



THE UNIVERSITY OF ARIZONA

College of Engineering

## DEPARTMENT HEAD PROFILE – AEROSPACE & MECHANICAL ENGINEERING



Prepared by

**Tamal Bose, PhD**

*Department Head, Electrical and Computer Engineering*

[tbose@arizona.edu](mailto:tbose@arizona.edu)

**Kathleen L. Melde, PhD**

*Associate Dean, Faculty Affairs and Inclusion, College of Engineering*

[melde@arizona.edu](mailto:melde@arizona.edu)

July 2021

This document profiles the position of Department Head, Aerospace and Mechanical Engineering, College of Engineering at the University of Arizona. It is intended to help qualified individuals assess their interest in the position.

# The Opportunity

## Position Summary

The University of Arizona seeks a strategic, collaborative leader to serve as head of Aerospace and Mechanical Engineering. The head of AME, who reports to the College of Engineering dean, leads a dynamic department with a diverse group of faculty, staff and students, plus modern teaching and research facilities. The department head must be an innovative and visionary academic leader who can spearhead the continuing transformation of AME for the challenges of the 21st century.

Visit [ame.engineering.arizona.edu](http://ame.engineering.arizona.edu) to learn more about the department.

## Invitation to Apply

Please see [bit.ly/az-ame-dept-head](http://bit.ly/az-ame-dept-head) for the complete job posting.



## Expansive Research Enterprise

With \$5 million in annual research expenditures, University of Arizona Aerospace and Mechanical Engineering is internationally recognized in a number of high-profile research areas, including fluid dynamics and hypersonic flight. This is in addition to the traditional areas of thermal sciences, dynamics and control, design and optimization, computational mechanics, and solid and structural mechanics. AME researchers are also integral to interdisciplinary endeavors around the globe involving orbital mechanics, space situational awareness, space exploration, robotics and optical sciences.

AME is a national leader in wind tunnel facilities, including the Boundary-Layer Stability and Transition Laboratory with a hypersonic wind tunnel capable of testing at Mach 5 air speeds.

Strengths in funding across many areas – including No. 6 in NASA funds – make the University of Arizona one of the top research institutions in the country. Further, the University is ranked among the National Science Foundation's top 25 for research funding. And Times Higher Education puts UArizona in the top 20 U.S. public research institutions.

The department has 35 faculty members, 23 of whom are tenured or tenure track, including a member of the National Academy of Engineering.

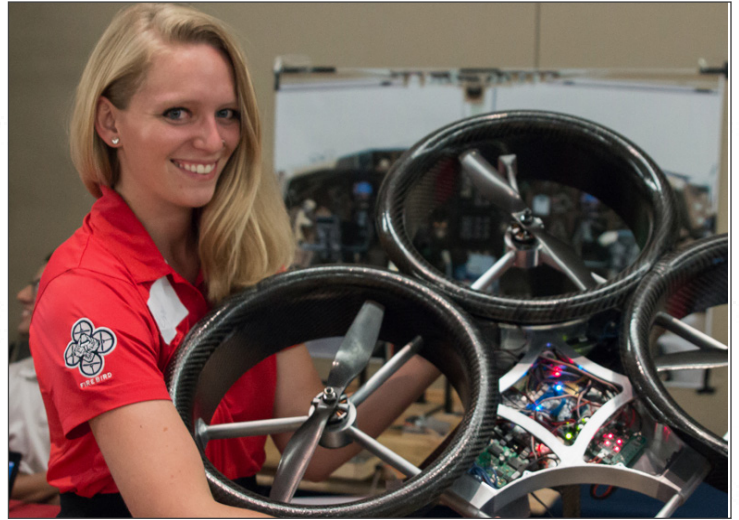


## High-Ranking Academics

University of Arizona Aerospace and Mechanical Engineering has longstanding ties to industry and government – NASA, Raytheon, Honeywell and Boeing, for example – in research, manufacturing and workforce development. In fact, companies like Raytheon are hiring UArizona engineers as fast as they graduate. AME's undergraduate and graduate degree programs, curriculum, and extracurricular activities are not only aligned with industry and national security needs, but they are also ranked among the best in the nation.

U.S. News and World Report ranks UArizona Aerospace Engineering at 33 among public institutions. Further, UArizona is the state's first four-year public university to be federally recognized as a Hispanic Serving Institution, a designation granted only to institutions with at least 25% Hispanic undergraduate student enrollment. Overall, Forbes has recognized the University of Arizona for its combination of first-rate educational opportunities and affordable pricing.

