Research and innovation at the College of Engineering at the University of South Florida are focused on creating local, national and global solutions to society’s most difficult problems. From developing sources of clean energy and drinking water to enhancing the quality of life for people with disabilities, USF is Engineering Lives for the Better with research awards exceeding $36 million in 2018.

USF is a Florida Preeminent Research University and a high-impact global university that conducts research and develops innovations that change lives, improve health, and foster sustainable development and positive societal change.

The University of South Florida ranks 5th in the nation among public universities and 12th worldwide for granted U.S. patents among all universities, according to the Intellectual Property Owners Association (2017). USF ranks 10th nationally for patents and is in the top 15 for start-ups and the number of licenses and options among U.S. universities.

The college offers an intellectually challenging environment with a diverse student and faculty population. We accept applications on an ongoing basis and doctoral appointments typically include tuition waiver and full sponsorship for the academic year.

Robert H. Bishop, P.E.
Dean, College of Engineering

Welcome to USF College of Engineering

Message from the Dean

This is provided as a guide, the USF Graduate Catalog is the only definitive source of program requirements.
Start your USF Graduate School application online
Office of Graduate Admissions - University of South Florida
4202 East Fowler Avenue SVC 1036
Tampa, Florida 33620-6900
Telephone: (813) 974-8800
U.S. Toll Free: 1-866-974-8800
Fax: 813-974-7343
Email: admissions@grad.usf.edu
On behalf of our faculty, staff, and students, I would like to introduce and welcome you to the Department of Chemical and Biomedical Engineering at the University of South Florida. Perhaps you are reading to learn more about what roles chemical and biomedical engineers play in our society. Maybe you are a student looking to earn your engineering degree from a department and a university that deeply values and emphasizes its educational mission. Perhaps you want to be part of a team conducting cutting-edge research to tackle some of the world’s most important problems. No matter the reason for your visit, you have come to the right place to gather more information, to get answers to your questions, and hopefully to learn how to join and/or partner with us in our pursuit of knowledge and innovation.

Chemical engineers today play critical roles in a wide variety of industries including petrochemicals, energy, electronics, biotechnology, health care, consumer products, food, and many others. Perhaps less well known to people, chemical engineers play important roles in many other fields as well including law, environmental policy, government, consulting, and a variety of others. Our faculty and graduates are literally changing the world in which we live through their involvement in these different roles and industries. They are the scientists who dream up new molecules to solve problems in medicine, in energy, and other areas that improve our quality of life. They are the engineers who help design and operate processes and plants that make these molecules and products in a safe, efficient, and scalable manner. They are also the entrepreneurs who recognize unanswered needs and who help bring innovative solutions to the market. As a department, our mission is to: (1) provide our students with the intellectual basis to become outstanding scientists, engineers and leaders who are prepared for successful professional careers, (2) advance our disciplines and profession by contributing to the relevant bodies of knowledge and literature in science and engineering in significant and impactful ways, and (3) improve the quality of life in our community, the nation, and the world by providing solutions to important problems facing humanity both today and tomorrow.

Our department consists of a large and diverse student body that benefits from a variety of degree offerings designed to help students tailor their education to their interests and career goals. For those students interested in the solid foundation and flexibility of a traditional chemical engineering degree, we offer a B.S. in Chemical Engineering, M.S. in Chemical Engineering, and Ph.D. in Chemical Engineering. For those undergraduates who intend to also complete a M.S. degree after completing their B.S. degree, we also offer a 5-year B.S./M.S. degree program in which they can complete both degrees in parallel in an accelerated manner. At the graduate school level, for those students looking for a bit more flexibility in their degree track, the department also offers an M.S. and Ph.D. in Engineering Science. For students interested in pursuing a biomedical focus at the graduate level, the department offers both M.S. and Ph.D. degrees in Biomedical Engineering. Finally, for those who are interested in focusing on advanced materials at the graduate level, the department offers an M.S. degree in Materials Science and Engineering.
As a faculty, we have a group of highly accomplished and active faculty that cover an exciting blend of both traditional and emerging research areas in chemical and biomedical engineering. Examples of these research topics include advanced materials, catalytic processes, nanotechnology, drug delivery, semiconductors and electronics, renewable energy, process systems engineering, supercritical fluid technology, automatic process control, and many others.

We are a growing department who continues to expand our educational and research activities and presence into more areas with each passing year. So come join us in our exciting adventure. Once again, I welcome you to the Department of Chemical and Biomedical Engineering at USF. If you have any questions or would like to learn how to get more involved with us, we encourage you to contact us. We thank you for your interest in our department and look forward to engaging with you in the future.

Clifford L. Henderson  
Professor and Chair

Admission Requirements

Specific Admission Requirements for PhD level Graduate Degrees in both Chemical and Biomolecular Engineering Degrees are:

- An undergraduate bachelor's degree or equivalent in engineering or science. For PhD in chemical engineering, the undergraduate degree must be in chemical engineering. It is possible to earn a master's (thesis and non-thesis options) and PhD degrees in chemical engineering and biomolecular engineering in our department.

- Undergraduate transcripts demonstrating strong academic performance are preferred. Note that students recommended for admission to our graduate program generally have a grade point average of 3.0 or higher on a 4.0 scale.

- GRE is required. Note that students recommended for admission to our program generally have a percentile score of 75% (Q) and 50% (V) and Analytical at 4.0 or greater.

- TOEFL (international applicants only) >= 79

- Official letters of reference from at least three persons who are familiar with student's credentials.

- Statement of research interests.

- Official letters of reference and research interests should be mailed directly to the Department of Chemical & Biomolecular Engineering.

For more information or to send a CV, please contact:  
Terri Ogden  
thaag@usf.edu
Aydin Sunol, PE
Process and Product Systems Engineering, Green Chemistry and Engineering, Supercritical Fluids

Ryan Toomey
Biomacromolecule and Polymer Science

Joseph Walton
Neural Bases of Age – Related Hearing Loss, Brain Plasticity Following Injury, Neural Coding of Complex Sounds

Babu Joseph, FAICHE
Modeling and Simulation, Biomass Conversion, Photocatalysis

Piyush Koria
Tissue Engineering & Regenerative Medicine, Nanomedicine, Biomaterials

John Kuhn
Heterogeneous Catalysis, Materials Chemistry, Chemical Separations, Renewable Energy

William E. Lee III, PE
Basic, applied, and forensic biomechanics; psychology of medical procedures, pain management, engineering education

Christopher Passaglia
Neuroengineering, Visual and Computational Neuroscience, Glaucoma

Anna Pyayt
Bio-photonics, Advanced Material and Devices, Nanotechnology, New Biomedical Instruments, Sensors

Alberto Sagüés, PE, FNACE
Interdisciplinary Professor Corrosion of Engineering Materials, Materials for Infrastructure, Nuclear Waste Disposal

David Simmons
Polymers, Molecular Simulations, Dynamics of Glassy Systems

Piyush Koria
Tissue Engineering & Regenerative Medicine, Nanomedicine, Biomaterials

John Kuhn
Heterogeneous Catalysis, Materials Chemistry, Chemical Separations, Renewable Energy

William E. Lee III, PE
Basic, applied, and forensic biomechanics; psychology of medical procedures, pain management, engineering education

