AUS | الجامعة الأميركية في الشارقة
American University of Sharjah

PhD in MATERIALS SCIENCE AND ENGINEERING

American University of Sharjah (AUS) is a regional leader in sustainable engineering research and applications.

Take advantage of the opportunity to advance your own research career with a PhD in Materials Science and Engineering (PhD-MSE) from the College of Arts and Sciences at AUS. The program offers a unique opportunity for talented bachelor's degree holders from selected programs to apply directly through our Direct Admission Program, allowing you to get an earlier start on your doctoral studies and fast-track your career in the field.

As the global focus on environmental sustainability becomes increasingly urgent, AUS is driving research and development to address society's infrastructure needs for today and tomorrow.

The PhD-MSE at AUS is designed to equip and motivate future researchers and future scientists and engineers of sustainable materials with the advanced knowledge and skills they require to address these urgent needs.

Offered in collaboration with AUS' College of Engineering and College of Architecture, Art and Design, the program focuses on four multidisciplinary research areas:

- Advanced Materials including the properties, design, testing, production and usage of novel construction materials, smart and functional materials, composite materials, and nanomaterials for electronics, healthcare and chemical applications
- Materials for Energy and Environment including water treatment chemicals and materials, renewable power technologies, energy conversion and harvesting materials, and green technologies
- Structures including analysis, design, maintenance, testing, and construction of sustainable infrastructure systems for buildings, transportation, oil and gas, and power generation industries and architectures
- Analytical and Computational Modeling and Simulation of material and structural response to use conditions to guide the development of new materials and structures

The program consists of two components:

Courses related to key aspects of theoretical and applied research, as well as those that suit the research interests of individual students. Candidates will sit a qualifying PhD exam after finishing **12 credits** of coursework.

A doctoral dissertation, allowing students to develop cutting-edge research competencies and generate original scientific work that can be published in reputed international journals.

Reasons to choose a graduate program at the AUS College of Arts and Sciences

AUS is licensed and its programs are accredited by the Commission for Academic Accreditation of the United Arab Emirates Ministry of Higher Education and Scientific Research. AUS is also accredited in the United States of America by the Middle States Commission on Higher Education (1007 North Orange Street, 4th Floor, MB 166#, Wilmington, DE 19801 USA).

AUS boasts the very best resources and facilities, including a state-of-the-art engineering and sciences building, a well-equipped Materials Science Research Facility, a recently renovated chemistry building and the region's most comprehensive design labs.

Full-time students of the PhD-MSE program may be granted a full assistantship covering the total cost of tuition. Part-time students may also qualify for partial assistantships.

AUS PhD students actively engage in research with faculty members and have opportunities to publish their work.

Hailing from some of the world's leading science and engineering universities, AUS faculty are accomplished researchers working at the cutting edge of their areas of research.

AUS offers flexible study arrangements for busy professionals, including part-time options.

AUS has a proud tradition of multiculturalism, ranking among the top five universities with the highest percentage of international students (Times Higher Education 2024).

Find out more: w.aus.edu/cas/phdmse

Degree Requirements

PhD in Materials Science and Engineering (PhD-MSE)

The PhD-MSE program is for future researchers and academics, providing advanced, specialized knowledge in materials science and engineering as they develop the skills they need to develop cutting-edge research in their chosen field.

The program builds on a solid theoretical and technical foundation of science and engineering, offering advanced knowledge in areas such as advanced characterization and analytical techniques, nanomaterials, polymers, composite materials, catalysis, computational materials science, advanced mechanics of materials, and metallurgy, with the program ultimately concluding in a final research dissertation.

To earn the PhD-MSE degree, the candidate needs to successfully complete the following requirements:

- **Courses:** a minimum of **24 credits** for students admitted with a master's degree and a minimum of **36 credits (inclusive of 6 credits of bridging courses)** for students admitted with a bachelor's degree.
- **PhD Dissertation:** a minimum of **30 credits** of research work

Courses

Doctoral students addmited with a bachelor's degree must complete **10 courses (30 credits)**, while students admitted with a master's degree must complete **8 courses (24 credits)** from the below list:

- **MSE 705** Diffraction and Crystallography
- **MSE 707** Magnetic Materials and Devices
- **MSE 708** Electronic Properties of Materials
- **MSE 710** Advanced Thermodynamics in Materials Science and Engineering
- **MSE 711** Kinetics of Materials
- **MSE 718** Materials for Energy Production and Storage
- **MSE 720** Advanced Characterization and Analytical Techniques
- **MSE 721** Surface Science and Technology
- **MSE 730** Advanced Mechanics of Materials
- **MSE 731** Plasticity
- **MSE 732** Fatigue of Materials and Structures
- **MSE 733** Mechanics of Laminated Composite Structures
- **MSE 734** Physical Metallurgy
- **MSE 740** Computational Methods in Materials Science and Engineering
- **MSE 741** Advanced Finite Element Method in Materials Science and Engineering
- **MSE 750** Nanomaterials Science and Applications
- **MSE 760** Advanced Corrosion
- **MSE 761** Advanced Polymers and Composite Materials
- **MSE 794** Special Topics in Materials Science and Engineering

Dissertation and Qualifying Examination

- **MSE 790** Qualifying Examination
- **MSE 795** Doctoral Seminar
- **MSE 799** PhD Dissertation

Admission Requirements

Applicants to the program must:

- have earned a master's degree in a relevant discipline with a minimum **CGPA of 3.0**. Alternatively, through the direct admission program, bachelor of science degree holders with a minimum **CGPA of 3.5** in any of the following fields: materials science, materials engineering, physics, chemistry, mechanical engineering, electrical engineering, chemical engineering, or civil engineering can be directly admitted to the program
- have attained a minimum Internet-Based **TOEFL score of 80** or a minimum **IELTS score of 6.5** (Academic Version)
- submit three letters of recommendation, a statement of purpose and a current vitae/resume
- Applicants with a relevant master's or bachelor's degree but not in materials science or materials engineering could be required to complete the following remedial (bridging) courses:
  - **MSE 500** Fundamentals of Materials Science and Engineering
  - **MSE 510** Thermodynamics in Materials Science and Engineering
- Direct admission students are required to complete the following additional bridging courses:
  - **NGN 500** Advanced Engineering Mathematics
  - **NGN 509** Computational Methods for Engineering

Tuition Fees*

AED 5,320 / per credit hour

*Tuition and fees are subject to change. Check w.aus.edu/phd-fees for updated information.

Graduate Assistantships

A number of Graduate Assistantships (GAs) are awarded on a competitive basis to PhD students. GAs cover full or partial tuition fee waiver and/or a stipend. The GA is offered for a maximum of four years.

Duration of Study

The expected duration for completion of the PhD-MSE degree program is **four years** for students admitted with master's degree and **five years** for direct admission students. The maximum duration of study is **ten years**.

Approved by the UAE Ministry of Education's Higher Education Affairs Division.

Why AUS?

AUS was founded in 1997 by His Highness Sheikh Dr. Sultan Bin Muhammad Al Qasimi, Member of the Supreme Council of the United Arab Emirates and Ruler of Sharjah. Sheikh Sultan articulated his vision of a distinctive institution against the backdrop of Islamic history and in the context of the aspirations and needs of contemporary society in the UAE and the Gulf region.