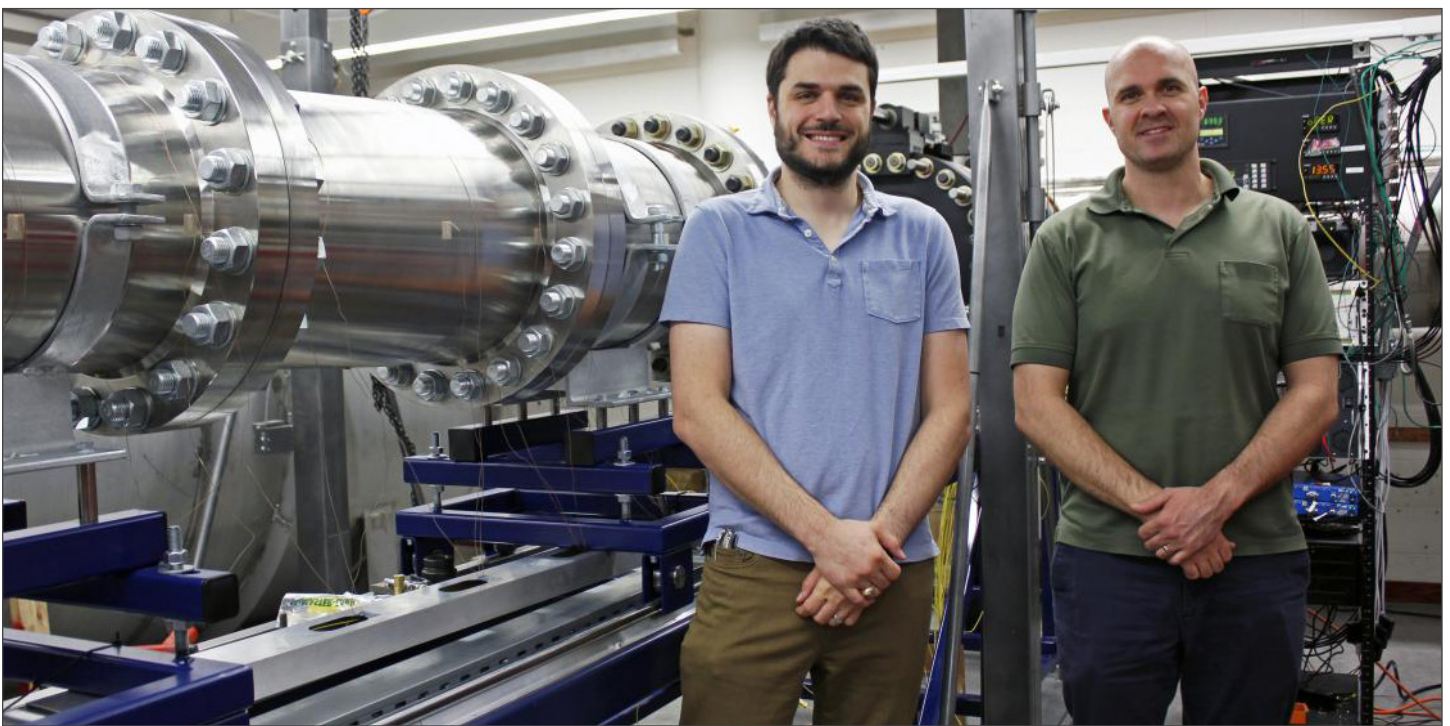
Housed in a modern, 91,000-square-foot building with a number of design facilities and fabrication shops, the department has a student population of well over 600. Aerospace and Mechanical Engineering student design-build clubs are among the most active and engaging on campus.



## Role of the Aerospace and Mechanical Engineering Department Head

The department head is charged with creatively driving and transforming AME's research advancements and providing an equitable high-quality educational experience for all students. The department head collaboratively develops and annually reviews a three-year department plan that supports University and College of Engineering goals.

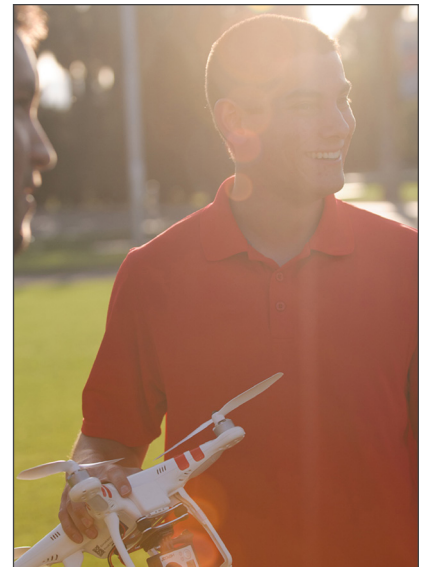
The AME head makes informed, goal-oriented decisions on faculty recruitment, diversity, development, performance and promotion, and student recruitment. The head keeps the department focused on educating Aerospace and Mechanical Engineering graduates so they possess all the tools to be productive in a modern industrial setting. The head also identifies and promotes research opportunities, actively facilitates and participates in interdisciplinary research, and implements new initiatives in the department's degree programs.



