ABOUT THE UNIVERSITY OF CENTRAL FLORIDA

Founded in 1963, UCF is the second-largest university in the U.S. with 61,000 students. Nearly 8,000 are graduate students. Students are diverse (41% minorities and 22% Hispanic) and come from all 50 states in the U.S. and 148 countries.

PROGRAMS: 92 bachelor's, 83 master's and 31 doctoral degrees offered in 12 colleges.

RESEARCH FUNDING: $145.6 million (2013-14). UCF researchers have earned more than $1 billion in external grants and contracts during the past decade.

UCF is the #1 workforce supplier worldwide for Lockheed Martin, Harris Corporation and Siemens Energy.

UCF’s Institute for Simulation and Training developed the nation’s first master’s and Ph.D. programs in simulation and human performance enhancement.

The campus is 1,415 acres, one-third of which is managed for conservation.

While geared to undergraduates, the UCF Viewbook offers a colorful snapshot of all things UCF, including facts, statistics, campus map and student resources: http://bit.ly/1GFtNTm

UCF COLLEGE OF ENGINEERING AND COMPUTER SCIENCE (CECS)

Five academic departments (see detailed descriptions inside) offer the following degrees:

**MASTER'S DEGREE PROGRAMS**

- Aerospace Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Digital Forensics
- Electrical Engineering
- Engineering Management
- Environmental Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation*

**DOCTORAL DEGREE PROGRAMS**

- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation*

*This interdisciplinary program is administered by the College of Graduate Studies, with many CECS faculty participating.

CONTACT: Prof. Mostafa Bassiouni at bassi@cs.ucf.edu.

UCF GRADUATE CATALOG: www.graduatecatalog.ucf.edu

ORLANDO: FACTS & RANKINGS

Florida is the fourth-largest state in the U.S. and has the 18th largest economy in the world.

Orlando was ranked the #1 metro area in the U.S. for job growth by Forbes (Nov. 2014)

More than 150 international companies have facilities in Orlando, including the U.S. operations of Siemens Energy and Mitsubishi Hitachi Power Systems.

The Central Florida Research Park, adjacent to UCF, is the nation’s 7th largest with more than 120 companies and 10,000 employees.

Top tech industries include modeling, simulation and training; optics and photonics; smart sensors; advanced turbomachinery; advanced materials; biomedical engineering and more.

Orlando has 62 million visitors per year. The Orlando International Airport is ranked as the 13th busiest airport in the U.S.

Medical City: A 650-acre park at Orlando’s Lake Nona is a hub for healthcare, research and education, anchored by UCF’s College of Medicine and School of Biomedical Sciences; Sanford-Burnham Medical Research Institute; Nemours Children’s Hospital; VA Medical Center; and UF Academic & Research Center.
FACTORY: 22 faculty, 3 lecturers and 2 research faculty
STUDENTS: 90 doctoral, 110 master’s
RESEARCH AREAS:
- Water resources and quality
- Structural health monitoring
- Infrastructure
- Transportation
- Traffic safety
- Environmental engineering
- Sinkholes and other geotechnical topics
RESEARCH LABS: 14, including Structural Laboratory, Transportation Simulation and Stormwater Management.

RESEARCH CENTERS/CLUSTERS:
- Center for Advanced Transportation Systems Simulation
- Stormwater Management Academy
- Civil Infrastructure Technologies for Resilience and Safety
- Coastal Dynamics of Sea Level Rise
- Research Cluster of Excellence Potable Water Quality and Treatment

FACTS OF INTEREST:
- Home to the world’s largest rainfall simulator, used to research erosion and other topics.
- Graduate students have created a sinkhole simulator used to research ways to better predict their occurrence.
- Chair Mohamed Abdel-Aty is editor of Accident Analysis & Prevention, the premier journal for transportation safety research.

CONTACT: Assoc. Prof. Andrew Randall at Andrew.Randall@ucf.edu.

ALUMNI AND STUDENTS SAY:
- “I credit much of my workplace success to the training and education I received at UCF.” – Joanne Keller, ’03, ’04, engineer for Palm Beach County, Florida
- “The opportunities at UCF have enriched my development and leadership. I have conducted breakthrough research on the effects of sea level rise in the northern Gulf of Mexico that benefits the scientific community and helps coastal managers and policy makers make informed decisions.” – Davina Passeri, Ph.D., ’15