Christopher Passaglia
Neuroengineering, Visual and Computational Neuroscience, Glaucoma

Anna Pyayt
Bio-photonics, Advanced Material and Devices, Nanotechnology, New Biomedical Instruments, Sensors

Alberto Sagüés, PE, FNACE
Interdisciplinary Professor Corrosion of Engineering Materials, Materials for Infrastructure, Nuclear Waste Disposal

David Simmons
Polymers, Molecular Simulations, Dynamics of Glassy Systems

Ayden Sinol, PE
Process and Product Systems Engineering, Green Chemistry and Engineering, Supercritical Fluids

Ryan Toomey
Biomacromolecule and Polymer Science

Joseph Walton
Neural Bases of Age – Related Hearing Loss, Brain Plasticity Following Injury, Neural Coding of Complex Sounds
Chemical & Biomedical Engineering

Research Centers and Laboratories

- Protein Engineering & Dynamic Living Systems
- Sensors Research Lab
- Global Center for Hearing & Speech Research (GCHSR)
  http://www.gchsr.usf.edu/
- Hetgerogenous Catalysis & Materials Chemistry Lab
  http://www.eng.usf.edu/~jnkuhn/index.html
- IBIS Innovative Biomedical Instruments and Systems
  http://www.pyayt.com/
- Occular Neuroscience and Neuroengineering Lab
  http://www.eng.usf.edu/~passaglia/
- Rehabilitation Engineering and Electromechanical Design Lab
  http://reedlab.eng.usf.edu/
- Auditory Neuroscience
- Biomed Lab
- Cellular Mechanotransduction and Biomaterials Laboratory
  http://www.eng.usf.edu/ngallant/
- Drug and Gene Delivery Lab
- Environmentally Friendly Engineered Systems Lab
- Interfacial Characterization Lab
- Interfacial Phenomena & Polymeric Materials Lab
- Instrumentation Control Lab
- Modeling Simulation Lab
- Polymer Science and Smart Materials
- Hearing and Speech Research
- Protein Engineering & Dynamic Living Systems
- Sensors Research Lab
- Global Center for Hearing & Speech Research (GCHSR)
  http://www.gchsr.usf.edu/
- Hetgerogenous Catalysis & Materials Chemistry Lab
  http://www.eng.usf.edu/~jnkuhn/index.html
- Innovative Biomedical Instruments and Systems (IBIS)
  http://www.pyayt.com/
- Occular Neuroscience and Neuroengineering Lab
  http://www.eng.usf.edu/~passaglia/
- Rehabilitation Engineering and Electromechanical Design Lab
  http://reedlab.eng.usf.edu/
Student Success

Scholarships and Fellowships

• Ford Foundation Predoctoral Fellowship
• NASA Harriett Jenkins Pre-doctoral Fellowship
• Department of Defense Health Disparity Postdoctoral Fellowship
• NIH Ruth Kirschstein National Fellowship
• GEM Fellowship
• Schlumberger Foundation Faculty for the Future Fellowship

Faculty and Post Doctoral Appointments

• University of Minnesota
• New Mexico Institute of Technology
• Tuskegee University
• Moffitt Cancer Center & Research Institute
• Claflin University
• Medical University of South Carolina
• Texas A&M
• Harvard University
• University of Pennsylvania
• University of Strathclyde
• Universidad del Norte, Baranquilla, Colombia

Industry and Government Positions

• Sandia National Laboratory
• Defense Threat Reduction Agency
• U.S. Air Force Nuclear Weapons Center
• Argonne National Laboratory
• Food and Drug Administration (FDA)
• Cummins, Inc.
• Bausch & Lomb
• Moffitt Cancer Center
• U.S. Veterans Affairs
• Dow Chemical
• Phillips 66
• Coca Cola
• ConMed Linvatec
• Tampa Electric
• Johnson & Johnson
• Cook Biotech
Welcome to the Department of Civil and Environmental Engineering at the University of South Florida.

Our graduate program offers specialties in seven areas:

1) environmental engineering (ENV); 2) geotechnical (GTL); 3) materials (MTL); 4) structures (STR); 5) transportation (TPT); 6) water resources (WRS); and 7) engineering for international development (EFD). Faculty, staff and students within each specialty area are involved in interdisciplinary research and scholarship with collaborations across the university, including departments in the College of Engineering, and non-engineering departments of Anthropology, Biology, Computer Science, Geology, Geography, and the College of Public Health. Our faculty also maintains a solid base for research funding from agencies such as the Florida Department of Transportation, Southwest Florida Water Management District, U.S. Department of Education, the National Science Foundation, U.S. Environmental Protection Agency, and the U.S. Department of Energy.

The department also values its close ties with the local industry, consultants and agencies. We are strongly supported by our alumni with whom we maintain an active relationship. We use these ties to continuously improve and strengthen our program, to meet changing technical needs of employers and society, and to progress as a vital unit of a Tier One Research University.

Sincerely,

Manjriker Gunaratne, Ph.D., PE
Professor and Chair
Admission Requirements

Please see our department website for a wealth of information on graduate degree requirements, admission requirements, application procedures, research thrusts and faculty profiles:

• **Master's programs:** Civil & environmental engineering consulting firms, municipal, state and federal agencies are increasingly seeking the master's degree as the entry level degree for professional practice. USF’s Department of Civil & Environmental Engineering can help you achieve your educational and career goals by offering both thesis and non-thesis degree options at the master's level.

• **MCE and MEVE degrees** - Non-thesis master's degrees allow for maximum flexibility – you can complete a MCE or MEVE degree in one year or take one course per semester and complete the degree over four to five years while working full time. Evening and online courses are available to help working students.

• **MSCE and MSEV degrees** – Thesis option master’s degrees allow students to work one-on-one with a professor on a research project, allows students to deepen expertise in a focused area and increase the possibility of obtaining a research assistantship to support their graduate study. The thesis master’s is also the degree of choice for a student who is interested in continuing for a PhD or a career in research.

• **Options for non-engineers** – Students without a first degree in engineering can complete prerequisite courses and then join our regular thesis or non-thesis Master's degree options.

• **PhD programs:** Doctoral level study prepares you to qualify for positions in research, academia and working in advanced technical positions in industry. Dissertation research will allow you to make a major contribution to the fields of civil and environmental engineering through research and publication. USF offers doctoral degrees in both civil and environmental engineering. See the research section of our website for information on recent projects in Environmental, Water Resources, Structures, Materials, Transportation and Geotechnical Engineering:

• **Engineering for International Development (EFD) Specialization:** This specialization acknowledges coursework and international field experience in the area of engineering for international development that considers issues of sustainability, environment, health, gender, and society. Students will engage in an extended international engineering field experience (e.g., in the U.S. Peace Corps, a Non-Governmental Organization, UNESCO-IHE, or equivalent) which in most cases will form the basis of the Master’s thesis. In addition to traditional engineering coursework, students take classes in sustainable development engineering, global health assessment, and research methods in applied anthropology.

Information about applying to our program, including links to our CEE department admissions intake form and the online application can be found at

Fill out the intake form and application, and arrange to have your transcripts, GRE and TOEFL scores (for foreign applicants) sent to the graduate school. The CEE department admissions intake form will ask you to provide:

• Contact information for references (please do not send the letters yourself).
• A one- or two-page resume
• A short statement of purpose describing your background and what you hope to accomplish in graduate school
• Any additional information that will help us in our admission decision.

