USF UNIVERSITY OF SOUTH FLORIDA

UNIVERSITY OF SOUTH FLORIDA
COLLEGE OF ENGINEERING

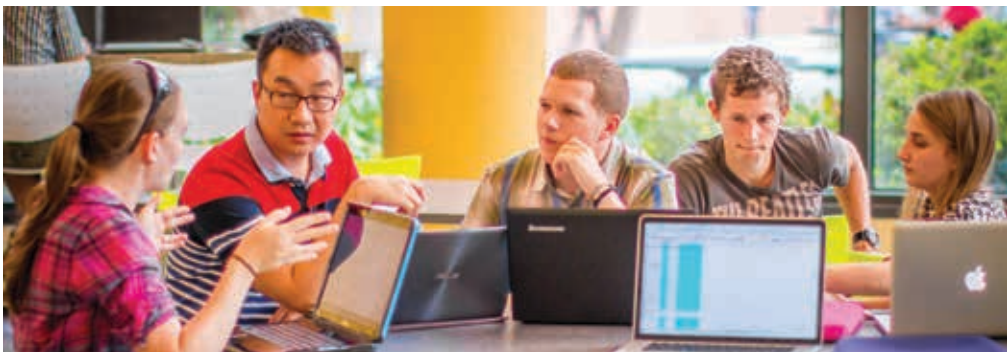
Graduate Programs

Robert H. Bishop
Dean

WELCOME TO USF'S COLLEGE OF ENGINEERING

Message from the Dean

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 engineering researchers seek to make the world a better place with research awards exceeding $33M in 2016.



USF is 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 world-wide for granted U.S. patents among all universities, according to the Intellectual Property Owners Association (2016). 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

This is provided as a guide, the USF Graduate Catalog in 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**

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Clifford Henderson, Ph.D.

Synfuels Production Process & Product Design
Neuroengineering
Biofluidics Nanotechnology
Environmental Engineering
Electrochemistry
Supercritical Fluids
Sustainability & Green Engineering
Fuel Cells Smart Materials
Hydrogen Production & Storage
Surface Science & Technology
Chemical & Biomedical Sensors
Modeling, Simulation & Control
Drug & Gene Delivery
Advanced Materials
Clean Energy & Systems
Engineering Materials Corrosion

www.usf.edu/engineering/chbme/

Message from the Department Chair

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 visiting our website 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 Henderson, Ph.D.
Department 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

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
- Tuskegee University
- 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

Chemical & Biomedical Engineering Faculty

Norma Alcantar
Micellar Surfactants, Nanoparticles, and Organic/ Inorganic Thin Films

Venkat Bhethanabotla, FAICHE
Chemical and Biological Sensors, Plasmonics, Computational Catalysis

Scott Campbell
Phase Equilibria, Environmental Modeling, Semiconductor Processing

David Eddins
Interdisciplinary Professor Auditory Perception and Modeling, Hearing Enhancement Technology

Robert Frisina, Jr.
Neuroengineering: Sensory Systems

Nathan Gallant
Interdisciplinary Professor Materials, Tissue Engineering, Mechanotransduction

Richard Gilbert
Florida Technical Education Curriculum Reform; Instrumentation and Controls; Cancer Treatment

Yogi Goswami, FAAAS, FASES, FASME
Energy Conversion, Solar Energy, Hydrogen Energy and Fuel Cells, Thermodynamics and Heat Transfer, HVAC

Vinay Gupta
Self-Assembled Materials, Surface and Interfacial Science

Cliff Henderson
Polymer Ultra-thin Films and Advanced Membranes, Advanced Materials and Processes for Semiconductor Patterning, Novel Routes to Manufacturing Graphene and Graphene Devices

Mark Jaroszeski
Gene and Drug Delivery by Electroporation, Corona Charge, and Plasmas

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

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

Aydin Sunol, PE

Process and Product Systems Engineering, Green Chemistry and Engineering, Supercritical Fluids

Ryan Toomey

Biomacromolecule and Polymer Science

Joseph Walton

Interdisciplinary Professor Neural Substrates of Auditory Processing using Multi-electrode Arrays in Normal and Disease States

Civil & Environmental Engineering

Manjriker Gunaratne, Ph.D.

