

PLANNING TEAM

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The Undergraduate Research Symposium originated from the UH Quality Enhancement Plan (QEP) grant from the University of Houston's Learning through Discovery Initiative.



Thursday, May 11, 2017
10:00 a.m. – 5:00 p.m.

UH Energy Research Park, Building 4
5000 Gulf Freeway . Houston TX



**ENGINEERING TECHNOLOGY
UNDERGRADUATE
RESEARCH SYMPOSIUM
AGENDA**



KEYNOTE SPEAKER

Igor Alvarado
National Instruments



TIME	ACTIVITIES	PLACE
9:30 AM - 10:00 AM	Registration Welcome Address: Dr. Shireen, Chair, Engineering Technology Department	ERP BLDG 4
<p>TECHNICAL SESSION I</p> <p>EXHIBITIONS</p>		
10:00 AM - 12:00 PM	<p>ELET 4308: Senior Project I</p> <p>MECT 4275: Senior Design Project I</p> <p>EPET (ELET 4310) Presentations</p>	ERP BLDG 4
<p>KEYNOTE ADDRESS</p>		
12:00 PM - 1:00 PM	<p>Key Note Lunch Speaker</p> <p>Igor Alvarado</p>	ERP BLDG 4
<p>TECHNICAL SESSION II</p> <p>EXHIBITIONS</p>		
1:00 PM - 4:00 PM	<p>ELET 4208: Senior Project II</p> <p>MECT 4276: Senior Design Project II</p>	ERP BLDG 4
<p>EXHIBITIONS AND PROTOTYPE DEMONSTRATION</p>		
4:00 PM - 5:00 PM	<p>General Exhibition and Project Demos: Senior Projects Best Final Projects (Freshmen, Sophomore, Junior Students)</p> <p>Closing Ceremony</p>	ERP BLDG 4
	Executive Committee	

Mr. Alvarado is a Mechanical Engineer (Kansas State University, 1984) and currently works with National Instruments (NI) as the Business Development Manager for Academic Research. He has been with NI since 1999, and has more than 30 years practical experience in the design, development and deployment of real-time, measurement and control systems that involve high-performance numerical methods in C, C++, FORTRAN and NI LabVIEW using PC-based and embedded technologies for a wide spectrum of academic research projects and industries including system-level solutions for the energy sector.

Mr. Alvarado led the development and implementation of some of the first power sub-station monitoring and control systems using LabVIEW and NI data acquisition hardware on industrial computers in Latin America. He has also been involved in several research centers at leading universities in Texas and Oklahoma. On the STEM teaching/education side, Mr. Alvarado has been involved in the design and implementation of novel approaches for teaching/learning and scientific research in science/engineering with a special emphasis on hands-on learning and undergraduate research projects.

He is an active member of several professional societies, including the Institute of Electrical and Electronics Engineers (IEEE), the Society of Industrial and Applied Mathematics (SIAM), the International Society of Automation (ISA), the American Physical Society (APS) and the Ibero-American Science and Technology Education Consortium (ISTEC). Mr. Alvarado has published papers in technical publications and has taught courses to engineers and scientists involved in instrumentation, control and automation applications in industry and academia. He has also been an invited speaker at numerous leading universities in the U.S. and Latin America, as well as national/international meetings. Over the past 28 years, he has served as a consultant or advisory board member for several institutes, colleges, universities, corporations and research laboratories and currently advises two international innovation institutes, and several colleges and universities in the U.S.





YOUR DESTINATION FOR INNOVATION

Founded in 1927, the University of Houston is the leading public research university in Houston. Nearly 44,000 students in more than 300 undergraduate academic programs, attend class on campus and online. UH awards more than 8,000 degrees annually, with nearly 230,000 alumni.

UH offers a well-rounded environment balanced by a mixture of academic, social, and professional opportunities to engage and develop as a leader.

- 581 Active Student Organizations
- 48 Fraternities and Sororities
- \$150 Million in Research Expenditures, Fiscal Year 2015
- 17 Intercollegiate Sports
- 2,500+ On-Campus Jobs and Internships posted annually by University Career Services

There are twelve colleges at The University of Houston. These colleges and schools offer master's degrees in 139 fields and doctoral degrees in 63 fields.

There are also a number of specialized certifications and dual degree programs available for students from which to choose.

