



# MAE STRATEGIC PLAN

## 2025-2030

**UF** Herbert Wertheim  
College of Engineering  
*Department of Mechanical  
& Aerospace Engineering*  
UNIVERSITY of FLORIDA

# SHAPING OUR FUTURE

On behalf of the MAE Strategic Planning Committee, we sincerely thank all the faculty, staff, students, alumni, and advisory board members who shared their best ideas for advancing our department into the future. This was the first time that the MAE department embarked on such an all-encompassing strategic planning process, highlights of which included: an online survey, five town halls, and a crucial MAE Fall Retreat with all faculty and staff. The resulting 5-year plan provides a touchstone reference for alignment with our overarching mission and for continuous improvement. Ultimately, we believe this strategic planning document is not only a blueprint for our future but also a reflection of our collaborative spirit and commitment to excellence.

Sincerely,  
Malisa Sarntinoranont (Committee Lead, Associate Chair of Faculty Affairs)  
Melanie DeProspero (Operations Lead, Staff Representative)  
Lawrence Ukeiley and Doug Spearot (Associate Chairs of Academic Affairs)  
Jim Trainham (Associate Chair of Industry Relations)  
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Warren Dixon (MAE Department Chair)



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# MISSION & VISION

The University of Florida Department of Mechanical and Aerospace Engineering is unwaveringly committed to cultivating a dynamic ecosystem of learning, collaboration, discovery, and innovation. We aspire to shape generations of visionary engineers and pioneer solutions to the world's grand challenges.

## Leadership in Education

UF MAE is committed to an unparalleled educational experience by providing a foundation for critical thinking, mastery of engineering principles, and passion for continuous learning. Through immersive and hands-on programs, we foster an open and collaborative environment where creativity flourishes, preparing graduates to thrive in a rapidly-evolving, complex world.

## Research Excellence

Guided by an unyielding commitment to pushing the boundaries of knowledge, UF MAE is a global leader in cutting-edge research and innovation. We engage in transformative research that addresses the world's grand challenges. We promote interdisciplinary collaboration, driving advances that transcend traditional boundaries and redefine the possibilities of technology.

## Driver of Economic Impact

Our contributions extend beyond academia, as we actively engage with industry partners, government agencies, and the broader community. We drive economic growth, create jobs, and elevate the status of the State of Florida, as a hub of technological innovation in the world. Our innovations drive changes to aerospace and mechanical engineering industries, including robotics and automation, atmospheric and space flight, national security, healthcare, agriculture, energy, and environmental sustainability.

## Exceptional Workplace

UF MAE is dedicated to creating a vibrant and inclusive community where students, staff, and faculty thrive. By fostering a culture of collaboration, respect, and continuous improvement, we attract and cultivate the brightest minds and nurture a diverse and dynamic workforce.

As leaders in education, pioneers in research, and drivers of economic impact, all within an exceptional work environment, UF MAE is a catalyst for transformation, shaping the future of our fields and inspiring a new era of engineering possibilities to create a better world for all.





# EDUCATION

*Provide a premier educational experience to foster success at UF and beyond.*

## Objective 1.1

Develop and implement an evolving strategy to provide a high-quality, and rigorous curriculum for students.

### Specific Actions

1. Standardize required undergraduate and core graduate courses for an exceptional and consistent educational experience, in coordination with the curriculum committee and undergraduate and graduate coordinators.
2. Appropriately resource faculty members to ensure high-quality experiences for students inside and outside of the classroom, including regular examination of teaching loads and evaluation of resources allotted for class assistance.
3. Ensure consistent experience throughout the curriculum by establishing a set of standards applicable to all courses taught in the department.
4. Continue to adhere to ABET principles and best practices, ensuring that ABET accreditation remains an integral part of the department's operating model.

## Objective 1.2

Provide an education based on fundamental principles with connections to contemporary technology tailored to address current and emerging needs of all department stakeholders.