Structural Engineering
Environmental Engineering
Sustainability
Materials
Water Resources
Transportation Engineering
Engineering Mechanics
Geotechnics

www.usf.edu/engineering/cee

Message from the Department Chair

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, PE
Professor and Chair

Student Success

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

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: **http://www.eng.usf.edu/cee/**

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:
http://www.usf.edu/engineering/research/research-centers.aspx

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 **http://www.usf.edu/engineering/cee/graduate/index.aspx**

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

Civil & Environmental Engineering Faculty

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).

Maruricio Arias
Environmental

Rob Bertini. PE, FASCE, FITE, SMIEEE
Transportation

Jeffrey Cunningham
Environmental

Sarina Ergas, PE
Environmental

Manjriker Gunaratne, PE
Geotechnical

Xiaopeng Li
Transportation

Qing Lu
Transportation

Fred Mannering
Transportation

James Mihelcic, BCEEM, FAAEE
Environmental

Gray Mullins, PE
Structures and Materials

Mahmood Nachabe, PE, FASCE
Water Resources

Abdul Pinjari
Transportation

Steven Polzin, PE
Transportation

Mark Ross, PE
Water Resources

Alberto Sagués, PE, FNACE
Structures and Materials

Rajan Sen, PE, FASCE FACI
Structures and Materials

Daniel Simkins
Structures and Materials

Amy Stuart
Environmental

Andrés Tejada-Martinez
Water Resources

Maya Trotz
Environmental

Daniel Yeh, PE, LEED AP
Environmental

Photo
Not Available

Abla Zayed
Structures and Materials

Qiong Zhang
Environmental

Yu Zhang
Transportation

Computer Science and Engineering

Sudeep Sarkar, Ph.D.

Computer Vision
Algorithms Graphics
Networks Bioinformatics
Distributed Systems
Computer Security
VLSI Design
Image Processing
Databases Robotics
Artificial Intelligence
Pattern Recognition
Computer Architecture

www.usf.edu/engineering/cse

Message from the Department Chair

Welcome to the Department of Computer Science and Engineering in the College of Engineering at the University of South Florida. Our Department offers the BS and MS in Computer Science, Computer Engineering, and Information Technology, and the PhD in Computer Science and Engineering.

Our Department is a nationally top-ranked department with outstanding faculty and successful graduates. Our graduates are in high demand in the Tampa Bay area and throughout the state and nation. Our Department has a strong focus on research and recruitment of students from underrepresented population. Our Department is ranked in the top one-third of all Computer Science programs by the NRC Research Quality metric in the 2010 data-based assessment of research-doctorate programs. Additional rankings from ASEE include:

- Top 40 for awarding bachelor degrees for computer science
- Top 50 for awarding bachelor degrees for computer engineering
- Top 40 for undergraduate enrollment
- Top 10 for percentage of doctoral degrees awarded to women

A great department is built on great faculty. Our Department has 21 tenure-stream faculty and 10 full-time instructors. Our faculty includes IEEE, AAAS, IAPR, and AIMBE Fellows, ten NSF CAREER award recipients, and one Distinguished University Professor. 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 to the community. We are currently hiring for multiple tenure-track ranks in all research areas to join in August 2017. Please click here for the call. Please consider joining us.

Research strengths of the Department include artificial intelligence and intelligent systems, computer and network security, computer vision and pattern recognition, computing education research, databases, distributed systems, graphics and visualization, location-aware information systems, networks, programming languages, robotics, VLSI, computer architecture, and parallel processing.