JUST THE FACTS



• With **6,400 enrolled students**, the College **ranks high in popularity** among UH students



• Our degrees prepare students for **successful careers** in the **top 100 best jobs in America**

• 61% of more than **16,000 Technology alumni** live in the Houston area, and about **72% live in Texas**



• **1900 employers** post an average of **600 jobs and internships annually**



• **22** grad and undergrad programs - **11 B.S. degrees and 11 M.S. degrees**

• **15** industry-related organizations are run by students and help build leadership skills, with unmatched **networking opportunities**



• **24 professional training programs** offer opportunities for certification that expand and upgrade technical skills



• **10 degree programs** are distinguished by **national accreditation**



• Engineering Technology ranks among the **top 4 in the Nation** and **number 1** in the **State of Texas****

*According to CNNMoney

**According to bestengineeringcolleges.com



WHERE YOU CAN FIND US

Houston, Texas is the nation's fourth-largest city and distinguished by its community diversity and breadth of industries. Our students sharpen their skills and gain valuable experiences through national and international companies based here. Our faculty build and leverage meaningful worldwide partnerships with businesses, government agencies, and other academic institutions that highly value their research contributions.

Academic Departments

CONSTRUCTION MANAGEMENT

4734 Calhoun Rd. - #111
Houston, TX 77204-4020
713.743.4712

HUMAN DEVELOPMENT & CONSUMER SCIENCES

Isabel C. Cameron Building - #110
4235 Cullen Blvd.
(Corner of Wheeler St. & Cullen Blvd.)
Houston, TX 77204 -6020
713.743.4110

ENGINEERING TECHNOLOGY

4730 Calhoun Rd. - #304
Houston, TX 77204-4020
713.743.4040

INFORMATION & LOGISTICS TECHNOLOGY

4730 Calhoun Rd. - #312
Houston, TX 77204-4020
713.743.2994

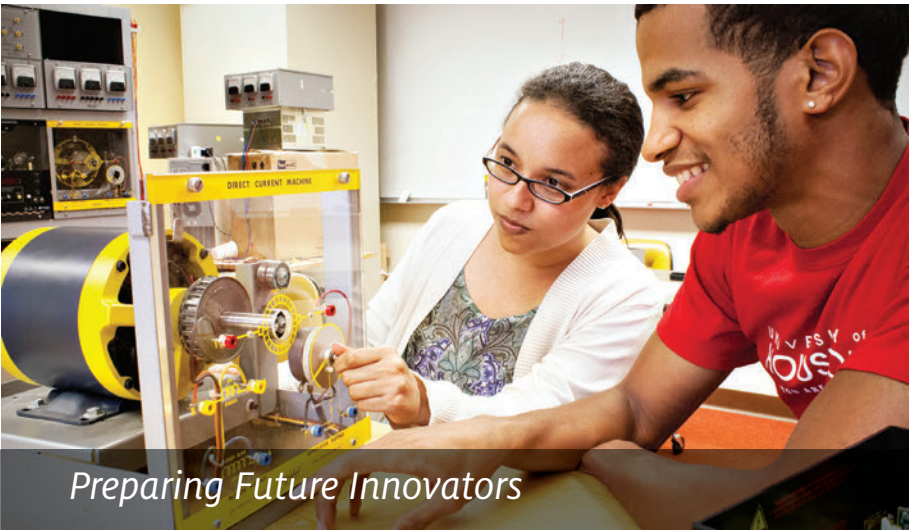
UH College of Technology Locations

University of Houston
4730 Calhoun Rd. - #300
Houston, TX 77204 -4021
713.743.4100
www.uh.edu

University of Houston
Northwest Campus
20515 State Highway 249
Houston, TX 77070
832.842.5700
www.uh.edu/northwest

University of Houston
Sugar Land Campus
14000 University Blvd.
Sugar Land, TX 77479
832.842.2900
www.uh.edu/sugarland

The University of Houston is an EEO/AA institution



Preparing Future Innovators

The University of Houston's College of Technology offers a wide variety of opportunities for companies to commit to supporting students in pursuit of their professional and career goals.

Students are equipped to apply their knowledge and skills to a variety of design and development challenges ranging from electrical power generation and smart grid enabling technologies, to electronic circuit design, computer networks, robotics, and manufacturing system design.