FACULTY: 30 faculty, 11 lecturers and instructors, and numerous joint faculty
STUDENTS: 125 doctoral, 90 master’s and 99 master’s in Digital Forensics
RESEARCH AREAS:
- Computer vision
- Image and video processing
- Virtual reality
- Human-computer interaction
- Artificial intelligence and machine learning
RESEARCH GROUPS AND LABS: 16
- RESEARCH CENTERS/CLUSTERS:
  - Center for Research in Computer Vision Interactive Systems and User Experience (ISUE) Research Cluster of Excellence
- FACTS OF INTEREST:
  - The UCF Programming Team has the nation’s best long-standing competition record, placing as regional top 3 finalists for 34 consecutive years. In 2014, the team finished #3 in the nation and #21 in the world.
  - Home to the U.S.’s longest-running NSF REU (Research Experience for Undergraduates) Site. The REU in Computer Vision has been funded for 28 consecutive years.
  - Best in Nation: UCF’s Cyber Defense Competition Team has back-to-back titles in Raytheon’s National Cyber Defense Competition.
- CONTACT: Prof. Hassan Foroosh at Foroosh@cs.ucf.edu.

ALUMNI SAY:
- “Discussing ideas with famous professors, reading papers by the Orlando local lakes, wandering the top beaches in Florida. I really miss life in Orlando.” – Xiaochun Cao, Ph.D., ’05, ’06, professor of computer science in China
- “UCF stands for opportunity, and that is what it gave me – an opportunity to learn from the best faculty, to experience a highly conducive research and work environment, and an opportunity to build a better future for myself.” – Imran N. Junejo, Ph.D., ’05, ’07, associate professor of computer science in Dubai
- “My four years as a doctoral student at UCF were a magical time filled with scientific inquiry, engineering rigor and creative imagination.” – Yaser Sheikh, Ph.D., ’06, ’06, associate professor at Carnegie Mellon University’s Robotics Institute

CONTACT: Prof. Kalpathy Sundaram at Kalpathy.Sundaram@ucf.edu.

ALUMNI AND STUDENTS SAY:
- “The Ph.D. journey at UCF equipped me with excellent knowledge and taught me to be perseverant and tough.” – Cong Li, Ph.D., ’14, software engineer at Google
- “My outstanding experience at UCF made it my only choice for graduate school. The extensive availability of night and online classes allows me to work full time and study.” – Walther Del Orbe, ’05, ’06, master’s student and engineer at Lockheed Martin
- “UCF has a great campus, excellent professors, advanced learning methods, modern facilities and flexible programs that allow students to acquire unique skill sets. The close proximity to Central Florida Research Park allows for networking and job opportunities.” – Assem Kaylani, Ph.D., ’01, ’08, lead software engineer, GE Transportation
**INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEMS**

**FACULTY:** 18 faculty, 2 lecturers and instructors, and numerous joint faculty

**STUDENTS:** 75 doctoral, 189 master’s

**RESEARCH AREAS:**
- Modeling and simulation
- Operations research
- Production and supply chain
- Engineering management
- Service engineering
- Industrial data analytics
- Human-system integration and ergonomics

**RESEARCH LABS:**
- Synthetic Environment Learning Laboratory
- Simulation Interoperability Laboratory
- Product Lifecycle Engineering
- Ergonomics
- Institute for Advanced Systems Engineering

**FACTS OF INTEREST:**
- The UCF Engineering Leadership & Innovation Institute (eI²) began in IEMS under the guidance of its directors, Prof. Tim Kotnour and Assoc. Prof. Robert Hoekstra. The goal is to build a community of engineering leaders through programs that emphasize creativity, collaboration and innovation to bring forth world-changing solutions.
- Alumni include Lesa Roe, NASA executive, and Grace Bochenek, director of the National Energy Technology Laboratory.

**CONTACT:** Prof. Ahmad Elshennawy at Ahmad.Elshennawy@ucf.edu.

**ALUMNI AND STUDENTS SAY:**

**Melissa Francisco, Ph.D., ’03, ’11, ’12, ’14**

“UCF was the perfect place for me to obtain my degrees – my classes were relevant and interesting, the Ph.D. process was organized, my committee was responsive and supportive, and the environment was flexible.”

**Robert Kantor, ’97, ’04, ’09**

“I could not have asked for a more relevant, timely and complimentary part-time graduate engineering program to help me create, apply and validate new frameworks at my workplace that were essential in delivering successful results.”

**I’d like to use my talents to develop products using methods of energy reclamation to solve problems in developing countries. I stand by my UCF experience and feel truly prepared to handle the future as I move forward in my career.”