An important component of the role is overseeing the department's operations, including budgets, resources, fiscal management and ABET accreditation. In short, the head manages and bolsters the department's finances by increasing enrollment and initiating new programs that capitalize on the University's funding model and other revenue streams.

Maintaining positive and constructive relationships with entities associated with AME, the department head identifies common objectives and opportunities to share resources while ensuring a focus on goal achievement and keeping stakeholders informed of progress and change. They are key to maintaining and developing relationships with alumni and industry partners, including further strengthening ties around funded research.

The AME head maintains and bolsters an inclusive, positive workplace environment that fosters a sense of community for students, alumni, staff and faculty.



## Professional Qualifications and Personal Qualities

The successful candidate will have a distinguished record of achievement in scholarship, research and/or professional practice commensurate with an appointment at the rank of full professor with tenure. The candidate should demonstrate effective managerial leadership, clear communication, and a commitment to shared governance, community engagement, and diversity, equity and inclusion. The successful candidate must demonstrate high ethical standards and is expected to operate in a transparent and collegial way. The candidate must be responsive in a timely manner to the needs of faculty, staff and students in the department.



### Minimum Qualifications

- PhD in Aerospace Engineering, Mechanical Engineering, or a related field
- A record of scholarly achievement and/or technical papers published in nationally recognized, peer-reviewed journals
- Strong oral and communication skills
- Proven leadership skills with multidisciplinary teams
- Track record of collaboratively building a vision and following through to a successful outcome
- Capable of inspiring and recruiting exceptional students and accomplished faculty and staff
- History of successful funding from industry and government
- Commitment to an inclusive departmental culture

### Preferred Qualifications

- Administrative experience as head or associate head, center director, or equivalent leadership position
- Membership on boards of academic journals and/or professional associations
- Experience with online programs
- Experience working with industry through direct employment or cooperative research and development activities; skills for effective communication with internal and external constituents
- Commitment to participatory decision-making
- Record of engagement with diverse communities and related issues
- Fundraising experience



## Procedure for Candidacy

Submit applications online at [talent.arizona.edu](https://talent.arizona.edu) (citing posting **req5895**). Include the following:

- Cover letter
- Curriculum vitae
- Statements of teaching philosophy and research
- Leadership statement, including commitment to diversity

Alternatively, candidate nominations and inquiries will be considered. Questions should be directed to the chair of the search committee, Tamal Bose, head of UArizona Electrical and Computer Engineering ([tbose@arizona.edu](mailto:tbose@arizona.edu)) or Kathleen L. Melde, College of Engineering associate dean for faculty affairs and inclusion ([melde@arizona.edu](mailto:melde@arizona.edu)). The initial review of applications will commence in late September 2021.

## University of Arizona College of Engineering

The University of Arizona College of Engineering offers 13 graduate degrees and 16 undergraduate degrees through 10 departments, including two in other colleges that jointly administer programs. The College of Engineering departments are:

- Aerospace and Mechanical Engineering
- Biosystems Engineering
- Biomedical Engineering
- Chemical and Environmental Engineering
- Civil and Architectural Engineering and Mechanics
- Electrical and Computer Engineering
- Materials Science and Engineering
- Mining and Geological Engineering
- Optical Sciences and Engineering
- Systems and Industrial Engineering

Among the College's research strengths are:

- hypersonic flight and space surveillance
- disease diagnostics, implants and wearable medical devices
- quantum communication and photonic sensing
- additive manufacturing
- mining and mineral resources
- intelligent traffic systems
- water reuse
- solar power and biofuels

U.S. News & World Report ranks the College as one of the top engineering schools in the nation.

## Commitment to Diversity and Inclusion

The American Society for Engineering Education and its Engineering Deans Council recognized the University of Arizona with a Bronze Award in the inaugural ASEE Diversity Recognition Program. The College of Engineering was the first program in Arizona to receive this distinction. The honor is given to colleges that sign the ASEE Deans Diversity Pledge, build the infrastructure to support diverse populations, have at least one K-12 or community college pipeline activity, and commit to a diversity and inclusion plan with measurable goals.

