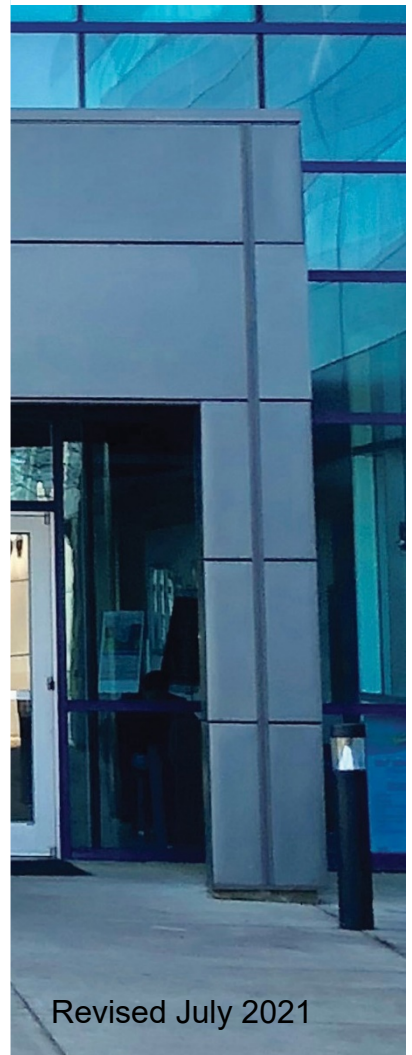


Department of Mechanical
Engineering

Graduate Student Handbook

2021-2022



FAMU-FSU
Engineering

Revised July 2021

FAMU-FSU College of Engineering

Department of Mechanical Engineering

Getting the most out of ME Graduate Studies

What one gets out of graduate studies depends entirely on what one puts into them. The ultimate value of a graduate education is less about the degree than the intangible benefits that accompany it -- the intellectual maturity developed and the professional relationships established (neither of which is recorded on certificates at graduation). Indeed, if all one does to obtain a degree is satisfy the graduation requirements then many valuable opportunities may have been wasted. The academic community offers tremendous resources for personal and professional development, but it is the responsibility of the student to exploit these opportunities while in school. This section offers some advice on how to do this.

Academic Development

Becoming a scholar

All scholars must read widely, both within their fields of specialization and outside, but it is especially important for chemical and biomedical engineers to read widely in other areas, because of the broad base of mechanical engineering.

Reading comprehensively

At no time is comprehensive reading across engineering sciences more important than during the first year in graduate school (though it continues to be important throughout an academic career). This is the time when the student needs to discover which outstanding engineering and scientific problems most capture their interest, so that a field of study can be identified and made the focus of subsequent research. A good choice of specialization -- one that is right for a particular student -- is critical to academic success in later years, and so time spent in making this choice is time well invested. Recommended journals include American Scientist, Nature, Science, and Scientific American. For book recommendations, consult individual members of the faculty.

Broadening Professional Horizons

Joining a Professional Society

Membership in a professional society, particularly American Society of Mechanical Engineers (ASME), will boost career prospects by keeping the student abreast of trends in the field and the employment opportunities that accompany them. Membership can be of especially good value of graduate students, whose membership rate is typically much less than the regular one. Subscriptions from ASME include journals and newsletters to keep students up to date. Other relevant societies include the Society of Automotive Engineering (SAE) and the National Society of Black Engineers (NSBE)

Attendance at Conferences

Attending conferences (and presenting papers at those conferences) are an excellent way to develop a good knowledge of what is happening in the field and to meet the people who are making it happen. It doesn't have to be expensive (especially if one belongs to a professional society): greatly reduced conference fees are the norm for graduate students, and travel and accommodation costs can be kept to a minimum by sharing. Consult the major professor for conference suggestions.