**Daniel Geiyer, doctoral student**

**A STUDENT SAYS:**

**Measuring and simulation**

**Operations research**

**Production and supply chain**

**Engineering management**

**Service engineering**

**Industrial data analytics**

**Human-system integration and ergonomics**

**Synthetic Environment Learning Laboratory**

**Simulation Interoperability Laboratory**

**Product Lifecycle Engineering**

**Ergonomics**

**Institute for Advanced Systems Engineering**

**FUNCTIONAL AREAS:**

**Operations research**

**Production and supply chain**

**Engineering management**

**Service engineering**

**Industrial data analytics**

**Human-system integration and ergonomics**

**INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEMS**

**FACULTY:** 7 faculty, 22 faculty joint appointees from other UCF units

**STUDENTS:** 47 doctoral, 4 master’s

**RESEARCH AREAS:**
- Electronic, biological, novel, structural and nano-materials
- Semiconductor interconnects
- Magnetics
- Organic and molecular engineering
- Bioengineering
- Shape-memory alloys

**RESEARCH LABS AND CENTERS:** 13, including:
- Surface Engineering/ Nanomaterials Processing and Plasma Nanomanufacturing
- Ceramic Processing and Analysis
- NanoFAB and BioMEMS
- Soft Materials and Bioengineering Lab
- Advanced Microfabrication and Clean Room Facility
- Advanced Materials Processing and Analysis Center
- Materials Characterization Facility

**FACTS OF INTEREST:**
- Interim Chair Sudipta Seal is a member of the National Academy of Inventors and holds close to 40 patents. His recent work involves a nano-engineered material that can remove large volumes of oil from seawater and it doesn’t hurt the environment.
- Doctoral student Swetha Barkam extracts raw silk from cocoons with a goal to create biodegradable and biocompatible polymer-based technology for commercial use in products such as “smart patches.”

**CONTACT:** Assoc. Prof. Jiyu Fang at Jiyu.Fang@ucf.edu.

**A STUDENT SAYS:**

“UCF, I’ve had the chance to learn cutting-edge knowledge and use state-of-the-art equipment, which has helped my thesis and dissertation work. The professors are knowledgeable and supportive. I’ve also had the opportunity to coach new graduate and undergraduate students.”

**Le Zhou, doctoral student**

**MECHANICAL AND AEROSPACE ENGINEERING**

**FACULTY:** 27 faculty, 5 lecturers and instructors, and numerous joint faculty

**STUDENTS:** 76 doctoral, 110 master’s

**RESEARCH AREAS:**
- Powder processing
- Composite materials and structures
- Advanced manufacturing
- Multi-phase heat transfer and fluid flow
- Thermal management
- Dynamics and controls
- Biomedical engineering
- Advanced turbomachinery and energy
- Combustion
- High-speed aerodynamics
- Fuel cells

**RESEARCH GROUPS AND LABS:** 16, including MEMS and Nanomaterials Lab, and Ceramic Processing for Energy Applications, and the Center for Advanced Turbomachinery and Energy Research (CATER).

**FACTS OF INTEREST:**
- The first 3D printer in outer space was delivered by a company co-founded by Jason Dunn, who holds two UCF degrees in aerospace engineering.
- MAE manages the Manufacturing Lab, part of UCF’s new Maker Space Lab complex to spur creativity, innovation and rapid prototyping. It has trained staff, 3D printers and heavy equipment for cutting, machining and sanding.
- MAE Prof. Olusegun Ilegbusi and his students are using 3D printing to create a true-to-life simulated lung that will assist radiologists deliver precise, custom treatment to cancer patients.

**CONTACT:** Prof. Jihua “Jan” Gou at Jihua.Gou@ucf.edu.

**ALUMNI AND STUDENTS SAY:**

**Albert Manero, ‘12, ’14, doctoral student**

“I’d like to use my talents to develop products using methods of energy reclamation to solve problems in developing countries. I stand by my UCF experience and feel truly prepared to handle the future as I move forward in my career.”

**Daniel Geiyer, doctoral student**

“I could not have asked for a more relevant course. My Ph.D. program at UCF was a great fit for me, and I was able to apply my knowledge to innovative projects at my workplace.”

**Muhammad Aminullah, ’15, student**

“UCF was an excellent choice for my graduate studies. The faculty were supportive and the resources available were top-notch.”

**Meng Wang, ’14, student**

“UCF provided me with a solid foundation in my field, and I feel well-prepared for my future career.”

**CONTACT:** Prof. Jihua “Jan” Gou at Jihua.Gou@ucf.edu.
ABOUT THE UCF COLLEGE OF ENGINEERING AND COMPUTER SCIENCE (CECS)

UCF is a major provider of STEM education that drives Florida’s innovation economy, and CECS is the state’s largest producer of engineers and computer scientists. Ranked a top 100 college in the United States by U.S. News & World Report.

CECS ACADEMIC DEPARTMENTS
Civil, Environmental and Construction Engineering
Electrical Engineering and Computer Science
- Division of Computer Science
- Division of Electrical and Computer Engineering
Industrial Engineering and Management Systems
Materials Science and Engineering
Mechanical and Aerospace Engineering

FACULTY: 136 faculty, 30 instructors and lecturers.