The graduate admissions committee takes into consideration the applicant's background, work experiences, academic performance and letters of recommendation. In evaluating your application, the following qualifications can be used for guidance.

**Master’s Programs** (Civil, Environmental)
- Overall GPA ≥ 3.30
- GRE V ≥ 143 Q ≥ 151 AW ≥ 3.0
- TOEFL (international applicants only) ≥ 79

**PhD Programs** (Civil, Environmental, Engineering Science)
- Overall GPA ≥ 3.00 (3.30 in major)
- V ≥ 150 Q ≥ 159 AW ≥ 4.0
- TOEFL (international applicants only) ≥ 79

Please note that meeting these qualifications does not guarantee admission or financial assistance. Availability of departmental resources varies from year-to-year and is an important consideration in all graduate admission decisions. For more information or to send a CV please contact:

Sarina Ergas, PhD, Graduate Coordinator
813-974-9540 | cee-grad@usf.edu
Seven areas: 1) environmental engineering (ENV); 2) geotechnical (GTL); 3) materials (MTL); 4) structures (STR); 5) transportation (TPT); 6) water resources (WRS); and 7) engineering for international development (EFD).
Research Centers and Laboratories

- Center for Modeling Hydrologic and Aquatic Systems (CMHAS)
  http://cmhas.eng.usf.edu/

- Corrosion Engineering Lab
  https://www.usf.edu/engineering/cee/research/civil-engineering.aspx

- Nanotechnology Research and Education Center (NREC)
  http://www.nrec.usf.edu/

- National Bus Rapid Transit Institute
  http://www.nbrti.org/

- National Center for Transit Research
  http://www.nctr.usf.edu/
Scholarships and Fellowships

- USF Presidential Doctoral Fellowship
- Fulbright Fellowship
- NSF Graduate Research Fellowship
- U.S. Dept. of Energy Office of Science Graduate Fellowship
- NOAA Ernest F. Hollings Scholarship
- GEM Fellowship
- Eisenhower Fellowship

Faculty and Post Doctoral Appointments

- University of Illinois at Urbana-Champaign
- Lawrence Technical University
- Colorado School of Mines
- Oak Ridge National Laboratory
- Auburn University
- University of Guyana
- Polytechnic University of Puerto Rico, Orlando
- University of Puerto Rico, Mayagüez
- Mercer University

Industry and Government Positions

- Hydro Eco
- U.S. Army Corps of Engineers
- HSA Engineers & Scientists
- Hillsborough County
- City of Tampa
- Florida Dept. of Transportation
- Tampa Electric
- Atkins North America (formerly PBSJ)
- BCI Engineers
- Jacobs Engineering
- Sam Schwartz Engineering
- Doosan Hydro Technology
- U.S. Environmental Protection Agency
The single, most important piece of news that we are proud to share at this time is that University of South Florida (USF) is now a Preeminent State Research University in Florida – a recognition of the institution’s high performance and national excellence. USF, which started in 1956, joins Florida’s only two other veteran preeminent research universities, University of Florida and Florida State University. With more than $568 million in annual expenditures, as one of the nation’s top 30 public universities for research, and as America’s fifth-leading public university in generating new United States utility patents, we are proud to have earned our place. We in the Department of Computer Science and Engineering, housed in the College of Engineering at the University of South Florida are not without our own accomplishments. Back in 2010, our Department was ranked in the top one-third of all Computer Science programs by the NRC Research Quality metric in the data-based assessment of research-doctorate programs. In 2018, we have forged ahead.

- USF CSE is in the top sixth (rank 31) of Computer Science departments at US public university, according to most recent Academic Analytics data based on Scholarly Research Index using default weights for grants, articles, conferences, awards, and citations.
- The most recent US News & World Report ranked our Computer Engineering program in the top-50 among public universities.
- The graduate Masters of Science in Information Technology program was ranked 23rd for online IT programs by the 2018 US News & World Report.

According to the Bureau of Labor Statistics, “seven out of the ten largest STEM occupations were computer related. With employment of nearly 750,000, applications software developers were the largest STEM occupation. Computer user support specialists and computer systems analysts each accounted for over a half a million job.” We prepare students for these professions. Our graduates are in top companies in the region and nationwide, such as CAE, JP Morgan, Raytheon, GM, Google, IBM, Intel, and Raymond James, to name a few. We offer degrees in four different majors: the Bachelor of Science in Computer Science, Computer Engineering, Information Technology, and Cybersecurity, the Master’s in Computer Science, Computer Engineering, and Information Technology, and the PhD in Computer Science and Engineering. In Academic Year 2017 - 2018 the Department awarded 295 BS degrees, 67 MS degrees, and 12 PhD degrees. Total undergraduate enrollment, including pre-majors, is currently approximately 2000 students, or about 1/3 of the total population of undergraduate and graduate students. In Academic Year 2017 - 2018, 8.3% of BS degrees awarded went to Black students, and 19.2% went to Hispanic students, this is more than double the national average for these two groups for computer science. In the same year, 13.5% of BS degrees awarded went to women students; this is below the national average of 19.2%. The Department has seen a growth in degrees awarded to women students from 10.1% in Academic Year 2011-2012.

Great faculty members make for great departments. Our Department has 28 tenure-stream faculty and 11 full-time instructors. Our faculty includes IEEE, AAAS, IAPR, and AIMBE Fellows, 12 NSF CAREER award recipients, and two Distinguished University Professors. Our faculty values research, teaching, and service. Multiple faculty members have been awarded Outstanding Undergraduate Teaching awards from the University. Our faculty members are very involved with service to professional societies (such as IEEE-CS and ACM) and the community. Faculty members are currently executing $9.6 million in active external research grants, each spanning 3 to 5 years, of which $5.6 million are from NSF, $2.3 million are from the Department of Defense, and the rest from NIH, NIST, industry, and state sources. The research clusters in the department include: 1) AI and Cognitive Computing (Computer Vision and Pattern Recognition, Artificial Intelligence and Machine Learning, Robotics, Human-Computer Interfaces, and Affective Computing); 2) Cybersecurity (Trustworthy Computing, Network Security, Smart Bio-devices, Hardware security, and Biometrics); 3) Bi-Dimensional Science Algorithms (Biomedical Imaging, Machine Learning, Databases, Visualization, Social Networks, and Efficient Computing Platforms); 4) Computer Architecture (VLSI, Ubiquitous Sensing Networks, Distributed Computing, Parallel Processing, and Biomedical Devices)

We have teaching and research assistantships available for all PhD students that include a stipend and tuition waiver. For undergraduates, we offer a Research Experiences for Undergraduates (REU) program, undergraduate teaching assistantships, many scholarships, connections for internship opportunities with companies in the Tampa Bay area, and the opportunity to do meaningful capstone design projects in conjunction with local companies. Our students have access to many state of the art computing facilities, including Mini-Circuits Design-for-X Lab, computer engineering and cybersecurity labs, and a more than 100 node GPU cluster for Deep learning. We are located in the beautiful Tampa Bay area, which has several of the top-ranked beaches in the world, a sunny climate, and many opportunities for recreation as well as cultural activities. We look forward to welcoming you on campus sometime soon.