I. ME Graduate Programs

The Mechanical Engineering Graduate Programs are designed to train engineers who can embark upon a successful career in areas at the forefront of engineering and science, whether in industry, research or academia. During their training, students will learn the fundamental knowledge and essential skills that will allow them to continue to grow throughout their careers. Our programs emphasize a fundamental approach to engineering and science in which students become skilled at clearly defining problems and then bringing their knowledge of the fundamental principles and techniques to design and implement optimal solutions. This philosophy is incorporated in all aspects of the graduate programs, from course design and teaching as well in the research activities conducted by our faculty.

Degree Programs

The Department offers two graduate degree program levels:

Master of Science (MS)

- Thesis
- Non-Thesis

Doctor of Philosophy (PhD)

- Standard track for students that have a Master's degree
- Direct BS to PhD track for students that only have a bachelor's degree.

Master of Science (MS) in Mechanical Engineering

- **Thesis Option:** Designed for students interested in pursuing a career in research or continuing on to a doctoral program.
 - There are two MS thesis tracks or majors:
 - Mechanical Engineering
 - Sustainable Energy

Students completing the MSME thesis will earn a degree in Mechanical Engineering.

- **Non-Thesis Option:** Designed to accommodate the needs of students already in the workforce or who are pursuing non-research careers.
- **BS-MS Pathway:** Provides students with a unique opportunity to combine advanced undergraduate and graduate studies in mechanical engineering with practical, real-world, product-oriented experience in the engineering of mechanical systems.

Master of Science (MS) in Materials Science and Engineering

- **Thesis Option:** Materials Science and Engineering is a broad and interdisciplinary program, building on fundamentals of engineering, physics, chemistry, and biology.

Doctor of Philosophy (PhD) in Mechanical Engineering

- **PhD Program:** Designed for students who have already obtained a Master's degree in Mechanical Engineering.
- **BS-PhD Program:** Designed for promising undergraduate students with strong academic credentials and potential for research. The program offers greater flexibility and shortens the time need to complete a PhD degree.

Doctor of Philosophy (PhD) in Materials Science and Engineering

- **PhD Program:** Materials Science and Engineering is a broad and interdisciplinary program, building on fundamentals of engineering, physics, chemistry, and biology.

II. GRADUATE ADMISSION REQUIREMENTS

The Department of Mechanical Engineering is proud to offer master and doctoral programs.

Candidates for the Master of Science and the Doctor of Philosophy programs in Mechanical Engineering at the FAMU-FSU College of Engineering must first meet the general graduate admission requirements of either Florida A&M University or Florida State University.

APPLICATION DEADLINE

FALL SEMESTER

- JANUARY 15 - Deadline for Priority Assistantship Consideration
- APRIL 1 - Final Deadline

SPRING SEMESTER

- OCTOBER 1

- The Department reviews all applications for assistantship opportunities. If you miss the January 15 deadline you will still be considered for an assistantship.
- There is no additional application for assistantship consideration.

- Applicants should follow the Department's application deadline and not the general university deadline.
- All application materials (including all supporting documents) **MUST** be submitted by the application deadline.
- The Department reserves the right to deny or cancel any application that is not complete by the application deadline.
- No late applications will be accepted.

ADMISSION REQUIREMENTS FOR ENGINEERING MAJORS

BS degree in Mechanical Engineering or any engineering discipline, applied biochemistry, chemistry, computer science, materials science, mathematics, applied mathematics, physics and applied physics. **If you do not have an BS degree in engineering or in one of the approved science fields listed above you may not be eligible for admission to the graduate program.** If you have any questions please contact the [Graduate Studies Program Administrator](#) prior to applying for admission.

Students without a BS degree in Mechanical Engineering but with a degree in an approved field may be required to complete remedial coursework in Mechanical Engineering as a condition of admission (See [Requirements for Non-Majors](#))

Upper-division GPA

- Minimum 3.00 upper-division GPA
- US Applicants: [Unofficial GPA Calculation Worksheet](#)
- International Applicants: The Office of Admissions will calculate GPA's for international applicants.