### Specific Actions

1. Evolve the current curriculum annually through assessments such as post-graduation surveys of alumni and employers and investigations of aspirational peer institutions on curriculum.
2. Provide detailed and comprehensive messaging for classes and curriculum for students and other stakeholders, including sharing of learning outcomes.
3. Incorporate feedback from end of class student evaluations to improve instructional consistency and quality.



## Objective 1.3

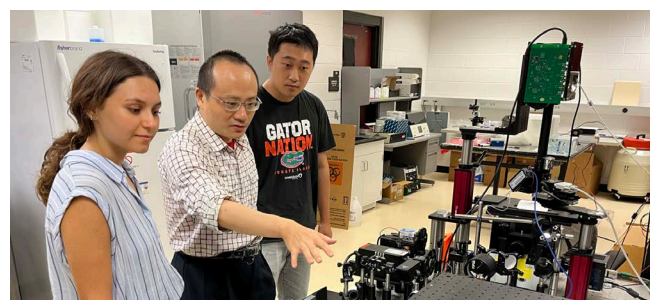
Collaborate with Herbert Wertheim College of Engineering (HWCOE) and UF to ensure adequate faculty and staff resourcing to support the educational mission.

### Specific Actions

1. Ensure department has appropriate resources to cover the spectrum of courses, on par or better than peer and aspirational institutions.
2. Make targeted improvements to the advising department to maintain National Academic Advising Association (NACADA) standards and provide hands-on training for advisors to understand department specific courses and outcomes.

### Education Key Performance Indicators

- Improvement in faculty feedback on experiences teaching new courses.
- Increased offerings of technical electives in undergraduate and graduate classes.
- Favorable feedback from students on end of course evaluation forms with respect to comprehension of classes, learning objectives and consistency between course sections.
- Improved feedback from students about advising quality and availability.



# RESEARCH & INNOVATION

*Push the boundaries of knowledge to be a global leader in cutting-edge research and innovation.*

## Objective 2.1

Enhance research infrastructure to accelerate research from ideation to project completion through improvements to facilities, adoption of best practices, and implementation of standard processes pre- and post- award.

### Specific Actions

1. Create and maintain a list of major equipment and critical infrastructure within the department to facilitate the generation of preliminary data supported by a process for shared facility usage and maintenance.
2. Support current and future research activities through modernization to yield state-of-the-art laboratory facilities across campus.
3. Identify, document, and adopt best practices for training and research mentorship, which include formalizing a research mentorship program, educating staff on ongoing research, and recruiting and supporting high-quality, diverse graduate students.
4. Identify inefficiencies within the research pre- and post-award process and create and adopt best practices around standards for contracts and grants preparation and management.

## Objective 2.2

Facilitate larger impact research programs and identify center-level opportunities through strategic hiring, promotion of Research Affinity groups, and collaborations at UF and beyond.

### Specific Actions

1. Make strategic hires in identified research priority areas through a focused approach including identification of gaps and recruitment of high-potential and current leaders in their fields that will build center-level and high-visibility programs in strategic research areas.
2. Activate and energize existing Research Affinity

groups to develop strategic research priorities to address specific challenges MAE is positioned to support.

3. Engage with multiple UF-wide institutes to write large scale proposals alongside multidisciplinary faculty to create greater societal impact through mission-focused programs.