Sudeep Sarkar, Ph.D.
Professor and Chair
Admission Requirements

The Department offers a PhD program in Computer Science and Engineering and Master’s programs in Computer Science, Computer Engineering, and Information Technology. The majority of our accepted students have a 4-year undergraduate degree in computer science, computer engineering, electrical engineering, mathematics, or information technology. Well-prepared students in other majors are encouraged to apply. The computer science and engineering programs require the applicant to have mathematical preparation equivalent to courses in calculus through differential equations, demonstrated knowledge of computer science and computer engineering (formal course grades), including logic design, computer architecture, data structures, operating systems, and analysis of algorithms. The information technology program requires knowledge in the discipline demonstrated from undergraduate-level pre-requisite courses in programming, databases, data structures and algorithms.

- Minimum grade point average (GPA) of B average (or equivalent) for all coursework completed during the last two years of undergraduate program.

- Test scores for the Graduate Record Exam (GRE) must be within the five years preceding application to the graduate program. The GRE is required for all PhD and international applicants and those requesting financial aid. We require a minimum of 161 on the Quantitative portion (81 percentile) and a minimum of 150 (44 percentile) on the Verbal. The GRE may be waived in the MSCS, MSCE and MSIT programs if some requirements are met (see the programs’ descriptions in the website).

- For teaching assistantship consideration, applicants from non-English speaking countries must take and pass the speaking component of the Internet-based TOEFL with a score of 26 or above.

- Three letters of recommendation are required for all applicants.

- Statement of purpose from applicant.

Detail information about all the programs can be found in the department’s website at http://www.usf.edu/engineering/cse/graduate/index.aspx

For more information, please contact:
Miguel A. Labrador, PhD, Professor and Associate Chair of Graduate Affairs

gpd@cse.usf.edu

Additional Requirements for International Students

International students should apply well in advance of admission deadlines since these applications take longer to process. International students must also submit a Financial Statement (necessary to receive an I-20) if you are not awarded an assistantship.

For complete information on international student concerns related to visa status, please go to:

www.usf.edu/admissions/international/
The University of South Florida, a Florida Preeminent Research University, offers an intellectually challenging environment in a diverse student and faculty population. The outstanding faculty in the department includes a number of IEEE Fellows, IAPR Fellows, and ACM Fellows, several NSF CAREER award winners and several Distinguished University Professors, all performing innovative research.
Miguel Labrador  
Computer Networks, Ubiquitous Sensing

John Licato  
Computational Modeling of Cognitive Reasoning; Cognitive Science and Robotics; Computational Cognitive Architectures; Automated Theorem Provers; Artificially Intelligent Reasoners

Jay Ligatti  
Software security, Programming Languages

Yao Liu  
Network Security, Wireless Technologies

Mehran Mozaffari Kermani  
Fault Diagnosis and Tolerance in Cryptography, Cryptographic Engineering, and Computer Arithmetic

Tempestt Neal  
Scalable biometrics; mobile biometrics; computer vision; authorship attribution; human-centered authentication; soft biometric classification; emotion recognition

Xinming Ou  
Cyber security, Cyber Physical Systems, Programming Languages, Cloud Computing, Human Aspects of cComputing

Les A. Piegl  
Computer-Aided Design (CAD), Geometric Modeling, Bioengineering and Biologically inspired design

Paul A. Rosen  

Sudeep Sakar, FAAAS, FAIMBE, FIAPR, FIEEE, FMAI  
Computer Vision, Sign Language Recognition, Biometrics

Rafael Perez  
Artificial Intelligence, Neural Networks, Genetic Algorithms

Yu Sun  
Robotics, Computer Vision, Haptics

Continued on next page
Research Centers and Laboratories

- AMHR Advancing Machine and Human Reasoning Lab  
  https://sites.google.com/view/amhr/home

- ARGUS Cybersecurity Lab  
  http://www.arguslab.org/

- Biorobotics Lab  
  http://robolat.org/

- Computer Vision and Pattern Recognition Group  
  http://www.eng.usf.edu/cvprg/

- Distributed Systems Lab  
  http://www.cse.usf.edu/dsg/

- Robot Perception and Action Lab (RPAL)  
  http://rpal.cse.usf.edu/

- USF Defense and Intelligence Research Laboratory (USF:DIRL)  
  https://www.usf.edu/engineering/ee/research/index.aspx
Student Success

Scholarships and Fellowships
- NSF Computing Innovation Postdoctoral Fellowship
- NSF Graduate Research Fellowship
- NSF East Asia Pacific Institute Fellowship
- Richard Newton Award

Faculty and Post Doctoral Appointments
- University of Virginia
- Moffitt Cancer Center & Research Institute
- Yale University
- Duke University
- Mississippi State University
- James A. Haley VA Hospital
- East Mississippi State University
- USF Health at University of South Florida
- North New Mexico College
- University of Notre Dame
- Stevens Institute of Technology
- University of North Texas
- University of Kentucky
- University of Mississippi

Industry and Government Positions
- Microsoft
- Intel
- Lockheed Martin
- Deutsche Bank
- GE Global Research
- NASA Jet Propulsion Lab
- NASDAQ
- Nokia
- Cisco Systems
- Draper Laboratory
- Nielsen
- AOL
- Jabil Circuit
- Seminole Electric
- TaTa Consultancy
- IBM
- Verizon
- U.S. Dept. of Navy
- Yahoo! Research
- Telefonica
- Amazon
Welcome to the Electrical Engineering Department at the University of South Florida. The EE faculty are committed to helping our students, which number about 300 at the undergraduate level and 450 at the graduate level, become curious problem solvers with a strong grasp of disciplinary foundations, and prepared for self-directed learning of new techniques. With this preparation our students are contributing to next generation energy and power delivery solutions, advanced sensors and communications that will enable future automotive, robotic, aerospace and internet technology; resilient networks that securely connect people and machines across the planet; novel materials that improve the performance and power consumption of electronic systems; and biomedical devices that improve the human condition. We enjoy strong partnerships throughout industry and with prominent national laboratories and federal agencies. Research experiences are integral to the education of not only our graduate students, but also for undergraduates through our Research Experience for Undergraduates (REU) program and similar activities.

Experiential learning through the REU program and internships is considered a critical component of our undergraduate program. Our faculty and staff take great pride in being student-centric in all aspects of our program and promoting a diverse and engaged student body. Undergraduate students are provided opportunities early on to develop confidence in making their own devices, and satisfying creative interests through our collaboration with The Arts. Project-based training to ensure our students are ready to enter the professional world is emphasized in the 2-semester Capstone Design sequence at the culmination of the BSEE program. Throughout the program, opportunities to gain specialized training in a wide range of EE sub disciplines is available through our numerous technical electives. Academics are balanced with a variety of extra-curricular and professional development activities, including those of our very active Student IEEE organization. We also place great value on the feedback from our students to continuously improve the educational experience, and their involvement in helping to shape new initiatives to ensure maximum benefit to the student population.