GRE Score

- Minimum Verbal Score: 150
- Minimum Quantitative Score: 155
- [GRE waiver request form for non-thesis master's degrees](#)

English Proficiency Score (International Students)

- **IMPORTANT NOTICE:** Applicants with English proficiency scores below the minimum requirement are not eligible for admission. If you require additional English language training, you may want to consider enrolling at the [Center for Intensive English Studies](#).
- Minimum TOEFL iBT: 80
- Minimum TOEFL: 550
- Minimum ILETS: 6.5
- Minimum MELAB: 77 (FSU applicants only)

ADMISSION REQUIREMENTS FOR NON-ENGINEERING MAJORS

In addition to the general requirements for without a degree in admission, non-majors (students mechanical engineering) will need to show evidence of exposure to the following core mechanical engineering disciplines and/or equivalent coursework:

Mechanical Systems

Statics, Dynamics, Mechanical Systems

- **EML 3011C - Mechanics & Materials I:** This course is the first part of a two-part sequence integrating concepts of mechanics and principles of materials. It will provide the student with a broad based introduction to and understanding of the application of materials in structural design, the processing of mechanical components, and the manufacture of high technology products. **Prerequisites:** CHM 1045 - General Chemistry I, CHM 1045L General Chemistry I Lab, EML 3002C - Mechanical Engineering Tools, EML 3004C - Introduction to Mechanical Engineering, MAC 2313 - Calculus with Analytical Geometry III, and PHY 2048C - General Physics I.
- **EML 3013C - Dynamics Systems I:** This course is the first part of an integrated sequence in dynamics, vibrations, and controls. Material in this first course includes the following: absolute and relative motion of particles and rigid bodies in inertial, translating, and rotating coordinate frames; derivation and computer solution of differential equations of motion; single degree of freedom vibrations and elementary feedback control. **Prerequisites:** EML 3002C - Mechanical Engineering Tools and EML 3004C - Introduction to Mechanical Engineering.

Thermal Systems

Thermodynamics, Heat Transfer, Fluid Mechanics

- **EML 3015C - Thermal Fluids I:** First of a two-part sequence presenting an integrated treatment of traditional topics on thermodynamics, fluid mechanics, and heat transfer. The essential role of each of these related elements and their connections are examined in the context of real-world systems. Materials covered include: first and second laws of thermodynamics; power and refrigeration cycles; heat transfer modes including steady and time dependent conduction, convection, and radiation; fluid statics; mass momentum and energy conservation; Bernoulli's equation; internal and external flows. **Prerequisites:** EML 3013C - Dynamic Systems I and MAC 2313 - Calculus with Analytical Geometry III.
- **EML 3016C - Thermal Fluids II:** Second of a two-part sequence presenting an integrated treatment of traditional topics on thermodynamics, fluid mechanics, and heat transfer. The essential role of each of these related elements and their connections are examined in the context of real-world systems. **Prerequisites:** EML 3015C - Thermal Fluids I.

The Admissions Committee will review the student's transcripts and determine if the student has taken this material (or a portion of it) as part of his/her previous coursework and assign credit accordingly. If the student does not have exposure to one or more of the core disciplines, the committee will require the student to take corresponding coursework in the deficient areas as a condition of admission. These courses will be considered remedial and will not count toward the student's degree program requirements.

III. GRADUATE APPLICATION

The [FAMU-FSU College of Engineering](#) is a joint college serving two state universities: [Florida A&M University](#) and the [Florida State University](#). Prospective students may apply to the Department of Mechanical Engineering through either university.

FAMU applicants must submit all application materials to the [School of Graduates Studies and Research](#). FSU applicants must submit all application materials including supporting documents and letters of recommendation through the Online Graduate Application.

- [Florida A&M University Application](#)
- [Florida State University Application](#)

SUPPORTING DOCUMENTS

The following supporting documents must be submitted in order for your application to be considered complete. FSU applicants must upload all required supporting documents through the online application. FAMU applicants may mail their supporting documents with their application or submit them by email to the [Graduate Studies Program Administrator](#). Please submit only the requested documents. **DO NOT** submit any other extraneous documents such as certificates, awards or publications. These items should be listed in your resume/cv, but please do not include them as additional pages.