## Objective 2.3

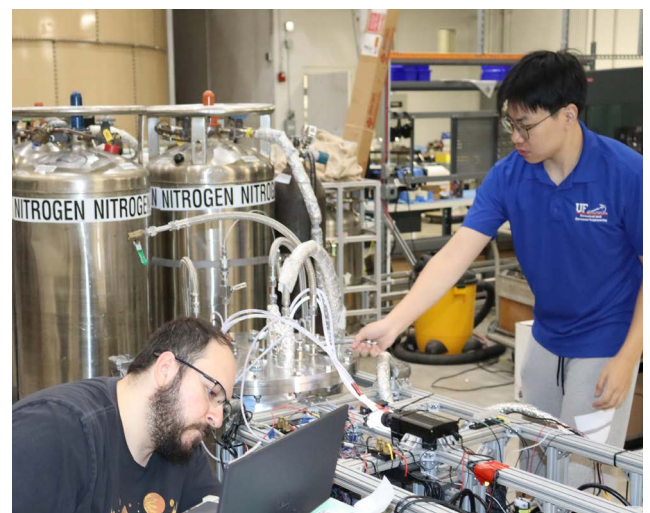
Build stronger, more intentional relationships with industry partners to collaborate and fund major research endeavors.

### Specific Actions

1. Leverage resources such as the External Advisory Board (EAB), Alumni Relations, HWCOE, and UF Innovate to identify and engage select industry partners.
2. Create opportunities for faculty to interact with industry partners to learn about interests, opportunities, and areas of need.
3. Secure large industry research partnerships to build consortiums, collaborate on programs of mutual interest, and help commercialize research outcomes.

## Research Key Performance Indicators

- Increase in number of active research faculty.
- Increase in scholarly output and research expenditures.
- Increase in department participation in center-level research programs.
- Major industry partnerships in place to collaborate on research topics.



# STUDENT EXPERIENCE

***Provide experiences and opportunities for students to develop skills necessary to thrive in their professions and the world.***

## **Objective 3.1**

Enhance students' career readiness by providing experiential learning opportunities outside the classroom, leveraging departmental, HWCOE, and UF resources.

### **Specific Actions**

1. Develop and expand partnerships with companies to provide practical work experience through internships and co-ops.
2. Collaborate with faculty to match students with active undergraduate research projects, highlighting funding and recognition opportunities to incentivize participation.
3. Partner with existing student groups to provide guidance, funding, and faculty sponsorship, and provide a central repository for students to easily find and join organizations aligned with their interests.
4. Create a hub where students can find tools, workshops, info sessions, and career readiness events to prepare for the next chapter of their careers.

## **Objective 3.2**

Equip students with the professional and life skills to thrive in the workforce or graduate studies through development programs, mentoring, and engagement with key resources.

### **Specific Actions**

1. Forge stronger partnerships with the Engineering Leadership Institute and C3 to provide workshops and host seminars and panels on essential workforce topics such as professional development, interpersonal skills, and workplace readiness.
2. Engage with existing mentoring programs to pair students with faculty, alumni, and industry professionals for one-on-one career guidance and networking, and establish peer mentoring groups to prepare students for

internships, interviews, and graduate school.

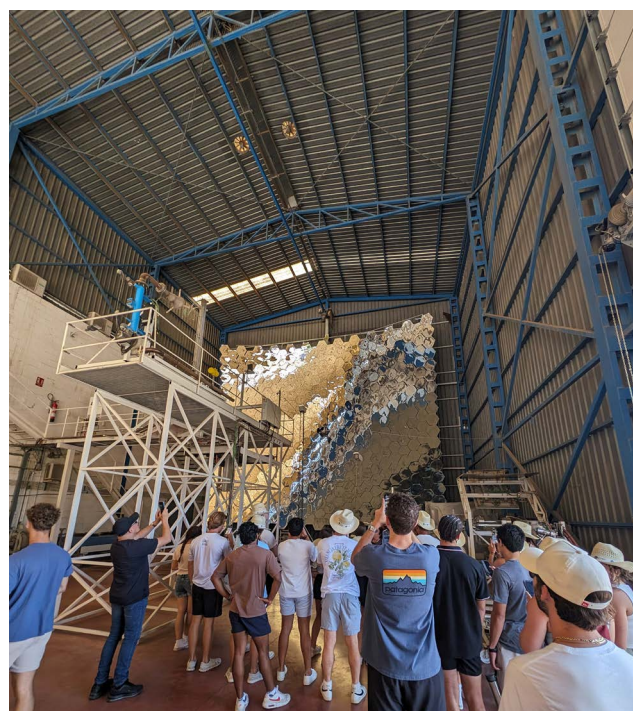
3. Facilitate graduate school readiness by offering workshops on personal statements, recommendation letters, external fellowship opportunities, and identification of faculty sponsors and graduate programs.