The approximately 34 faculty members in our department hail from some of the finest institutions in the country, and include NSF CAREER Award winners, Fellows of the IEEE and AAAS, Distinguished University Professors, and a member of the National Academy of Engineering. Many serve in national leadership roles in technical societies such as the IEEE, and have industry experience to complement their academic backgrounds. Some are very entrepreneurial and have founded spin-off companies based on their research. This diversity of experience enriches the learning and experiences of our students.

We also value the multi-disciplinary opportunities afforded by electrical engineering. As a student, you may find yourself working with engineers in other academic departments, computer science and engineering, marine scientists, physicians, chemists, biologists or physicists. Together with our dedicated faculty and excellent facilities, these exciting opportunities have helped us to attract top students to our department and prepare them for enriching careers. Our graduates are employed across many industries at organizations that include Qualcomm, SpaceX, GE Aerospace, General Motors, Texas Instruments, Duke Energy, Keysight, Honeywell, Qorvo, Skyworks, Boeing, Lockheed Martin, Harris Corporation, Jabil, Ansys and Nielsen.

Christos Ferekides, Ph.D.
Professor and Interim Chair
Admission Requirements

Admission to the MS and PhD degree programs is granted by the Dean of the Graduate School upon recommendation by the Department of Electrical Engineering and the Dean of the College of Engineering. Requirements for admission to the program with regular status are summarized below.

All of our accepted students have a 4-year undergraduate degree in electrical engineering, or a closely related discipline. Most PhD applicants have a master’s degree. However, direct admission into the PhD program is possible from the baccalaureate degree.

Minimum grade point average (GPA) of a 3.0 (or a B average or equivalent) for all coursework completed as part of the baccalaureate degree is preferred.

Test scores for the Graduate Record Examination (GRE) must be within the five years preceding application to the graduate program. The GRE is required for all PhD applicants. The Department of Electrical Engineering requires PhD applicants to achieve minimum scores of V=146 and Q=155.

For teaching assistantship consideration, applicants from non-English speaking countries must take and pass the speaking component of the internet-based TOEFL test with a score of 26 or above. All international students must have a total score on the Internet-based TOEFL of 79 or higher.

Three letters or recommendation, a statement of purpose and goals, and an updated resume are required for all applicants.

For more information or to send a CV please contact:
Andrew Hoff, PhD, Graduate Coordinator
hoff@usf.edu

Diana Hamilton, Academic Program Specialist
dlhamilton@usf.edu
The mission of the Electrical Engineering Department is to provide internationally recognized education programs, to conduct and disseminate internationally recognized research benefiting humanity, to provide service to society, and to emphasize the need for lifelong learning, ethical conduct and an understanding of the diverse societal context in which engineering is practiced.
Wilfrido Moreno
Wireless and Sensor Systems, Control Systems, Systems Engineering

Ashwin B. Parthasarathy
Novel Biomedical Instrumentation and Imaging Techniques with Optics

Stephen Saddow
Silicon Carbide Biotechnology

Ravi Sankar, PE
Signal Processing and Wireless Communications Networking

Salvatore Morgera, PE, FIEEE, FAAAS, FIET
Neurological Bioengineering: Secure, High QoS Wireless Sensor/Ad Hoc Networks

Rudy Schlaf
Electronic Materials and Interfaces

E.K. Stefanakos, PE

Don Morel
Electronic Materials, Solar Cells, Thin-Film Devices

Gokhan Mumcu
Computational Electromagnetics, THz Imaging, Metamaterials and Miniature Antennas

Mahshid Rahnarnay Naeini
Network science, stochastic processes, system modeling, machine learning, network mining and analytics

Jing Wang
MEMS, RF/Microwave/THz devices, Micromachined Sensors and Actuators, Functional Nanomaterials

Ismail Uysal
Wireless and Radio Frequency Identification (RFID) Technologies

Arash Takshi
Bio and Organic Electronic Devices, particularly in Photovoltaic Devices.

Yasin Yilmaz
Statistical Data and Signal Analysis, Machine Learning, Multimodal Data Fusion, Event-driven Systems, Object-oriented Modeling

Sylvia Thomas
Synthesis, characterization of Novel Materials for Biomedical, Biological Applications
Research Centers and Laboratories

- AMBIR Advanced Materials Bio & Integration Research Lab
  http://ambir.eng.usf.edu/

- Center for Communications & Signal Processing (CCSP)
  http://ccsp.eng.usf.edu/

- Center for Wireless and Microwave Information Systems (WAMI)
  http://wami.eng.usf.edu/

- iCONS (interdisciplinary communications networking and signal processing)
  http://icons.eng.usf.edu/

- Intelligent Systems Lab
  http://sis.eng.usf.edu/

- iWINLAB In vivo Wireless Information Networking Lab
  http://iwinlab.eng.usf.edu/

- RF MEMS TRANSDUCER Research Group
  http://transducers.eng.usf.edu/

- RFID Center for Applied Research
  http://ee.eng.usf.edu/RFID/index.htm

- Smart Grid Power Systems Lab
  http://power.eng.usf.edu/

- USF Surface Science Lab
  http://rsl.eng.usf.edu/

- Wireless Communication and Signal Processing Group
  http://wcsp.eng.usf.edu/research.html
Student Success

Scholarships and Fellowships

- National Science Foundation Graduate Research Fellowship
- NIH Ruth Kirschstein Postdoctoral Fellowship
- Ford Predoctoral Foundation Fellowship
- Draper Laboratory Fellowship
- UNCF MERCK Graduate Dissertation Fellowship
- NASA Harriett Jenkins Predoctoral Fellowship
- NSF East Asia Pacific Summer Institute Fellowship
- IEEE MTT-S Fellowship
- Marshall Scholarship
- Goldwater Scholarship
- NSF Graduate Research Fellowship
- NASA Graduate Research Fellowship
- Automotive RF Techniques Group Silver Fellowship
- USF Presidential Doctoral Fellowship
- GEM Fellowship

Faculty Appointments and Post Doctoral Appointments

- Argonne National Laboratory
- University of the Virgin Islands
- Baylor University
- University of Alabama-Birmingham
- Duke University
- NASA Graduate Student Research Program Fellowship
- North Carolina A&T State University
- Southern Polytechnic State University
- Washington State University
- NASA Goddard Space Flight Center
- Georgia Research Institute of Technology
- Brookhaven National Laboratory
- Rutgers University
- Texas A&M University
- Florida International University

Industry and Government Positions

- NASA Goddard Space Flight Center
- National Institute of Standards & Technology
- Global Foundries
- Draper Laboratory
- Honeywell
- Intel
- JP Morgan
- Qualcomm
- Agilent Technologies

- Moffitt Cancer Center
- Verizon
- Frontier Communications
- Texas Instruments
- Tampa General Hospital
- Broadcomm
- Tampa Electric
- Harris Corporation
Dear Friends of Industrial and Management Systems Engineering,

On behalf of the students, staff, and faculty of IMSE, I offer you our warmest greetings. It is a pleasure to be a part of the Industrial and Management Systems Engineering Department at USF where our commitment to student success and engagement with alumni and community continues to thrive through education, research, innovation, and service.