In the 2015-2016 academic year research grants awarded to Department faculty totaled $3,080,061. Research expenditures by Department faculty totaled $1,523,627. In the same year the Department awarded 175 BS, 41 MS, and 10 PhD degrees. In Fall 2015 enrollment was 715 undergraduate student and 142 graduate students (of which 85 were PhD students). In total, the Department has about 33% of all undergraduate students in the College when including "pre" students (these are students who have declared a major in the Department, but have not yet met admission requirements). Last year, the percentage of women in the three BS programs was 14.2%, in the three MS programs it was 27.2%, and in the PhD program it was 14.3%. For the BS and MS programs this is an increase from 5 years ago.

We have Teaching and Research Assistantships available for PhD students that include a stipend and tuition waiver. For undergraduates, we offer a Research Experiences for Undergraduates (REU) program, 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. 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.

Sincerely,
Sudeep Sarkar
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: **http://www.grad.usf.edu/graduate-admissions-international.php**

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
- NASDQ
- Nokia
- Cisco Systems
- Draper Laboratory
- Nielsen
- AOL
- Jabil Circuit
- Seminole Electric
- TaTa Consultancy
- IBM
- Verizon
- U.S. Dept. of Navy
- Yahoo! Research
- Telefonica
- Amazon

Computer Science and Engineering Faculty

The University of South Florida, a top 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.

Marvin Andujar
Brain-Computer Interfaces, Brain-Robot Interaction, Personal Informatics, Ubiquitous Computing, Symbiotic Interaction, Affective Computing

Shaun Canavan
Computer Vision; Face and Sketch Recognition; Expression Analysis; Human Computer Interaction; Facial Feature Detection and Tracking

Sriram Chellappan
Socio-Technical Systems, Cyber Security, Smart Health, Mobile Networking, Cyber-Physical Systems

Kenneth Christensen
Performance Evaluation of Computer Networks

Alessio Gaspar
Evolutionary Algorithms, Computing Education Research, Computer-Assisted Learning, Intelligent Tutoring Systems

Dmitry Goldgof, FIEEE, FIAPR
Image and Video Analysis, Medical Imaging

Larry Hall, FIEEE, FIAPR, FAAAS
Pattern Recognition, Predictive Analytics, Approximate Reasoning

Adriana Iamnitchi
Distributed Systems, Social Computing

Robert Karam
Hardware Security, Reconfigurable Computing, Bioimplantable Devices
(Algorithms & Digital Hardware)

Rangachar Kasturi, FIEEE, FIAPR
Computer Vision, Image Processing, Pattern Recognition

Srinivas Katkoori
VLSI Synthesis, Smart Embedded Systems, and Hardware Security

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

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

Rafael Perez
Artificial Intelligence, Neural Networks, Genetic Algorithms

Les A. Piegl
Computer-Aided Design (CAD), Geometric Mmodeling, Bioengineering and Biologically Iinspired

Paul A. Rosen
Data Visualization, Computer Graphics, Human Computer Interaction, Visual literacy Education, Computing Entrepreneurship

Sudeep Sakar, FIAPR, FIEEE
Computer Vision, Sign Language Recognition, Biometrics

Yu Sun
Robotics, Computer Vision, Haptics

Yicheng Tu
Database Systems, Large-Scale Scientific Data Management, High-Performance Computing

Alfredo Weitzenfeld
Information Technology, Biorobotics, Multi-Robotic Systems, Robot Cognition

Hao Zheng
System Modeling and Analysis

Electrical Engineering

Thomas Weller, Ph.D.