Official Transcripts

An official transcript from each college or university attended must be submitted to the university. International applicants must include an English translation. **Official transcripts must be mailed directly to the university. DO NOT** mail official transcripts to the Department. Any official transcripts mailed to the department will be invalidated and not accepted.

Florida A&M University

- Florida A&M University
School of Graduate Studies and Research
515 Orr Drive

Suite 469 Tucker Hall
Tallahassee, FL 32307-4800
Contact Info

Florida State University

- The Florida State University
Office of Admissions
282 Champions Way
Tallahassee, FL 32306-2400
Contact Info

Official GRE Score Report

- Request official GRE score report from ETS
- Institutional Code for FAMU: 5215
- Institutional Code for FSU: 5219
- **GRE waiver request form for non-thesis master's degrees.**

Official English Proficiency Score Report

- Minimum scores – TOEFL - 80, MELAB - , IELTS – 6.5
- TOEFL Institutional Code for FAMU: 5215
- TOEFL Institutional Code for FSU: 5219

Statement of Purpose

- Briefly describe your qualifications for graduate school and your long-term goals. Tell us about why you're interested in Mechanical Engineering and what drives you to pursue a graduate degree in our field.
- Clearly specify your research interests (e.g. Robotics). Our major research activities are focused in four primary areas: Dynamic Systems and Controls (including mechatronics and robotics), Fluid Mechanics and Heat Transfer, Materials Science, and Sustainable Energy Systems. See our research page for more information.
- Include any faculty members you are interested in working with and which areas of research you believe closely match your experience and interests.

Resume

- Provide a detailed resume or CV.

Letters of Recommendation

- Submit three letters of recommendation. The letters should be from individuals qualified to evaluate your academic performance/potential or relevant work experience. If you are applying to Florida State University, your letters of recommendation **MUST** be submitted electronically through the recommendations section of the online application.

Florida Residency Form

- If you are a Florida resident, you must complete the Florida Residency Affidavit even if you were previously designated a Florida Resident by the University. If you do not complete this form, you will be classified as a non-Florida resident for tuition purposes.
 - [Florida A&M University Residency Form \(More Info\)](#)
 - [Florida State University Residency Form](#)

Certification of Financial Responsibility (CFR)

- The university is required by U.S. federal regulations to verify the financial resources of each international applicant prior to issuing the Certificate of Eligibility (Form I-20). **All international applicants must complete this form** even if you are anticipating financial support from the Department. **Please note that the disclosure of available funds will not disqualify or limit any international applicant from receiving an assistantship or any other financial support from the Department.**
 - [Florida A&M University CFR Form](#)
 - [Steps to complete the Florida State University CFR Form](#)

IV. APPLICATION STATUS AND ADMISSION DECISION

FAMU applicants should contact the [School of Graduate Studies and Research](#) to check the status of their application. Please allow at least 10 business days before requesting a status update. The final admission decision will be sent via email.

FSU applicants can check the status of their application online at <https://admissions.fsu.edu/StatusCheck/>. Please allow at least 10 business days for new information to be reflected on the Online Status Check. The final admission decision will also be posted to the Online Status Check.

V. FINANCIAL AID

Admission into the graduate program and the awarding of financial aid are considered to be separate processes. Notification of admission may proceed notification of financial aid. On a departmental level, all applicants who apply by the priority deadline will be considered for research (RA) and teaching (TA) assistantships. There is no separate application for these types of departmental funding. Applicants are strongly encouraged to pursue outside funding opportunities via private or university means.

VI. PROGRAM COURSE REQUIREMENTS

MS Non-Thesis Degree Requirements

Mechanical Engineering Courses

Twenty-one (21) semester hours: select seven (7) graduate-level, letter-graded courses (excluding S/U) in Mechanical Engineering, one of which MUST be EML 5060 – Analysis in Mechanical Engineering

Electives

Nine (9) semester hours: Select three graduate-level, letter-graded courses (excluding S/U) in engineering, mathematics, and/or any science discipline (e.g. computer science, physics, etc.).

Graduate Seminar

EML 5935 – Mechanical Engineering Seminar (0). See Graduate Seminar section for additional information.