We have several initiatives aimed at enhancing “student success.” We continue to emphasize a comprehensive undergraduate mentoring approach where students are guided to develop a holistic portfolio of accomplishments including leadership, community engagement, mental and physical health, language competency, global exposure, undergraduate research, university/state/national scholarships, and life skills. Our BSIE curriculum has undergone a major revision to improve our students’ knowledge of data analytics. We now have four (4) new data sciences core courses covering topics on programming, database management, data mining, and machine learning.

Our Industry Consortium for Industrial and Management Systems Engineering (icIMSE) continues to grow, prompting partnership between the IMSE department and companies in the Tampa Bay Area. The icIMSE offers opportunities for experiential learning through problem solving by teams comprised of both undergraduate and graduate students. The BSIE capstone experience class is currently undergoing a transformation to emphasize innovation and entrepreneurship.

The IMSE graduate programs remain strong both in enrollment and quality. Our MSEM program is now ranked by U.S. News and World Report to be 17th among all engineering online graduate programs in the nation. Our Ph.D. graduates continue to receive highly competitive offers in both academia (as tenure track professors) and industry. USF’s INFORMS student chapter has won the prestigious Summa-Cum-Laude award three years in a row.

Finally, like all other major academic institutions, our ability to create a better opportunity of success for our students depends greatly on your support, especially via a share of your charitable resources. You can make a donation to IMSE at usffdn.usf.edu/apps/?fund=220059.

Most sincerely,

Tapas K. Das, Ph.D.
Professor and Chair
Admission Requirements

PhD applicants are judged on performance in their prior endeavors, usually this means their earned bachelor’s and master’s degrees, GRE score, and TOEFL score (for international students). We also put great emphasis on the applicant’s statement of purpose with research goals, and the letters of recommendation. Applicants should elaborate on their statement any research experiences to which they have been exposed. Applicants who have demonstrated research potential and outstanding performance in their undergraduate program may be considered for admittance directly into the PhD program.

Minimum Requirements

- An undergraduate degree in engineering or a related field with a strong background in mathematics
- An undergraduate GPA of 3.0/4.0
- GRE: quantitative 156, quantitative + verbal 310
- English language proficiency (international applicants only): TOEFL iBT 79 or IELTS 6.5 or GRE Verbal 153 or PTE-A 53
- Statement of purpose including evidence of research potential (one page)
- Three letters of recommendation

International Students must also provide:

- Proof of financial resources and insurance to cover a full year’s expenses.
- English translations of all previous educational transcripts.
- An appropriate undergraduate degree from a reputable institution that is comparable to an accredited undergraduate degree earned in the United States.

Master’s of Science in Industrial Engineering (MSIE)

The Master’s of Science in Industrial Engineering (MSIE) is an advanced graduate degree focused on preparing professionals in the design, evaluation and operation of complex industrial systems in all sectors of the economy. The degree provides students with a strong technical and research background necessary to solve challenging problems with state-of-the-art techniques, including analytics, decision support systems, information technology, applied operations research, production planning and project management, risk analysis, finance, applied automation, engineering statistics, quality control, and reliability. The MSIE offers both thesis and non-thesis options.

Admission requirements are identical to Doctoral Program except minimum GRE Quantitative + Verbal = 300, and statement of purpose letter does not need to address research potential.
IMSE faculty have won national research, teaching, and leadership awards and have received nationally competitive research grants from NSF, DOD, and FDOT, among other agencies.

Hadi Charkhgard  
Multi-Objective Optimization, Operations Research, Integer Programming

Devashish Das  
Health Care Systems Engineering, Applied Probability and Statistics

Tapas Das, FIIE  
Pandemic Mitigation, Healthcare Engineering, Electric Power Systems and Policy

Changhyun Kwon  
Transportation Systems Analysis, Service Operations, Risk Management

Susana Lai-Yuen  
Haptics, Computer-aided Design, Computational Geometry

Mingyang Li  
Bayesian Data Analytics, Data Mining, System Informatics

Kingsley Reeves  
Lean Six Sigma, Collaborative Networks, Supply Chain

Alex Savachkin  
Risk Analysis, Applied Stochastic Processes, Decision Support for Influenza Pandemics

Carla VandeWeerd  
Healthcare Technology and Delivery Systems

Michael Weng  
Applied O.R., Computer Numeric Methods Scheduling

Ali Yalcin  
Health and Engineering, Systems Modeling, Analytics Applications, Engineering Education

José Zayas-Castro, FIIE  
Health Care Systems Engineering, Economic and Cost Systems, Manufacturing and R&D Strategy
Student Success

Scholarships and Fellowships
- USF Doctoral Dissertation Fellowship

Faculty Appointments
- Western Michigan University
- University of Wisconsin-Milwaukee
- Northeastern University
- Florida Institute of Technology
- USF College of Medicine
- Peking University, PR of China
- George Mason University
- University of Massachusetts, Amherst
- Universidad del Norte, Baranquilla, Colombia
- Southern Illinois University, Edwardsville
- Fort Hays State University

Post-Doctoral Appointments
- University of California, San Diego
- Centers for Disease Control and Prevention
- University of South Florida

Industry and Government Positions
- Publix Supermarkets
- Boeing
- Raytheon
- Comcast
- Liberty Mutual Insurance
- Lockheed Martin
- Tampa Electric
- Disney World
- Morgan Stanley
- Goldman Sachs
- Citibank
- JP Morgan Chase

For more information or to send a CV please contact:
Alex Savachkin, PhD
Graduate Program Director
alex@usf.edu

Patricia Anzalone, PhD
MSEM Program Director
panzalone@usf.edu
Welcome to the Department of Mechanical Engineering at the University of South Florida! Mechanical Engineering is the broadest of engineering disciplines that offers a variety of career choices. Mechanical engineers design, develop, build, and test mechanical and thermal devices, including tools, engines, and machines. Mechanical engineers work mostly in engineering services, research and development, manufacturing industries, and the federal government.

The Mechanical Engineering Department at USF has approximately 1000 undergraduates and 200 graduate students. Our students come from over 40 countries. Our engineering graduates are making a deep impact on the society. Several of our alumni are successful entrepreneurs and hold senior positions in large corporations. Our students are in great demand with lucrative job offers by local, regional, national and international companies including Boeing, Honeywell, Siemens, Motorola, Honda, Lockheed, TECO, P&G, Jabil, Mitsubishi, Toyota, Harris, and Raytheon. According to the 2017 NACE salary survey, Mechanical Engineering is among the 10 top paid majors (also highest in the total number of new jobs among engineering majors) with average starting salary of $65,557.

Our faculty members are committed to conducting research as a means of improving society, increasing the nation’s prosperity, and maintaining up-to-date teaching instruction. Most of the research in the department is interdisciplinary and collaborative. Areas of research include robotics, biomedical and tissue engineering, nanomaterials and nanomanufacturing, micro electromechanical systems, biosensors and biofluids, clean energy technologies, compliant mechanisms, rehabilitation engineering, system dynamics and vibrations, composite materials, and sustainable designs. Sponsors include government agencies such as NSF, DOE, DOD and NASA, non-profit organizations, and also the private sector.

With collaboration among faculty, graduate students and undergraduates, we have achieved national and international prominence for our research and teaching efforts. Our faculty and students have received a large number of patents through innovative research as well as design courses at both undergraduate and graduate levels. The program has active student sections of ASME and SAE centered on national and international design competitions. Two-thirds of the undergraduate mechanical engineering students belong to ASME. As a result, students who actively participate are able to expand their education while building professional networks in the Tampa community.