## **Objective 3.3**

Foster a sense of inclusion, belonging, and community to create a welcoming and supportive environment for all students.

### **Specific Actions**

1. Create regular opportunities for faculty and students to connect socially and academically, such as department-wide events, mixers, buddy programs, and study groups, tailored to diverse interests and backgrounds.
2. Create collaboration spaces where students can interact informally, work together on projects, share experiences, and access peer or faculty support in a welcoming setting.
3. Establish a student experience council to gather feedback on department culture, identify challenges, and implement ideas for building a stronger sense of community.





# STUDENT EXPERIENCE

## Objective 3.4

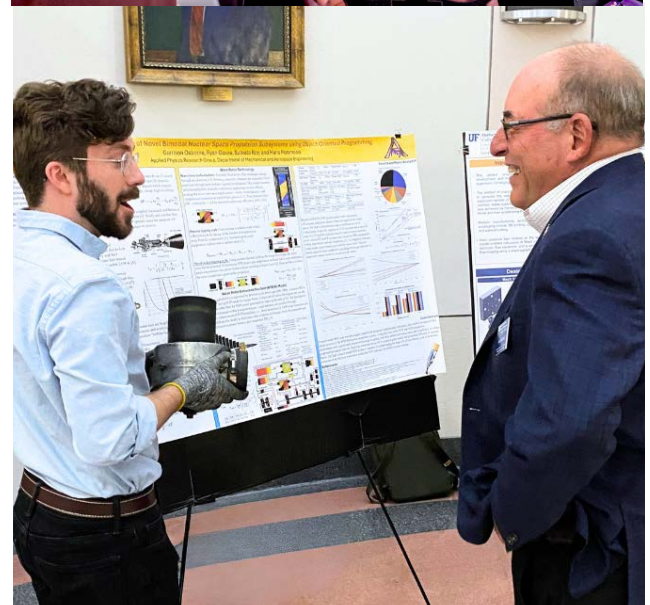
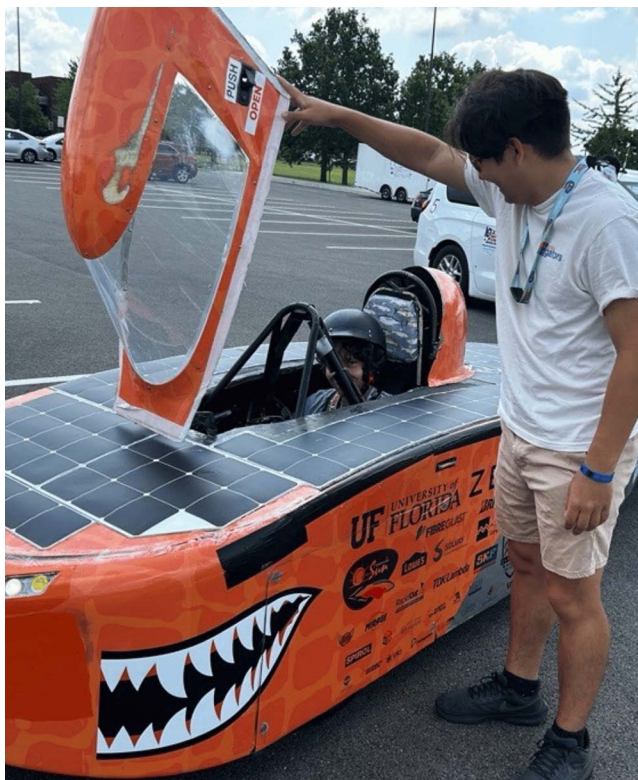
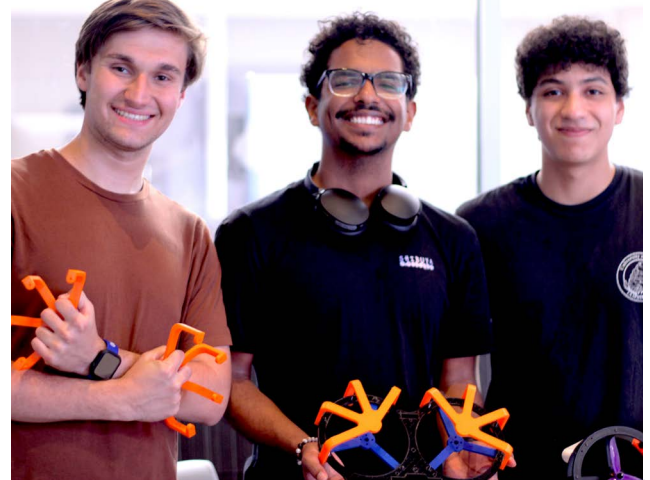
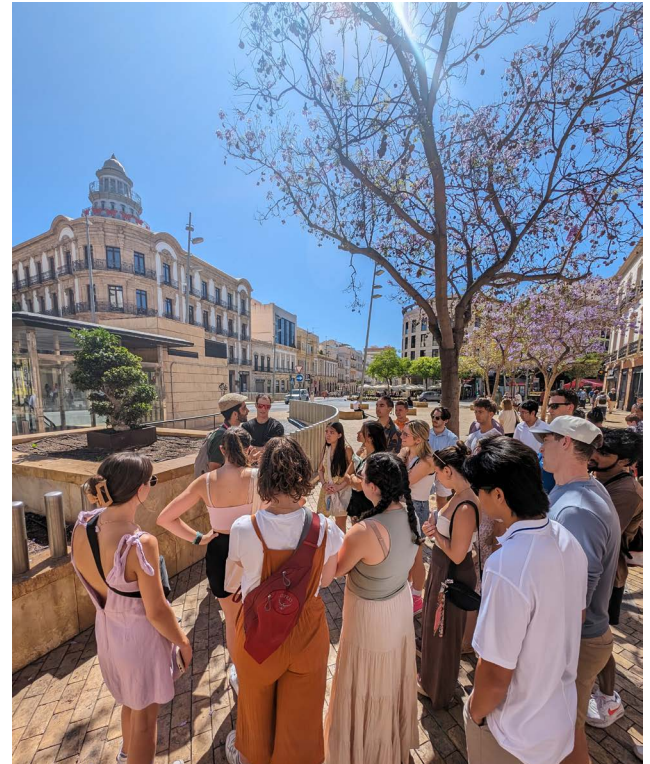
Strengthen alumni engagement to foster ongoing connections with the department and provide valuable experiences for current students.