*"Such recognition by ASEE reinforces our strong commitment to diversity and inclusion and sends the message to our students and faculty members that we are serious about these endeavors."*

**DAVID W. HAHN**, *Craig M. Berge Dean of the College of Engineering*

Women engineering faculty and staff are represented prominently in University leadership. Liesl Folks is senior vice president for academic affairs and provost, Elizabeth Cantwell is senior vice president for research and innovation, and Jennifer Barton is director of the interdisciplinary BIO5 Institute. Within the College, Kathleen Melde leads faculty affairs and inclusion, Kriss Pope is the assistant dean of finance and administration, and Margie Puerta Edson is assistant dean of development and corporate relations.

The UArizona chapter of the ASEE Collaborative for Engineering Education Research and Outreach provides an interdisciplinary campus network for promoting engineering education and providing students with service, research and professional opportunities. The University is also home to student chapters of the National Society of Black Engineers, Society for Advancement of Hispanics/Chicanos and Native Americans in Science, Society of Asian Scientists and Engineers, Society of Hispanic Professional Engineers, and Society of Women Engineers.



## Established Entrepreneurial Culture

The University of Arizona embraces the entrepreneurial spirit of its faculty, students and staff, as engineering is a major driver of invention and technological advancement. From experiential learning for students to industry sponsored research and strong commercialization support, the College has a long history of entrepreneurial success – including dozens of active startups and several major acquisitions.

## Craig M. Berge Design Program, an Experiential Undergraduate Curriculum

Through a generous donation, the College launched the Craig M. Berge Engineering Design Program in 2019. From first-year competitions and maker fests to industry-sponsored capstone projects, this four-year program ties design, manufacturing and commercialization to all levels of the undergraduate curriculum. It immerses students in hands-on design, community projects and business instruction, major-specific design courses, and real-life projects. In the last couple of years, about 600 students and 100 companies have participated annually in the Craig M. Berge Design Day, which showcases senior projects.

## Tech Launch Arizona

Inventors work with Tech Launch Arizona to secure their intellectual property, typically through patent applications, and identify the best paths to commercialization. Additionally, TLA puts on workshops and seminars while providing seed funding for product prototypes.

## McGuire Center for Entrepreneurship

Resources such as the New Venture Program in the McGuire Center for Entrepreneurship at the Eller College of Business also assist students and faculty with moving products to market.

## Accomplished, Visionary College Leadership

**David W. Hahn, Craig M. Berge Dean**

David Hahn, who earned a bachelor's degree in 1986 and a doctorate in 1992 from Louisiana State University, is an accomplished mechanical engineer specializing in thermal sciences and laser-based diagnostics, including renewable energy and biophotonics.

A champion of diversity in engineering, he has more than two decades of experience in higher education and with national agencies and laboratories. Hahn joined the College as dean in 2019 as it embarked on establishment of a four-year undergraduate design program with renewed commitment to strengthening experiential education and focusing on today's most pressing issues – food and water, energy, health care, and security.

He had a 20-year career at the University of Florida, where he served most recently as chair of mechanical and aerospace engineering. Under his leadership, the university built a 4,000-square-foot student design center, his department grew to the largest on campus in terms of student enrollment, and the female student population in mechanical and aerospace engineering increased to 50% above the national average.





## Working at UArizona and Living in Tucson

University of Arizona employees appreciate its collegial and inclusive culture, commitment to diversity and shared decision making. Members of the University community enjoy competitive benefits, a nationally recognized work/life program, innovative leadership development initiatives, generous tuition reductions for dependents, and family friendly options, such as paid parental leave. For extensive information about the benefits of working at the University of Arizona, visit [talent.arizona.edu](https://talent.arizona.edu).

The University is located in a tech corridor well represented in aerospace and defense, border technology, optics and photonics, solar and renewable energy, mining and bioscience. The city may be in a semi-arid region, which certainly lends to the UArizona College of Engineering's expertise in water conservation and energy sustainability. But the Sonoran Desert – one of the most diverse desert ecosystems in the world – is anything but typical. Mountain ranges towering upwards of 9,000 feet surround the city of a half million, and many students, faculty members and their families spend their free time hiking and biking the canyon floors and mountain trails. In town, a streetcar service connects the University to a bustling Fourth Avenue and downtown with endless choices for dining, family and cultural events, nightlife, concerts and theater.

See [visitTucson.org](https://visitTucson.org) to find out why and how Tucson is calling you!





THE UNIVERSITY OF ARIZONA

College of Engineering



[engineering.arizona.edu](http://engineering.arizona.edu)