The department has nine professional society fellows, several prestigious national and university teaching award winners including the 2012 US Professor of the Year, five NSF CAREER awardees, and one NSF PECASE awardee.

Sincerely,

Rajiv Dubey, Ph.D.
Professor and Chair
Admission Requirements

Requirements for PhD Level Admission and Assistantship:

Admission to the PhD degree program is granted by the Dean of Graduate School upon recommendations by the Department of Mechanical Engineering and the College of Engineering.

- The majority of our accepted students into the PhD program have a four-year undergraduate degree in mechanical engineering as well as a master’s degree in mechanical engineering. Students who do not have a master’s degree but have a high GPA at the undergraduate level can be admitted directly into the PhD program. Students having an undergraduate degree in material science or any other science or engineering discipline can be admitted as long as they have the mathematical foundation required for research and are willing to fulfill pre-requisite classes to make up any deficiency.

- All applicants need to submit their official transcripts. The admission requirement is a GPA of 3.0 in a scale of 0-4 from an ABET accredited engineering program or equivalent.

- All applicants are required to take the Graduate Record Exam (GRE). A minimum percentile rank of 60% on the quantitative portion and a minimum average percentile rank of 60% in verbal and quantitative must be obtained for admission to the Ph.D. Program.

- In addition to transcripts and GRE score, students are encouraged to submit a resume outlining their past research experiences, publications, conference presentations, and patents.

- Applicants are also encouraged to contact faculty members in their areas of interest to enroll in a research group and to seek funding as a research assistant.

- All students admitted to the PhD program who do not have a scholarship or fellowship support are automatically considered for support as a teaching assistant. No separate application is needed for this purpose. However, this form of support is highly competitive.

- Any student appointed as a Research or Teaching Assistant also receives full tuition support to cover expenses for their studies.

- Applicants must also include a Statement of Purpose outlining their research interests.

Requirements for Master’s Level Admission:

The student must have a grade point average (GPA) of 3.0/4.0 for the last two years of course work from an ABET accredited engineering program or a minimum percentile rank of 50% on the quantitative portion and a minimum average percentile rank of 50% in verbal and quantitative must be obtained for admission to the Master’s Program. For admission to the accelerated Master’s degree program (BSME-MSME or BSME-MME), students need to have a minimum cumulative GPA of 3.3 at the time of admission.

For more information, please contact:
Rasim Guldiken, PhD
Graduate Coordinator
Guldiken@usf.edu
The Department of Mechanical Engineering has 14 tenured and tenure-track faculty members. Our faculty members are committed to conducting research as a means of improving society, increasing the nation’s prosperity and maintaining up-to-date teaching instruction.

### Mechanical Engineering Research Centers and Laboratories

- Computational Methods Research and Education Laboratory  
  http://www.eng.usf.edu/~kaw/research/

- Lab for Autonomy, Control, Information, and Systems (LACIS)  
  http://lacis.eng.usf.edu/

- Materials and Mechanics Lab  
  http://www.eng.usf.edu/~caiw/

- Micro/Nano Integration Lab (MINT)  
  http://www.eng.usf.edu/~ncrane/

- Microfluidics and Acoustic Lab  
  http://me.eng.usf.edu/Faculty/guldiken/Home.html

- Nanomechanical Testing Lab  
  http://www.eng.usf.edu/~volinsky/

- Vibrations and Dynamic Systems Lab  
  https://www.usf.edu/engineering/me/research/index.aspx
Craig Lusk  
Compliant Mechanisms and Biomechanics

David Murphy  
Fluid Mechanics, Animal Biomechanics, Oil Spills

Jose Porteiro  
Fluid Mechanics, Heat Transfer

Kyle Reed  
Rehabilitation Engineering and Haptics

Alex Volinsky  
Thin Films Processing, Mechanical Properties and Characterization

Michael Cai Wang  
Nano-science and nano-manufacturing, Interfacial/surface phenomena

Stuart Wilkinson  
Energy Systems Design, Bionomic Engineering

Tansel Yucelen  
Systems and Control

Fellowships and Scholarships

- National Science Foundation
- Graduation Research Fellowship
- U.S. Department of Energy
- Postdoctoral Fellowship
- GM Global Research and Development Center

Faculty and Post Doctoral Appointments

- Carnegie Mellon University
- University of South Florida
- Polytechnic University of Puerto Rico, Orlando
- Universidad del Norte Baranquilla, Colombia

Industry and Government Positions

- Draper Laboratory
- Lockheed
- General Motors
- Cummins, Inc.
- Harris
- United Technologies Research Center
- Pratt & Whitney
- Intel
- Busch Gardens
- Sea World
- Raytheon
- Boeing
- Siemens Energy
- Saudi Aramco
- Honeywell

- Boston Scientific
- Syniverse
- Harris Corporation
- General Electric

Student Success
Biomedical Engineering is one of the most exciting, fastest-growing areas of engineering in terms of job growth prospects over the next decade. We have a vibrant BME graduate program, with about 75 students enrolled at any given point in time. A strength is a diversity of research areas that our students can get involved in while pursuing our graduate program; as well as a growing list of BME-related companies where students can obtain internships and Co-ops; and graduates can obtain employment in both the Tampa Bay Area and nationally. Many of our University of South Florida BME-related laboratories are in new, state-of-the-art research buildings or newly renovated areas. Our BME graduate programs have had a noteworthy history over the past two decades, originating in our Department of Chemical Engineering. These BME graduate programs are now expanding and being administered in our new Department of Medical Engineering; the first joint department between the College of Engineering and the Morsani College of Medicine.

Our Department continues to add outstanding faculty through external recruiting, and benefits from an excellent group of affiliated and joint-appointment BME faculty in other departments of the College of Engineering, USF Health, and the USF College of Arts & Sciences; and we have a formal joint BME/Pharmacy MS option with the USF College of Pharmacy.

Dr. Robert Frisina
Professor and Interim Chair
Admission Requirements

Master’s Program Requirements

General Requirements for Master’s Degrees Department of Medical Engineering In addition to the general university wide requirements for a graduate degree (see www.grad.usf.edu), the department has established the following requirements: 1. A thesis program must contain a minimum of 24 credit hours of coursework and a minimum of 6 credit hours of thesis. (If a student transfers from a thesis program to a project or all coursework programs, no thesis hours may be transferred, converted or counted toward the degree.) 2. Non-thesis program requirements vary according to the degree program. 3. Students must maintain an overall grade point average of 3.0. No grade below “C” will be accepted towards a degree. If a student’s average falls below 3.0, the student will be placed on probation and must obtain a directed program from the appropriate advisor, and approval by the Engineering Associate Dean for Academic Affairs, prior to continuing coursework for a degree. 4. All students are required to pass a final oral or written comprehensive examination prior to receiving the degree.