Circuits Materials
NanoElectronics
Bioengineering
Networking
RF Microwave EM
Energy Power
Communications
Biomedical Systems
Systems Controls
Signal Processing
MEMS VLSI
Imaging
Clean Energy
Sustainability
Hardware Security
Network Security

www.usf.edu/engineering/ee

Message from the Department Chair

The faculty of the Electrical Engineering Department at USF takes great pride in providing a high quality education to our more than 400 graduate students, and invites you to consider joining us in advancing the frontiers of knowledge. Our student body is diverse, our research spans experimental and theoretical studies of many fundamental areas of electrical engineering, and we enjoy strong partnerships throughout industry and with prominent national laboratories and federal agencies. Most importantly our graduate students benefit from the dedicated, personal guidance of our faculty. As a graduate student in our department, you have the opportunity to perform research in areas that include 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. These research areas are supported by state of the art facilities for nano/micro fabrication, metrology and characterization, as well as industry-standard computer-aided-design and simulation software. We also emphasize the professional development of our students through high-quality scholarly publications, presentations at international conferences, and participation in grant proposal development. We are very proud of the accomplishments of our students, whose work is consistently recognized with technical conference presentation awards and prestigious national scholarships and fellowships.

The faculty of electrical engineering hail from some of the finest institutions in the country and include NSF CAREER Award winners, Fellows of the IEEE, American Association for the Advancement of Science and National Academy of Inventors, 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, have industry experience to complement their academic backgrounds, and lend their expertise to federal agencies such as The National Science Foundation and The National Institutes of Health. 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 value the multi-disciplinary opportunities afforded by electrical engineering. As a graduate student, you may find yourself working with engineers in other departments, medical doctors, chemists, biologists, physicists or marine scientists. Together with our dedicated faculty and excellent facilities, these exciting research opportunities have helped us to attract top students to our department and prepare them for enriching careers.

Sincerely,
Tom Weller
Professor and 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

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

Electrical Engineering Faculty

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.

Huseyin Arslan
Wireless Communications and Advanced Signal Processing for Communications

Sanjukta Bhanja
Emerging Computing Model/ Device/Circuit/Architecture

Robert H. Bishop, PE
Systems theory, Guidance and control of aerospace vehicles, Navigation and estimation theory

Morris Chang
Computer and Wireless Networking Systems, Cybersecurity

Kwang-Cheng Chen
Information Communication Technology essential to Digital Society

Larry Dunleavy
Microwave and Millimeter-Wave Device, Circuit and System Design, Characterization and Modeling

Lingling Fan
Modeling and Control of Energy Systems, Smart Grids

Christos Ferekides
Materials/Photovoltaics

Nasir Ghani
Cyberinfrastructure Design, Networking, Cloud Computing, Cyber-Physical Systems

Richard Gitlin, FIEEE, NAE
Communications Systems and Biomedical Signal Processing

Drew Hoff
Afterglow Chemical Processing, Corona Kelvin Metrology, Corona Ion-Assisted Drug Delivery

Vijay Jain
Communications, Signal-Processing. VLSI, System-on-a-chip, Microfabrication, Smart-Grid. Biomedical Systems and Imaging

Chung Seop Jeong
Control Systems, Adaptive Observers and Controllers for Linear, Nonlinear, Stochastic, and Chaotic

Selcuk Kose
Power and Clock Distribution Networks, 3-D Integration, Heterogeneous Integrated Circuits, and Emerging Circuit Technologies

Zhuo Lu
Network Science, Cyber Security, Data Analytics, Wireless and Mobile Communication Networking, and Cyber-Physical Systems

Zhixin Miao, PE
Smart Grid Automation, Electric Power System Modeling and Simulation, Microgrid Technologies

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

Wilfrido Moreno
Wireless and Sensor Systems, Control Systems, Systems Engineering

Salvatore Morgera, PE, FIEEE, FAAAS
Neurological Bioengineering; Secure, High QoS Wierless Sensor/Ad Hoc Networks

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

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

Stephen Saddow
Silicon Carbide Biotechnology

Ravi Sankar
Signal Processing and Wireless Communications Networking

Rudy Schlaf
Electronic Materials and Interfaces

Lee (Elias) Stefanakos
Solar Energy, Photocatalytic Systems, Electric Vehicles, Energy Storage

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

Sylvia Thomas
Synthesis, characterization of Novel Materials for Biomedical, Biological Applications

Ismail Uysal
Wireless and Radio Frequency Identification (RFID) Technologies

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

Thomas Weller
Adaptive Microwave Circuits and Antennas; Multi-Functional Materials; Integrated Circuits

Paris Wiley
Energy Systems, Electric/Hybrid Vehicles, and Alternative Fuels.