MS Thesis Degree Requirements

All students must take the following minimum distribution of courses for a total of 30 credit hours:

Core Courses

Nine (9) semester hours: EML 5060 Analysis in Mechanical Engineering I and two core courses in the student's major area:

Dynamics and Controls

- EGM 5444 - Advanced Dynamics
- EML 5317 - Advanced Control Systems
- EML 5361 - Multivariable Control
- EML 5930 - Adaptive Controls

Fluid Mechanics and Heat Transfer

- EGM 5152 - Heat Transfer
- EML 5155 - Convective Heat Transfer
- EML 5709 - Fluid Mechanics
- EML 5930 - Advanced Engineering Thermodynamics

Solid Mechanics and Materials Science

- EGM 5611 - Continuum Mechanics
- EGM 5653 - Theory of Elasticity
- EML 5930 - Advanced Materials
- EML 5930 - Solid Mechanics and Electromagnetics of Continuous Media

Mechanical Engineering Courses

Six (6) semester hours: any two courses in Mechanical Engineering.

Elective Courses

Nine (9) semester hours: Select three graduate-level, letter-graded courses in engineering, mathematics, and/or any science discipline (e.g. computer science, physics, etc.). One of the three courses may include

EML 5905 - Directed Individual Study or EML 5910 - Supervised Research. Courses must be selected in consultation with the student's major professor.

Graduate Seminar

EML 5935 – Mechanical Engineering Seminar (0). See [Graduate Seminar](#) section for additional information.

Thesis

Six (6) semester hours: EML 5971 - Thesis. University rules require that students take at least two-credits of thesis credit in their final term, even if they have completed the thesis credit requirement for their degree program.

Thesis Defense

EML 8976 - Masters Thesis Defense must be taken in the student's final semester.

PhD Degree Requirements

The standard PhD program requires forty-five (45) credit hours of coursework, of which at least twenty-four (24) credit hours must be dissertation hours. The remaining twenty-one (21) letter-graded credit hours are divided into three areas:

General Engineering and Mathematics

Six (6) semester hours: EML 5930 – Analysis in Mechanical Engineering II (3) and one additional course from the approved course list.

Electives

Fifteen (15) semester hours: Select five (5) graduate-level, letter-graded courses in engineering, mathematics, and/or any science discipline (e.g. computer science, physics, etc.).

Graduate Seminar

EML 5935 – Mechanical Engineering Seminar (0). See [Graduate Seminar](#) section for additional information.

Preliminary Exam

EML 8968 - Preliminary Examination (0). See Preliminary Exam section for additional information.

Dissertation

Twenty-four (24) semester hours: EML 6980 - Dissertation (1-12). University rules require that students take thesis credit in their final term, even if they have completed the thesis credit requirement for their degree program.

Dissertation Defense

EML 8985 - Dissertation Defense (0) must be taken in the student's final semester.

Research Programs and Facilities

The **Florida Center for Advanced Aero-Propulsion (FCAAP)** has been established to ensure that the State of Florida remains at the forefront of the aerospace industry and maintains a highly skilled workforce to develop, test, transition and manufacture the next generation of aerospace technologies. The center is a partnership between four state universities, with FSU as the leading institution.

The **Advanced Aero-Propulsion Laboratory (AAPL)**, also located at FSU, is the primary experimental and research facility. AAPL contains testing and diagnostic facilities not commonly available at university research centers. These include: a new Hot Jet Anechoic Facility capable of operating supersonic hot jets - up to 2000 Fahrenheit, a STOVL Test Facility, and optical diagnostic development lab, a supersonic and a large subsonic wind tunnel. In addition to AAPL, the center is home to several state-of-the-art research laboratories led by an experienced team of internationally recognized scientists, researchers, and engineers. In collaboration with government and industry, FCAAP will serve as a technology incubator to promote innovative research and encourage a rapid transition of technologies to market. FCAAP plays a vital role in shaping the next generation of air and spacecraft designs, space transport systems, and aviation safety. FCAAP's current research is focused on Active Flow, Noise and Vibration Control, Aero-optimization, Advanced Propulsion and Turbomachinery Systems, Sensor and Actuator Development, Advanced Diagnostics, Aero-Thermodynamics and Aeroacoustics, High Performance Computation, Smart Materials, Systems and Structures, and other related fields.