These examinations are arranged and administered by the student’s department. All thesis option students are required to present a departmental seminar based on their research as part of their oral examination. Candidates who have at least one publication or a presentation at a conference or proceedings based on the Master of Science thesis research may be exempted from the comprehensive examination requirement upon the recommendation of the Graduate Advisor. Five-Year Programs Leading to Bachelor and Master’s Degrees Students at USF who, at the end of the junior year, clearly are interested in graduate study are invited to pursue a five-year program leading simultaneously to the Bachelor of Science and Masters degrees. The keys to this program are (1) The opportunity to take graduate courses during the fourth year and deferring senior courses to the fifth year. The requirements of the combined degrees do not differ from those for the two degrees pursued separately. (2) Students may double-count up to 6 credit hours towards both degrees. Transfer of course credit from other universities A maximum of 8 semester hours or 3 courses. can be transferred from another graduate school These courses must be approved by the Graduate Coordinator. The form for transferring courses may be obtained from the Registrar’s Office. For Ph.D. students having a prior Masters Degree, up to 30 credit hours may be transferred.

https://www.usf.edu/engineering/bme/graduate/masters-program-resources.aspx

PhD Program Requirements

https://www.usf.edu/engineering/bme/graduate/doctoral-program-resources.aspx
Medical Engineering

- Nanosurface-Chemistry and Green Materials Chemistry
- Chemical and Biological Microsensors and Microsystems
- CARRT: Center for Assistive Rehabilitation Robotics Technologies
- Continuous Acquisition of Brain Signals and Neuroplasticity
- Assistive Listening Systems and Sound Processing Algorithms for The Hearing Impaired
- Manipulation of Neural and Cardiac Cell Activity By Light and Nanoparticles
- Biomedical Data Processing and Wireless Communication
- Biomedical Imaging and Computing
- Sensor and MEMS Applications for Biomedical Engineering
- Vascular Surgery Device Development, Testing and Commercialization
- Plasma and Electroporation Assisted Cancer Treatment
- Novel Biomedical Imaging Systems- Oncology, Neuroscience, Orthopedics and Cardiology
- Tissue Engineering and Wound Healing
- Biomechanics, Orthopedics and Engineering Education
- Biotechnology and Drug Discovery
- Oncology Biomedical Engineering
- Biomedical Networks and Networking
- Biomedical Instrumentation and Imaging Techniques
- Micropumps for Localized Drug Delivery
- Nanowire-based Imaging and Medical Diagnostic Systems
- Silicon Carbide Semiconductor Materials
- Fundamental and Applied Research in Computer Vision, Image Processing, & Pattern Recognition
- Advanced Materials for Bio-applications, Nano-electro Mechanical System (NEMS) Devices
- Neural Circuitry and Brain Plasticity Underlying Auditory Processing for Normal and Hearing-Impaired Systems

Medical Engineering Faculty

Robert Frisina, Jr., FASA, FAIMBE
Development of Bio-therapeutic Systems, Devices and Compounds for Treating Sensory Deficits; Emphasis on Bench-to-Bedside Investigations of the Auditory System and Translational Research on Deafness and Other Neuroengineering Applications

Huabei Jiang
Diffuse optical tomography (DOT), photoacoustic tomography (PAT), fluorescence molecular tomography (FMT), and bioluminescence tomography (BLT)

Hao Yang
Optical-based imaging technologies for in vivo visualization of tissue at both the macroscopic and microscopic scales
Medical Engineering Affiliated Faculty

Venkat Bhethanabotla  
Chemical & Biomedical Engineering

Stephanie Carey  
Mechanical Engineering

Tim Fawcett  
Mechanical Engineering

Rajiv Dubey  
Mechanical Engineering

Nathan Gallant  
Mechanical Engineering

Richard Gilbert  
Chemical & Biomedical Engineering

Dmitry Goldgof  
Computer Science & Engineering

Drew Hoff  
Electrical Engineering

Mark Jaroszeski  
Chemical & Biomedical Engineering

Piyush Koria  
Chemical & Biomedical Engineering

William E. Lee  
Chemical & Biomedical Engineering

Stephen B. Liggett, MD  
Internal Medicine, Molecular Pharmacology & Physiology

Chris Passaglia  
Chemical & Biomedical Engineering

Anna Pyayt  
PhD; Chemical & Biomedical Engineering

Stephen Saddow  
PhD; Electrical Engineering

Sylvia Thomas  
PhD; Electrical Engineering
Medical Engineering Faculty

Medical Engineering Affiliated Faculty

Radouil Tzekov, MD, PhD
USF Morsani College of Medicine,
Department of Ophthalmology

Dmitri Voronine
USF Dept. of Physics

Joseph Walton
Communication Science &
Disorders

Samuel Wickline, MD
Interim Chair and Associate Dean,
Cardiology, USF Morsani College
of Medicine; Director, USF
Health Heart Institute; Professor,
Cardiovascular Sciences

Jose Zayas-Castro
Industrial Engineering
The MSEM program helps professionals in engineering develop the leadership competencies needed for progressing into management positions. The MSEM curriculum is designed to provide engineering professionals the opportunity to build competencies in areas like technical management, process optimization, quality and continuous improvement, safety, entrepreneurship, and engineering analytics. The MSEM program can be pursued completely online and also on campus.

Admission Requirements

- An undergraduate degree in engineering. Other undergraduate degrees in technical fields may be accepted on an individual basis.
- A minimum GPA of 3.0 on a 4.0 scale or equivalent for all undergraduate work taken during the last two years of the applicant’s studies.
- GRE may be required (minimum Q ≥ 156, V ≥ 146).
- TOEFL (international applicants only) ≥ 79
- At least two years of work experience in engineering or management.
- A resume and one letter of recommendation are required.
Admission to this program is by meeting University requirements (see Graduate Admissions) as well as those listed below.

- Bachelor’s degree in Engineering (Chemical, Mechanical, Industrial, Civil, Materials Science, Ceramic, Metallurgy, Manufacturing, Polymer and other related engineering disciplines) or Natural Sciences (Physics, Chemistry or Biology) from a regionally accredited institution.
- Minimum undergraduate GPA of 3.00
- GRE with preferred minimum scores of V 50%, Q 50% and AW 50%.
- TOEFL score of 550 (paper-based test) or 213 (computer-based test) or 79 (internet-based test) for international students
- Three letters of recommendation
- Statement of purpose

USF students in Physics, Chemistry and Engineering can apply for the accelerated BS/MS program in their junior year of undergraduate studies.

For more information, contact

Venkat R. Bhethanabotla
Director, Materials Science and Engineering Program

Bhethana@usf.edu
813.974.3041

http://mse.usf.edu
Interdisciplinary Research Centers and Laboratories

Center for Assistive, Rehabilitation Robotics Technologies (CARRT)  
http://carrt.eng.usf.edu/

Center for Urban Transportation Research (CUTR)  
http://www.cutr.usf.edu/

Center for Applied Research Medical Devices  
http://caremed.eng.usf.edu/index.htm

Clean Energy Research Center  
https://www.usf.edu/engineering/cerc/

Global Center for Hearing & Speech Research  
http://www.gchsr.usf.edu

Center for Wireless and Microwave Information Systems  
http://wami.eng.usf.edu

Mini Circuits Design for X Laboratory  
http://eng.usf.edu/dfx/

Nanotechnology Research & Education Center  
http://www.nrec.usf.edu

Institute of Applied Engineering  
http://www.eng.usf.edu/iae/

University of South Florida Center for Entrepreneurship  
https://www.usf.edu/entrepreneurship/