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

Tapas K. Das, Ph.D.

Health Care Systems
Disease Diagnosis and Prevention
Smart Electricity Grids
Additive Manufacturing
Natural Resources
Sustainability of Critical Infrastructure
Analytics and Decision Support
Education Innovation
Resource Allocation and Utilization
Logistics & Inventory
Transportation

www.usf.edu/engineering/imse

Message from the Department Chair

Recent societal changes and technological advances have spurred numerous innovative opportunities for businesses/industries as well as for enhancing the well-being of society. Benefitting from many such opportunities requires sophisticated modeling, analysis, and design by interdisciplinary teams. Some such opportune areas are health care systems, disease diagnosis and prevention, smart electricity grids, electric vehicle based transportation, water resources, additive manufacturing, global networks, and critical and resilient infrastructure. These areas have inspired the collaborative research and educational agenda of the Department of Industrial and Management Systems Engineering (IMSE) at USF.

IMSE faculty is continually engaged in refocusing the graduate curriculum and research portfolio. They continue to be successful in competing at the national level in securing research grants and contracts from federal, state, and industrial agencies for supporting their doctoral students and research. Results of their high quality research are being disseminated in top tier international journals like IEEE Transactions, IIE Transactions, Transportation Science, Operations Research, Health Care Management Science, Applied Energy, European Journal of Operations Research, Journal of Biomedical Science and Engineering, BMC Public Health, among many others. IMSE faculty members are also receiving U.S. patents for their innovations.

Our program hosts over 35 highly talented and motivated doctoral students and approximately 160 master's students, who make significant research contributions in addressing globally-critical challenges in engineering, health, business, and natural resources. Their research outcomes are receiving national recognition via prizes including many first place awards for papers and posters. Our graduate students have one of the most active professional society student chapters in the nation. They have the distinction of receiving the Summa Cum Laude award from INFORMS (Institute for Operations Research and the Management Sciences) in three of the last five years. The IMSE department boasts having one of the most welcoming environments for learning, teaching, and research. IMSE students, staff, and faculty together have a collaborative winning attitude that is second to none.

Regards,
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.

Master's of Science in Engineering Management (MSEM)

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.

- An undergraduate degree in engineering. Other undergraduate degrees in technical fields may be accepted on anindividual 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.

Industrial & Management Systems Engineering Faculty

Success Measures of Recent Graduates

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:

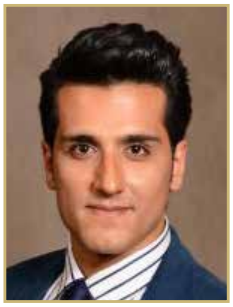
Alex Savachkin, PhD
Graduate Program Director
alexs@usf.edu

Patricia Anzalone, PhD
MSEM Program Director
panzalone@usf.edu

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.

Grisselle Centeno
Capacity Planning, Healthcare Systems Modeling, Transportation Systems

Patricia Anzalone
Program Director, Master's of Science in Engineering Management



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

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

Devashish Das
Health Care Systems Engineering, Applied Probability and Statistics

