial support.

OUR DEPARTMENT'S STRENGTHS

The Department of Nuclear Engineering's strategic plan builds on the following existing strengths:

- • Comprehensive program covering essential, interdisciplinary subfields of nuclear engineering
- • Programmatic reach via cross-listed minors in nuclear engineering and radiological health
- • Pockets of excellent research capability and resources
- • Well-integrated research and education
- • Strong ties with stakeholders, national labs and government agencies

VISION

Fostering technology-focused nuclear engineering scholarship, research and education for the betterment of Texas, the nation and the world.

MISSION

Texas A&M's Department of Nuclear Engineering cultivates an inclusive environment that sustains and promotes academic and research excellence. In service of our mission:

- We provide the premier U.S. graduate and undergraduate nuclear engineering program. Our curriculum prepares inquisitive critical thinkers who exhibit team spirit, leadership skills, interdisciplinary mindset, global vision and ethical professionalism.
- We graduate market-ready students who exceed employers' expectations and who grow professionally to assume prominent leadership roles.
- We encourage and reward faculty to produce relevant, impactful research that addresses current nuclear science and engineering challenges.
- We cultivate faculty who are highly sought for advice on matters of national importance and who assume leadership roles on the national and international scene.
- We foster an inclusive learning environment where faculty, staff and students are productive and engaged.

OUR STRATEGIC INITIATIVES

We are a student-centered department. This means that our activities are motivated by adding value to the educational experience of our undergraduate and graduate students either directly in the classroom, including through our research programs, or indirectly by raising the department's profile in the nuclear engineering community. The former is achieved by optimizing our curriculum, technical content of courses we offer, quality of our laboratories and diverse research portfolios. The latter is achieved by hiring and retaining renowned scholars on our faculty, facilitating national and international leadership roles for our faculty and engaging in high-visibility research. Our department is strongest when people are engaged and feel supported, using their strengths to their best advantage.

Our program rankings are important and we aspire to increasing our national standing. But we believe that increasing our rankings can never be the end goal; rather, ranking gains are the outcome of solid research publications, cutting-edge degree programs, multi-dimensional outreach combined with national and international awards, society fellowships and academy memberships, and supported by positive departmental and college messaging. If we focus on fundamentals, the rankings will surely follow.

NUEN **STRATEGIC AREAS**

STRATEGIC INITIATIVE 1:
ELEVATE GRADUATE AND UNDERGRADUATE PROGRAMS

We take most seriously our educational mission: to prepare the next generation of nuclear engineers and researchers to meet evolving needs in industry, national labs and academic settings. Our first strategic initiative is laser focused on elevating our undergraduate and graduate programs. We aspire to attract the best and brightest students. They will learn from and with faculty who care deeply about nuclear engineering education and who are equipped with cutting-edge technological tools. We will graduate students not only grounded in nuclear engineering fundamentals, but steeped in the Aggie values.

Goal 1: Prepare students for productive nuclear engineering careers in academia and industry

1.1 Provide undergraduate students with an excellent nuclear engineering education.

- Build a diverse community of educators who inspire, instruct and mentor students to succeed in a diverse global professional environment.
- Recruit a diverse group of excellent undergraduate students.
- Continuously review and appropriately update the curriculum (to enhance the program overall) via the ABET accreditation review process.
- Develop and expand distance education and certification programs.
- Promote and expand undergraduate research opportunities.
- Facilitate internships for students in industry and at national laboratories.
- Develop interdisciplinary courses that leverage Texas A&M partnerships.

1.2 Provide graduate students with an excellent nuclear engineering education.

- Recruit excellent graduate students who have promise for thriving nuclear engineering careers.
- Optimize the graduate student to faculty ratio.
- Increase funding support for graduate students.
- Develop and expand distance education and certification programs.
- Provide career development and training opportunities.