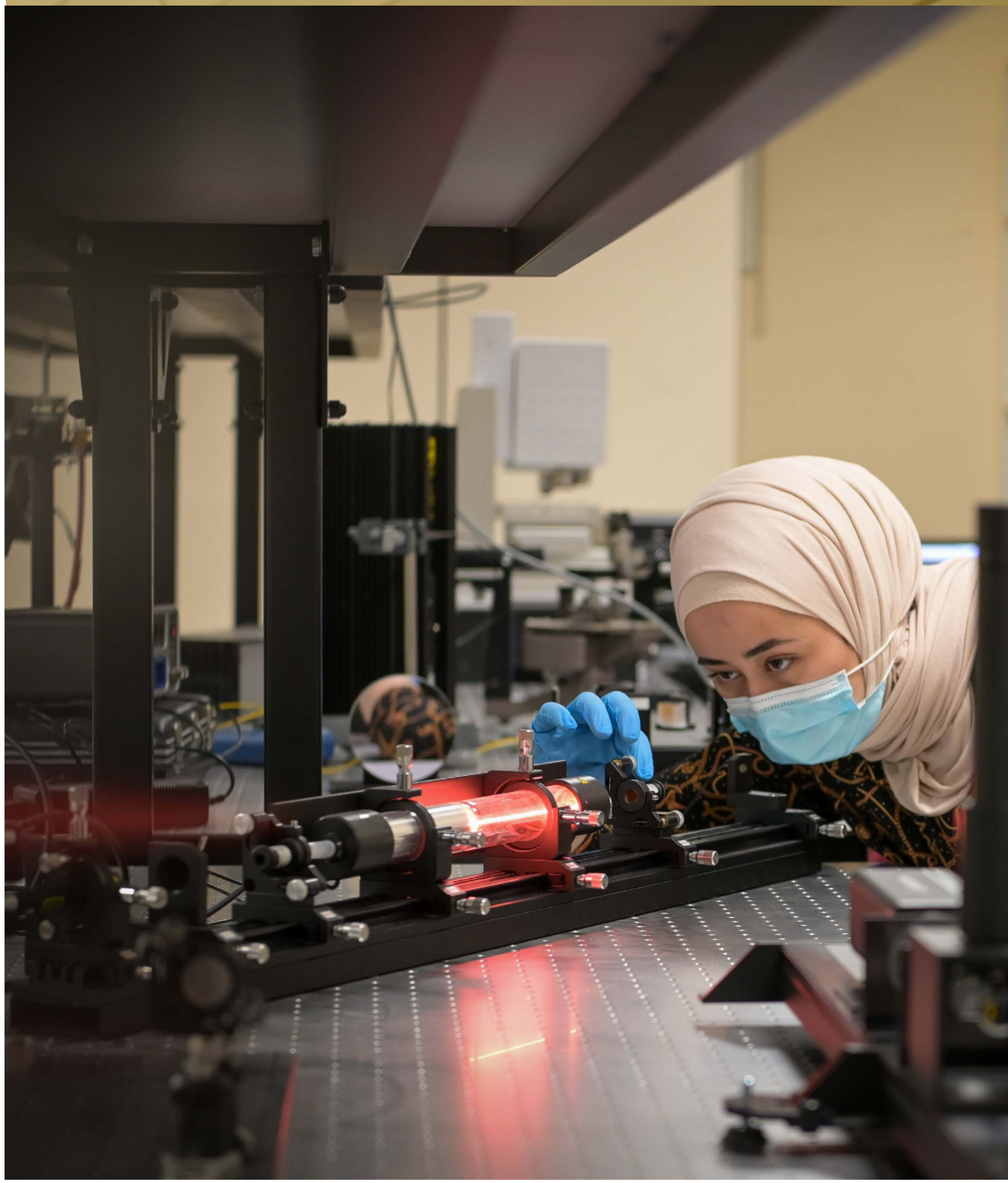
Firmly grounded in principles of meritocracy and with a strong reputation for academic excellence, AUS has come to represent the very best in teaching and research, accredited internationally and recognized by employers the world over for creating graduates equipped with the knowledge, skills and drive to lead.

AUS values learners not driven only by academic success, but by those that embrace our dynamic campus life and embody our ideals of openness, tolerance and respect. This combination of academic excellence and community spirit ensures AUS is filled with world-class faculty and students, poised to become the innovators, thinkers, contributors and leaders of tomorrow.

PhD students are valued members of the broader AUS community who contribute to the university's dynamic campus life. The AUS campus includes world-class learning and research facilities, one of the finest libraries in the region, a health center and recreational programs, along with a full calendar of cultural events.

Visit: w.aus.edu
Email: ogs@aus.edu

AUS has come to represent the very best in teaching and research, accredited internationally and recognized by employers the world over.



Take the next step. Apply now.
w.aus.edu/apply.

V_07_25

QS WORLD UNIVERSITY RANKINGS

- Among the top 18 percent of ranked universities in the world (2026)
- Top 3 in the UAE (2026)
- Top 10 in Arab World for the past 10 years (2025)

THE Times Higher Education

- Top 5 universities globally with the highest percentage of international students (2024)
- Top 150 universities in Asia (2025)

---

stars a program of aashe

First university in the GCC to be rated for sustainability by the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment and Rating System