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

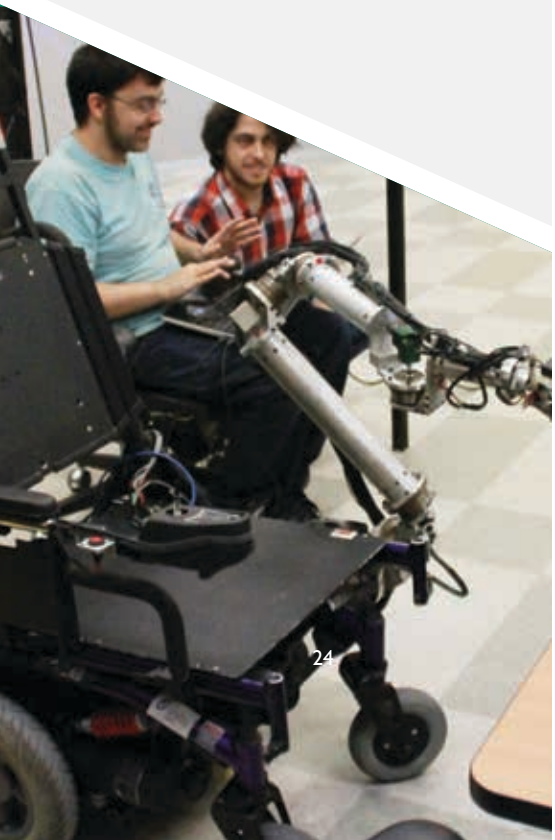
José Zayas-Castro, FIIE
Health Care Systems Engineering, Economic and Cost Systems, Manufacturing and R&D Strategy

Mechanical Engineering

Rajiv Dubey

Robotics MEMS
Composite Materials
Clean Energy Technologies
Biomedical &
Tissue Engineering
Thermo-fluids
Compliant Mechanisms
Additive Manufacturing (3D Printing)
Nano Materials & Manufacturing
Engineering Education Research
Biosensors & Biofluids
Rehabilitation Engineering
System Dynamics & Vibrations

www.usf.edu/engineering/me



Message from the Department Chair

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 100 graduate students. Our students come from over 40 countries. The department offers MS, MME and PhD degrees in Mechanical Engineering. We also offer the accelerated BS/MS degree program. Our engineering graduates are making a deep impact on society. Many of our alumni are successful entrepreneurs, researchers, academicians, or hold senior positions in large corporations. Our students are in great demand with lucrative job offers by local, regional, national and international companies including Intel, Boeing, Honeywell, Siemens, Motorola, Honda, Lockheed, TECO, P&G, Jabil, Mitsubishi, Toyota, Harris, and Raytheon. Recent PhD graduates have received faculty or post-doctoral appointments at major universities including Harvard, Ohio State, Carnegie Mellon, Florida Gulf Coast University, Universidad del Norte in Colombia, and King Abdul Aziz University in Saudi Arabia.

Our faculty members are committed to conducting research as a means of improving society and increasing the nation's prosperity. 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, advanced manufacturing systems, clean energy technologies, compliant mechanisms, rehabilitation engineering, system dynamics and vibrations, and composite materials. Sponsors include government agencies such as NSF, DOE, DOD and NASA, non-profit organizations and industry. Our faculty and students have received a large number of patents through innovative research. Current PhD students are supported by research and teaching assistantships as well as national fellowships from NSF, DOE, and Sloan Foundation.

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

For details about Mechanical Engineering Graduate Programs, please download the Handbook (http://me.eng.usf.edu/docs/Graduate_Student_Handbook.pdf).

Sincerely,
Rajiv Dubey, PhD
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

Student Success

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

Mechanical Engineering Faculty

The Mechanical Engineering Department 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.

Glen Besterfield
Finite Element Analysis, Computational Mechanics, Mechanical Design, Bascule bridges

WenJun (Rebecca) Cai
Metallurgy, Mechanical Behavior, Nanomaterials, Materials Characterization, Tribology

Stephanie Carey
Applied Biomechanics, Rehabilitation Engineering, Prosthetics

Nathan Crane
Design, Materials, and Manufacturing

Rajiv Dubey, FASME
Rehabilitation Robotics; Dynamic Systems and Controls; Prosthetics and Orthotics.