### Specific Actions

1. Support alumni engagement efforts to keep graduates connected, encourage involvement in mentoring programs and other departmental initiatives, and create opportunities to recruit and hire students.
2. Host regular events, such as alumni panels, networking sessions, and guest lectures, where graduates can share their career experiences and insights with current students.
3. Engage alumni in existing mentorship programs that pair alumni with students for guidance on career development, internships, graduate school, and navigating professional challenges.

### Experience Key Performance Indicators

- Increase in student involvement beyond the classroom.
- Increase in job placement after graduation.
- Improved student satisfaction on campus demonstrated through exit surveys.
- Increase in alumni engagement.





# EXCEPTIONAL WORKPLACE

**Create a vibrant and inclusive community where students, post-doctoral researchers, staff, and faculty thrive in a culture of collaboration, respect, and continuous improvement.**



## Objective 4.1

Support the MAE workforce through professional development opportunities, mentoring, improved physical spaces, and a welcoming environment for all team members.

### Specific Actions

1. Support a formal department mentoring program and provide tools to ensure mentors and mentees develop productive and impactful mentoring relationships.
2. Provide better awareness, funding support, and time allocation for professional development opportunities such as conferences, study abroad, training courses, sabbaticals, and promotional pathways.
3. Develop and provide a welcome kit for a more consistent and structured onboarding of new department members.
4. Provide communal spaces and improved workplaces to create a welcoming and productive physical environment for all department members.

## Objective 4.2

Foster a culture of communication, collaboration, respect, and continuous improvement through comprehensive efforts that impact all department employees.

### Specific Actions

1. Promote communication and collaboration by modeling best practices and sharing them across the department.
2. Strengthen the MAE intranet by regularly producing internal facing content such as bios, highlights, new developments, and better tools.
3. Build a culture of continuous improvement by surveying faculty and staff annually and incorporating feedback into departmental priorities.
4. Foster a sense of inclusion, belonging, and community to create a welcoming and supportive environment for all department members.
5. Streamline internal processes like onboarding, travel, and remote work through implementation of standards that increase efficiency.

### Workplace Key Performance Indicators

- Improved progression and career development of the MAE workforce.
- Improved employee satisfaction as seen through annual surveys, with high participation rates.
- Levels of voluntary attrition in line with or better than the university and reduced vacancies in departmental positions.
- Increase in the number of continuous improvement initiatives successfully implemented annually.





# REPUTATION & VISIBILITY

***Elevate awareness of the department's societal impact within the communities that shape our reputation.***

## **Objective 5.1**

Create clarity of purpose and mission for the marketing and communications (MARCOM) team, enabling comprehensive and tailored marketing and communication strategies to reach high-impact, targeted audiences.

### **Specific Actions**

1. Create a unified mission and vision for MARCOM, with objectives in place regarding audiences, development of content, and success measures.
2. Broaden impact of communications by identifying priority stakeholders in academics, industry, student populations, and alumni while delivering curated content.
3. Implement strategies for peer-to-peer stories and engagement, such as interviews with design team members and undergraduate research students on their projects.
4. Identify and share best practices for faculty and staff to reshare and repost departmental social media products.
5. Develop systematic routines to showcase the department for department chairs/heads and program managers and establish best practices for other distinguished guests who visit for tours, meetings, or seminars.

## **Objective 5.2**

Increase awareness of MAE's societal impact through collaborative marketing and communications.

### **Specific Actions**

1. Develop processes by which MARCOM is provided timely information on grant awards, conference attendance, honors, recognitions, milestones, and other noteworthy events that happen within the department.
2. Focus communications on timely and impactful

stories centered on bettering the lives of people and our communities, with high-impact stories shared to national media outlets.

3. Recognize alumni, faculty, staff, and students through a systematic approach by the awards committee to identify honors and recognitions.
4. Enhance the relationship between MAE, HWCOE and UF MARCOM teams to drive greater visibility and collaboration for broader reach.
5. Implement a maintenance protocol for quality assurance of web content through regular audits, including evaluation of webpage traffic, using audit results to drive improvements in content, page layout, and design.

## **Objective 5.3**

Foster greater interactions between national thought leaders and department experts.

### **Specific Actions**

1. Create a process to regularly identify aspirational list of national thought leaders and bring to campus through seminars, tech talk exchanges with industry partners, and opportunities to give keynote and plenary lectures.
2. Host national conferences and workshops around thought leaders in priority research areas.
3. Work to promote alumni, faculty, and staff to visible positions of influence such as advisory boards, program managers, government organizations, and SME consultants.

### **Reputation Key Performance Indicators**

- Increase in marketing and communication reach, including internal features at the HWCOE, UF level and external features within local, state, and national media.
- Continued awareness and engagement from the global community.
- Increase in recognitions for individuals associated with MAE.
- Increase in national thought leader visits to the department.
- Increase in national program rankings.