Goal 2: Modernize teaching facilities

- Work collaboratively with faculty and students to generate ways to update teaching lab equipment in order to provide state-of-the art learning experiences.
- Secure funds from the college and the university to support and update learning laboratories.

STRATEGIC INITIATIVE 2:
ENHANCE RESEARCH PRODUCTIVITY AND RELATIONSHIPS

Five research tracks (computational methods, nuclear security, health physics, power engineering and nuclear materials) underpin our department's solid scholarly reputation. While it is critical that we maintain our preeminence in those key areas of research, we must also have an eye on emerging research areas and be responsive to sponsor trends. Strategic faculty hires, ongoing faculty support and adaptability are key to a prolific publication pipeline.

Goal 3: Produce world-class nuclear engineering research

3.1 Develop and implement a long-term recruiting plan that will yield top faculty in desired areas of research strength.

3.2 Implement an internal process to facilitate responsiveness to funding needs and sponsor trends.

3.3 Build faculty clusters within the department for globally competitive research teams.

Goal 4: Develop strong relationships to support nuclear engineering research

4.1 Evaluate existing research partnerships and work to strengthen them.

4.2 Identify productive potential partnerships with national labs and industry and work to develop them.

Goal 5: Secure external long-term funding to provide a base of support and growth

5.1 5.1 Strengthen relationships with funding agencies in order for faculty to more proactively respond to opportunities.

5.2 Engage with former students who are currently at national labs and government agencies.

5.3 Actively initiate and participate in multidisciplinary program development opportunities within the department as well as across Texas A&M and with external partners.

STRATEGIC INITIATIVE 3:
BECOME A BEST PLACE TO WORK AND LEARN

We all do our best work when we feel included, supported and valued. We understand that when staff, students and faculty are engaged, they are more satisfied, which leads to increased productivity. Equally important is the fact that people who have a positive experience with nuclear engineering are far more likely to recommend the department to others. Staff, faculty and students all have a part to play in co-creating an uplifting departmental culture – collaboration and good intent are key to making nuclear engineering a BEST PLACE to work and learn.

GOAL 6: Create and sustain a diverse, inclusive, supportive, welcoming professional environment where students, staff and faculty can thrive

6.1 Promote a caring, diverse environment for all individuals.

6.2 Create a strong teamwork ethic and environment across the department.

6.3 Recognize faculty and staff who strive for excellence and proudly embody departmental values.

6.4 Strive to recognize faculty and staff through nominations for internal and external awards.

6.5 Practice transparency in defining shared values and goals of the department.

6.6 Create and maintain a safe feedback environment that allows constructive feedback at all levels within the department.

GOAL 7: Champion development of skills and competencies necessary for staff to grow individually and professionally throughout their career

7.1 Prioritize career planning.

- Meet with employees to define job descriptions and establish goals.
- Create a staff compensation policy and career development plan with steps for growth and promotion.

7.2 Encourage professional development.

- Encourage professional growth opportunities to sharpen existing skills or develop new ones, and enhance effectiveness and efficiency.
- Support internal and external educational and networking opportunities.