Offering an internship is one of the best ways to proactively identify, attract and engage engineering talent. Through internships, all Engineering Technology students strengthen their technical and math skills, advanced problem-solving abilities, technical writing knowledge, and become highly competent researchers.

Culminating capstone project experiences stretch the imaginations and ingenuity of our students to produce award-winning innovations that can lead to valued intellectual property. With support from companies, our students have successfully competed in Cornell Cup USA where UH teams have won awards for three consecutive years.

One College - A World of Opportunities

CONTACT INFORMATION

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Succeed in Technology Scholars

Engineering Technology

Message from the Department Chair



The profession of engineering technology integrates mathematical and natural science knowledge with applied engineering principles. Our philosophy is to teach students how to effectively analyze, implement, and apply existing and emerging technologies to problem solving and prepare them to succeed in diverse engineering careers connected to product development, manufacturing, and industrial operations. Our engineering technology degree plans emphasize experiential learning, enriched by contemporary laboratory courses.

I am particularly proud of our faculty who spearhead innovative research funded by the National Science Foundation, National Institutes of Health, NASA, and the Department of Defense. Their dedicated efforts along with our oil and gas, energy, and medical industry partners, have resulted in numerous research awards, publications, and leadership positions in professional societies. Our state-of-the-art labs have attracted partners from academia and industry, wherein the technology and intellectual property have followed the path of commercialization.

Engineering technology programs are growing at an unprecedented pace, driving the demand for scholarships and funding for equipment. Your contribution and support will have an enduring impact on the education and training of our committed students - the next generation of leaders in all areas of engineering technology.

We look forward to your involvement with the best and brightest students at the University of Houston.

Dr. Wajiha Shireen
Chair, Engineering Technology Department

Engineering Technology Degree Program Highlights

The College of Technology's Engineering Technology department offers four Bachelor of Science and three Master of Science degree programs. The Computer Engineering, Electrical Power Engineering, and Mechanical Engineering Technology programs are accredited by the Engineering Technology Accreditation Commission (ETAC) of the Accreditation Board for Engineering and Technology (ABET).

BACHELOR OF SCIENCE PROGRAMS

The **Biotechnology** program prepares students with a strong foundation and skills that are necessary to transform our future world. The program delivers practical, hands-on training with innovative research and teaching that stimulates curious students who are eager to discover ways to contribute to the health of society and the environment. The Bioprocessing and Bioinformatics tracks offer students the flexibility to adapt their degree based on their specific interests and career goals.

The **Computer Engineering Technology (CET)** degree is a research-oriented, project-based, practical program that offers students the opportunity to learn about analog and digital electronics, microprocessor architecture and programming, hardware and software design, networked embedded systems, operating systems, communication, and computer networks. The CET program builds application areas into the degree program, which include cyber-physical systems, smart and clean energy, healthcare and bio-medical systems, smart sensors, and embedded controls.

Earning a degree in **Electrical Power Engineering Technology (EPET)** provides our students with the right combination of skills for designing, analyzing, and improving computer-based power generation, delivery, and end-user systems. The program emphasizes electrical motors and generators, computer-based controls, and alternative energy sources. In addition, students learn about electrical power generating transmission and distribution systems, electrical power protection systems, and power electronics that increase the reliability and efficiency of electrical energy systems.

The **Mechanical Engineering Technology (MET)** program offers advanced teaching and research laboratories with courses in computer aided engineering, biomedical systems, advanced material design, manufacturing, systems integration, oil and gas applications, energy and efficient project management. Students gain advanced expertise in design, analysis and manufacturing mechanical systems. The MET program prepares students to successfully take the Fundamentals of Engineering (FE) Exam for eventual certification as a licensed Professional Engineer by the State of Texas.

MASTER OF SCIENCE PROGRAMS

The following master's degree tracks offer students the opportunity to deepen their knowledge in three different disciplines.

The **Biotechnology track** focuses on bioprocessing, protein engineering, computational biology, and federal regulations. It prepares individuals to conduct or supervise research and development in biotechnology or biomedical fields.

An integrated, multi-disciplinary program, the **Mechanical Engineering Technology track** concentrates on preparing individuals to apply their practical, theoretical, and research skills to solve current industry challenges.

The **Network Communications track** provides our students with advanced knowledge of communication between and within computer network communications, including data processing in the network environment, network operations software and operating systems, and communication systems.