Nathan Gallant
Biomaterials and Tissue Engineering

Rasim Guldiken
Micro and Nano Sensors and Transducers

Daniel Hess
Vibrations, Friction, Fasteners

Autar Kaw, FASME

Engineering Education Research, Mechanics

Ashok Kumar, FAAAS, FASM

Nanomaterials, Microelectronics, Thin Film Technology

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

Stuart Wilkinson

Energy Systems Design, Bionomic Engineering

Tansel Yucelen

Energy Systems Design, Bionomic Engineering

Medical Engineering

Robert Frisina Ph.D.

Rehabilitation Robotics
Biological Microsensors
Sound Processing Algorithms
Assisted Listening Systems
Biomedical Data Processing
Surgery Device Development

www.usf.edu/engineering/bme

Message from the Department Chair

Welcome to the University of South Florida Biomedical Engineering – BME - Graduate Program. I am Dr. Robert Frisina, Interim Chair of Graduate Program Director. I look forward to meeting with you to plan your courses each semester, and assist you in choosing a research advisor and committee for Ph.D. students and those pursuing a master's degree with thesis. Communicating with me each semester is important to optimize your academic and course plans, and for meeting college and graduate program requirements. There are important links in the side navigation bar which you should familiarize yourself with for your program. Use the student advising web scheduler for making appointments.

You are entering a great new phase of your career here in Tampa. Do not hesitate to contact me with any questions or concerns that you have. Our Administrator, Dr. Shannon Salvog, is also a great resource for navigating through the milestones of your program in the administrative structure here at the University of South Florida College of Engineering and Graduate School.

Sincerely,
Dr. Robert Frisina
Professor and Interim Chair

Admission Requirements

Master's Program Requirements

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

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.

PhD Program Requirements

http://www.usf.edu/engineering/bme/graduate/doctoral-program-resources.aspx

http://www.usf.edu/engineering/bme/documents/bme-phd-dept-requirements.pdf

- 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.

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.

Materials Science and Engineering

The field of Materials Science and Engineering (MSE) applies fundamental principles of physics and chemistry to engineering materials, with a focus on the interrelationship between material structure, their properties, and the means by which they are processed. MSE impacts multiple facets of our economy, such as aerospace, electronics, transportation, communication, construction, recreation, entertainment, environment and energy. It is, by its very nature, an interdisciplinary field. The goal of the MS program in Materials Science and Engineering is to provide a route for well-qualified undergraduate students who desire in-depth graduate-level work including structured courses and research experience, in preparation for work in industry or for entrance into a relevant science or engineering Ph.D. program.