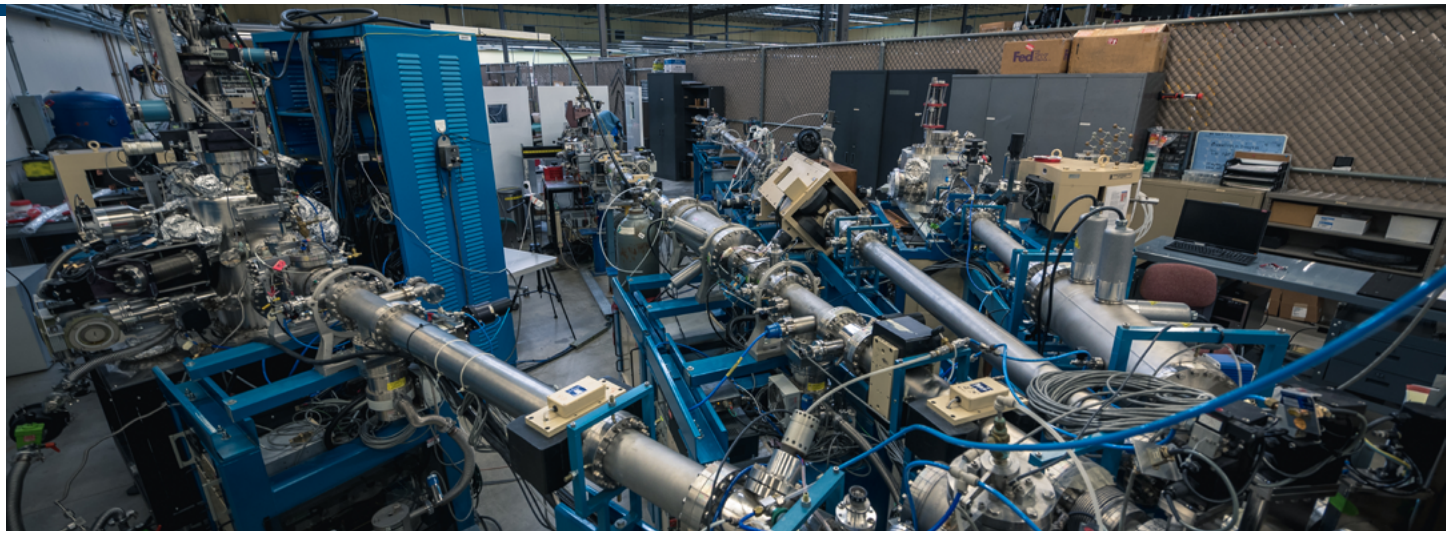
GOAL 8: Create and sustain a supportive environment where faculty are productive and engaged

8.1 Facilitate success of tenure-track faculty.

- Determine constructive and creative ways to optimize the usage of faculty time and prioritize mission-critical activities over less important tasks.
- Optimize teaching load and service assignments to support balanced career development and skill acquisition.
- Provide travel funds for invited talks and keynote speeches at major conferences.
- Develop a strategic mentoring program that provides prompt feedback.
- Provide targeted mentoring and editing assistance for proposal submissions.

8.2 Enhance support for tenured professors.

- Support and encourage continuous career development and career growth opportunities.
- Support faculty development leave.
- o Encourage short-term service and Intergovernmental Personnel Act assignments to funding agencies such as National Science



Foundation, Department of Energy, Department of Defense, etc.

- Increase number of endowed chairs and professorships in the department.

8.3 Enhance support for the Academic Professional Track (APT) faculty.

- Utilize APT faculty to optimally support the undergraduate and graduate teaching mission of the department and college.
- Encourage APT research faculty involvement in proposal development.
- Create and support career growth and professional development opportunities for APT faculty.
- Utilize APT faculty as a shared resource among the department, college and related research centers and laboratories.
- Identify appropriate university and community-service opportunities and encourage and acknowledge participation.

STRATEGIC INITIATIVE 4:
ELEVATE THE DEPARTMENT'S INTERNATIONAL PRESENCE & REPUTATION

Our department has so many positive stories to tell – stories of research success, job placement, staff innovation, career advancement, faculty and student awards and recognitions – and telling those stories to the world will provide a lift in all endeavor areas. We aspire to develop a strong brand for the department via strengthened strategic partnerships and augmented use of social media.

GOAL 9: Tell our story to the world in order to attract faculty, students, partnerships and financial support

9.1 Communicate with a branded voice through various mediums, i/e social media, website, publications, presentations.

9.2 Develop departmental branding that is recognizable and leverages the following values of Texas A&M Engineering: impactful, transformational, excellence, connected.

9.3 Ensure all communications reflect the breadth of the department.

9.4 Promote and market faculty research and professional success through available media resources, visitors, etc.

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