The vision of the **Center for Intelligent Systems, Control, and Robotics (CISCOR)** is to use state-of-the-art technology to develop practical solutions to problems in systems, control, and robotics for applications in industry and government. CISCOR is a cooperative research effort in the automated systems area across four departments (Mechanical, Chemical, Electrical, and Civil) in the College of Engineering. The Center's goal is to provide a means for the state of Florida to achieve national prominence in the area of automated systems and to assume a leadership role in the state of Florida's technology of the future. Established in 2003, CISCOR has become a leading center in Florida for the development and implementation of technologies related to Intelligent Systems, Control, and Robotics.

The multidisciplinary **High-Performance Materials Institute (HPMI)** performs research for emerging advanced composites, nanomaterials, multifunctional materials and devices, and advanced manufacturing. Currently, HPMI is involved in four primary technology areas: High-Performance Composite and Nanomaterials, Structural Health Monitoring, Multifunctional Nanomaterials Advanced Manufacturing, and Process Modeling. Over the last several years, HPMI has proven a number of technology concepts that have the potential to narrow the gap between research and practical applications of nanotube-based materials.

The **National High Magnetic Field Laboratory (NHMFL)** is the only facility of its kind in the United States. The National High Magnetic Field Laboratory is the largest and highest-powered magnet laboratory in the world, headquartered in a sprawling 370,000-square foot complex near Florida State University. The lab also includes sites at the Los Alamos National Laboratory in New Mexico, and the University of Florida. Together these three institutions operate the lab, collaborating in a unique interdisciplinary way to advance basic science, engineering, and technology in the 21st century.

The **Applied Superconductivity Center (ASC)**, a research division of the National High Magnetic Field Laboratory, was established to advance the science and technology of superconductivity and particularly superconductivity applications by investigating low temperature and high temperature models.

The **Energy and Sustainability Center (ESC)** has been established to address our most challenging

energy issues through the development of innovative alternative energy solutions for consumers and industry. The center will develop a portfolio of pre-commercial research programs to explore reliable, affordable, safe, and clean energy technologies. A key objective of ESC is to encourage future commercial application of the technologies that flow from the research. ESC has a number of specialized facilities for technology development and implementation including: a fuel-cell testing laboratory, a water-electrolysis electrode testing laboratory, a solar-thermal system component testing facilities, small-scale electrical power systems laboratory, and other facilities through collaborations with the FAMU-FSU College of Engineering, the Center for Advanced Power Systems (CAPS), and the National High Magnetic Field Laboratory (NHMFL).

The **Institute for Energy Systems, Economics and Sustainability (IESES)** at Florida State University will be an essential component of Florida's leadership in sustainable energy. The Institute is a public resource. We carry out scholarly basic research and analysis in engineering, science, infrastructure, governance, and the related social dimensions; all designed to further a sustainable energy economy. The Institute unites researchers from the disciplines of engineering, natural sciences, law, urban and regional planning geography, and economics to address sustainability and alternative power issues in the context of global climate change. Our goal is scholarship that leads to informed governance, economics, and decision making for a successful Florida sustainable energy strategy.

The **Active Structures and Microsystems Laboratory** is focused on the mechanics and physics of adaptive materials and their integration into structures and devices. This includes exploring fundamental field-coupled behavior (electric, magnetic, photomechanical, chemical), device and structural dynamics research, and the development of advanced and control designs for broadband performance and precision tracking. This requires synergies between materials science, engineering, and mathematics. We collaborate with several researchers that range in backgrounds that include physics, mathematics, experimental fluid dynamics, and materials science to advance the field.