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

College of Engineering Research Centers and Laboratories

- AMBIR Advanced Materials Bio & Integration Research Laboratory
  http://ambir.eng.usf.edu/
- ARGUS Cybersecurity Lab
  http://www.arguslab.org/
- Artificial Intelligence/Intelligent System Laboratory
  http://www.cse.usf.edu/research/artificial_intelligence
- Auditory Neuroscience
- Biomed Lab
- Biomorphics Robotics Lab
  http://www.cse.usf.edu/research/biomorphic_robotics_lab/
- Biorobotics Lab
  http://robolat.org/
- Cellular Mechanotransduction and Biomaterials Laboratory
  http://www.eng.usf.edu/ngallant/
- Center for Assistive, Rehabilitation Robotics Technologies (CARRT)
  http://carrt.eng.usf.edu/
- Center for Communications & Signal Processing (CCSP)
  http://ccsp.eng.usf.edu/
- Center for Digital and Computational Video (CDCV)
  http://cdcv.eng.usf.edu/
- Center for Modeling Hydrologic and Aquatic Systems (CMHAS)
- Center for Urban Transportation Research (CUTR)
  http://www.cutr.usf.edu/
- Center for Wireless and Microwave Information Systems (WAMI)
  http://wami.eng.usf.edu/
- CEReAL Computing Edu Research & Adult Learning
  http://cereal.forest.usf.edu/
- Clean Energy Research Center (CERC)
- Computational Biology and Bioinformatics
  http://www.cse.usf.edu/research/computational_biology_bioinformatics/
- Computational Methods Research and Education Laboratory
  http://www.eng.usf.edu/~kaw/research/
- Computer Architecture and Nano VLSI Research Group
  http://cans.cse.usf.edu/
- Computer Vision and Pattern Recognition Group
  http://marathon.cse.usf.edu/
- Corrosion Engineering Laboratory
- Mini-Circuits Design for X Laboratory
  http://www.eng.usf.edu/dfx/index.html
- Distributed Systems Laboratory
  http://www.cse.usf.edu/dsg/
- Drug and Gene Delivery Laboratory
- Environmentally Benign Design and Manufacturing Lab
- Environmentally Friendly Engineered Systems Lab
- Functional Materials Research Institute
  http://fmri-ret.eng.usf.edu/
- Global Center for Hearing & Speech Research (GCHSR)
  http://www.gchsr.usf.edu/
- Hearing and Speech Research
- Hetgerogenous Catalysis & Materials Chemistry Lab
  http://www.eng.usf.edu/~jnkuhn/index.html
- IBIS Innovative Biomedical Instruments and Systems
  http://www.pyayt.com/
- iCONS (interdisciplinary communications networking and signal processing)
  http://icons.eng.usf.edu/
- Information Systems Laboratory
  http://www.cse.usf.edu/research/information_systems
- Interfacial Characterization Lab
- Interfacial Phenomena & Polymeric Materials Lab

College of Engineering Research Centers and Laboratories

- **Instrumentation Control Laboratory**
- **iWINLAB In vivo Wireless Information Networking Laboratory**
  http://iwinlab.eng.usf.edu/
- **Laboratory for Autonomy, Control, Information, and Systems (LACIS)**
  http://www.mylacis.com/
- **Location-Aware Information Systems Lab**
  http://www.locationaware.usf.edu/
- **Materials and Mechanics Lab**
  http://www.eng.usf.edu/~caiw/
- **Micro/Nano Integration Laboratory (MINT)**
  http://www.eng.usf.edu/~ncrane/
- **Microfluidics and Accoustic Lab**
  http://me.eng.usf.edu/Faculty/guldiken/Home.html
- **Modeling Simulation Laboratory**
- **Nanomechanical Testing Laboratory**
  http://www.eng.usf.edu/~volinsky/
- **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/
- **Occular Neuroscience and Neuroengineering Lab**
  http://www.eng.usf.edu/~passaglia/
- **Personalized Interactive Experiences (PIE) Group**
  http://pie.eng.usf.edu/
- **Polymer Science and Smart Materials**
- **Protein Engineering & Dynamic Living Systems**
- **Rehabilitation Engineering and Electromechanical Design Lab**
  http://reedlab.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
- **Robot Perception and Action Lab (RPAL)**
  http://rpal.cse.usf.edu/
- **Sensors Research Laboratory**
- **Social Computing Research Lab**
  http://www.csee.usf.edu/~sriramc/score.html
- **Software Security and Programming Languages Lab**
  http://www.cse.usf.edu/~ligatti/
- **Smart Grid Power Systems Lab**
  http://power.eng.usf.edu/
- **Structural and Materials Engineering Corrosion Laboratory**
- **USF Center for Entrepreneurship**
  http://www.usf.edu/entrepreneurship/
- **USF Defense and Intelligence Research Laboratory (USF:DIRL)**
- **USF Surface Science Lab**
  http://rsl.eng.usf.edu/
- **Vibrations and Dynamic Systems Lab**
- **Wireless Communication and Signal Processing Group**
  http://wcsp.eng.usf.edu/research.html

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COLLEGE OF ENGINEERING

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