GRADUATE STUDENTS: 1,300

FACULTY HONORS
National Academy Membership is the highest U.S. distinction. A Fellow is the highest honor that professional societies bestow on members.
- National Academy of Engineering: 1 Member
- National Academy of Inventors: 2 Members
- U.S. Jefferson Science Fellowship: 2 Fellows
- American Association for the Advancement of Science: 10 Fellows
- American Chemical Society: 2 Fellows
- American Institute of Chemical Engineers: 4 Fellows
- American Society of Mechanical Engineers: 5 Fellows
- ASM International: 2 Fellows
- Association of Computing Machinery: 1 Fellow
- Institute of Electrical and Electronics Engineers: 12 Fellows
- Institute of Industrial Engineers: 3 Fellows
- Institute of Mechanical Engineering: 3 Fellows
- Materials Research Society: 3 Fellows
- National Academy of Inventors: 2 Members
- National Academy of Sciences: 2 Members
- National Academy of Engineering: 1 Member
- National Academy of Inventors: 2 Members
- U.S. Jefferson Science Fellowship: 2 Fellows
- American Association for the Advancement of Science: 10 Fellows
- American Chemical Society: 2 Fellows
- American Institute of Chemical Engineers: 4 Fellows
- ASM International: 2 Fellows
- Association of Computing Machinery: 1 Fellow
- Institute of Electrical and Electronics Engineers: 12 Fellows
- Institute of Industrial Engineers: 3 Fellows
- Institute of Mechanical Engineering: 3 Fellows
- Materials Research Society: 3 Fellows

GRADUATE STUDENTS:

1. National Academy of Engineering: 1 Member
2. National Academy of Inventors: 2 Members
4. American Association for the Advancement of Science: 10 Fellows
5. American Chemical Society: 2 Fellows
6. American Institute of Chemical Engineers: 4 Fellows
7. American Society of Mechanical Engineers: 5 Fellows
8. ASM International: 2 Fellows
9. Association of Computing Machinery: 1 Fellow
10. Institute of Electrical and Electronics Engineers: 12 Fellows
11. Institute of Industrial Engineers: 3 Fellows
12. Institute of Mechanical Engineering: 3 Fellows
13. Materials Research Society: 3 Fellows

CECS ALUMNI
26,000, located throughout the world.

TOP U.S. LOCATIONS OF CECS ALUMNI:
Florida
Northern California/Silicon Valley
Texas
Washington, D.C. Metro Area

WELL-KNOWN UCF ENGINEERING AND COMPUTER SCIENCE ALUMNI
Gene Frantz, “father” of digital signal processing
Angel Ruiz, head of region North America, Ericsson
Nicole Stott, NASA astronaut
Alan Eustace, Google top 5 executive
Brian Crutcher, executive vice president, Texas Instruments
Jason Dunn, whose company sent the first 3D printer to outer space

RESEARCH
New Research Funding: $22.5 million (FY 2014)
From 2010 to 2014, the total new research funding for CECS exceeded $100 million.

Research in CECS is supported by private industry and U.S. federal agencies, including the National Science Foundation, Office of Naval Research, NASA, and the U.S. Dept. of Defense, Dept. of Energy and Dept. of Transportation.

RESEARCH CENTERS
- Center for Advanced Transportation Systems Simulation
- Center for Advanced Turbomachinery and Energy Research
- Center for Applied Biomedical Additive Manufacturing
- Center for Research in Computer Vision
- Coastal Dynamics of Sea Level Rise Research Cluster of Excellence
- Consortium for Applied Acoustoelectronics Technology
- Environmental Systems Engineering Institute
- Institute for Advanced Systems Engineering
- Interactive Systems & User Experience Research Cluster of Excellence
- Stormwater Management Academy

RESEARCH CENTER PARTNERS
- Advanced Materials Processing and Analysis Center
- Biomolecular Science Center
- Center for Research and Education in Optics and Lasers
- Florida Photonics Center of Excellence
- Florida Solar Energy Center
- Florida Space Institute
- Institute for Simulation and Training
- NanoScience Technology Center
- National Center for Forensic Science
- Townes Laser Institute

CECS STUDENT SUCCESSES
Two-time national champions:
UCF CYBER DEFENSE COMPETITION TEAM (shown above)
#3 in the U.S., #21 in the world:
UCF COMPUTER PROGRAMMING TEAM

Worldwide Attention: Limbitless Solutions, led by doctoral student Albert Manero, is a UCF-based nonprofit that makes 3D printed bionic limbs for children. The team is part of a Microsoft campaign, the #CollectiveProject, with a viewing reach of 2 billion in 150 countries.

UCF is home to the Structural Engineering Institute’s Graduate Student Chapter of the Year (2014).