The **Cryogenics Laboratory**, located in the National High Magnetic Field Laboratory, is a fully developed facility for conducting low-temperature experimental research and development. The laboratory, which occupies about 400 square meters, supports in-house development projects as well as scientific work. The experiment apparatus within the lab include the following: 1) *Liquid Helium Flow Visualization Facility* (LHFVF): This facility consists of a 5 m long, 20 cm ID horizontal cryogenic vacuum with vertical reservoirs at each end. A variety of experimental test sections can be installed in the facility for measurements of flow and heat transfer including flow visualization studies. The LHFVF is currently being used for PIV studies of forced flow superfluid helium. 2) *Cryogenic Helium Experimental Facility* (CHEF): This facility consists of a 3 m long, 0.6 m ID cryogenic vessel with N₂ and He temperature thermal shields. CHEF is equipped with a high-volume flow bellows pump capable of up to 5 liters/s. Currently, CHEF is being used to study high Reynolds number liquid helium flow through orifice plates. 3) *Liquid Helium Research Test Stands*: Numerous conventional vertical access dewars and insert cryostats are available for smaller scale experiments on heat transfer and flow. These include dewars between 10 cin ID with depths to 2 in. 4) *Additional equipment*: The laboratory contains all necessary equipment to carry out modern cryogenic experiments. Modern instrumentation for data acquisition is available to support experiments. High vacuum equipment includes a mass spectrometer leak detector and two portable turbo pump systems that provide thermal isolation. A high-capacity vacuum pump (500 liter/s) is used to support sub-atmospheric liquid helium experiments as low as 1.5K.

The **Advanced Materials Processing and Applications Laboratory (AMPAL)** is focused on the processing, characterizing, and testing of materials in conjunction with micromechanical modeling.

Materials of interest include, but are not limited to, super plastic alloys (Niobium, Copper, Aluminum), structural steel, and high-strength conductors such as Copper-Silver. These materials are employed in a number of scientific and engineering applications ranging from superconducting and electronic applications (radio frequency cavities, magnetic materials, etc.) to structural applications. Processing involves the development of various severe plastic deformation methods such as tri-axial forging, equal channel angular extrusion (ECAE), rolling, swaging, and wire drawing suitable for producing bulk quantities of ultra-fine-grained material. Also, currently being explored is a novel case hardening technique for both stainless steels and low carbon steels. The laboratory is equipped with various tools for characterization and testing. Some of the equipment include a high-resolution analytical transmission electron microscope, field emission scanning electron microscope equipped with dual beams capable of performing in-situ ion-milling (ion beam), and 2D/3D-electron backscatter diffraction (EBSD) measurements (electron beam). The micromechanics modeling efforts provide an opportunity to correlate the material properties with microstructure. The mechanical modeling effort is being used to explain tension, nano-indentation, shear, and super plasticity of advanced materials including composite. AMPAL collaborates with various other research groups and institutions both nationally and internationally to achieve our research goals.

The **Scansorial and Terrestrial Robotics and Integrated Design (STRIDE) Laboratory** is dedicated to the design, analysis, and manufacturing of novel and dynamic robotic systems. In order to imbue robotic systems with the agility and functionality akin to their biological inspirations, it is critical to understand the interplay between the structures' underlying passive dynamics and the control systems that enervate them. Research in this lab involves working closely with biologists to understand the underlying functional principles behind successful animal locomotion. These principles are then encoded in simplified dynamic models. The analysis of these models leads to insight regarding the roles of passive and active elements in creating self-stabilizing dynamic systems. Innovative manufacturing processes, such as Shape Deposition Manufacturing (SDM) and other rapid prototyping techniques, are then applied to build robots capable of moving in a dynamic and agile manner over difficult terrain. To analyze and build these robots, the lab is equipped with dynamic motion analysis equipment as well as a suite of state-of-the-art manufacturing tools.

Graduate students participating in research are provided office space in the laboratories and have access to substantial staff support from their research group.

After Arrival at FAMU-FSU Engineering

Academic Performance

Academic Advising

Annual Assessment of Progress

Funding Information

University Requirements and Policies

Full-time and Part-time Status

Scholarly Engagement

Continuous Enrollment

Time to Completion

International Students

University-wide Standards for Teaching Assistants

Checklist for New Students