

2019 ANNUAL REPORT – DATA COLLECTION TEMPLATE -- DEPARTMENTS

Please provide the following information for your department. This information will be used to develop the SoE Annual Report, which will be submitted to the provost. In addition, the information you provide will be used throughout the year for the school's marketing and government relations initiatives, so please be as accurate as possible. Please also submit any photos or information graphics that might help illustrate your department's achievements.

Please provide your data by June 10. If you have questions, please contact Donna Thibault (donna.thibault@uconn.edu) and/or Bethany Javidi (bethany.javidi@uconn.edu).

Name of Department: Electrical and Computer Engineering

Mission Statement. Please provide your department's mission statement

The mission of the Electrical & Computer Engineering (ECE) Department is fourfold:

- *To provide educational programs in Electrical and Computer Engineering and related fields at the bachelor's, master's and doctoral levels of high quality and sufficient breadth and depth to serve industry, government and academic institutions of our State and Nation.*
- *To conduct research and pursue scholarship to advance knowledge and apply that knowledge in areas relevant to our State and Nation in order to meet the demands of the coming information age and global competition.*
- *To serve the State and Nation by making available the accumulated expertise, knowledge and experience of the faculty to industry and government.*
- *To recruit and provide educational opportunities to underrepresented minorities, women and physically disabled students.*

OVERVIEW

In a few sentences, please describe your department's strategic activities for the 2018-2019 academic year. Do not exceed 500 words.

The ECE department underwent a transition in leadership as Prof. Rajeev Bansal stepped down as department head after 9 years in the role. Prof. John Chandy became the department head in August 2018. Strategically, the department continues to pursue long-term goals of sustained excellence in research and increased undergraduate enrollment. Collaborative research, which is already strong in the systems group, is being emphasized more through more participation in various centers such as UTC-IASE, BECAT, C3, IMS, C2E2, and others. We have begun efforts to increase outreach to high schools through more enriching summer programs and engagement with the IEEE student chapter. We continue to grow our professional education efforts with a new certificate in Grid Modernization in partnership with the Eversource Center and a second cohort of over 40 students in the Power Engineering certificate with Electric Boat. At the undergraduate level, a number of our faculty have engaged with CETL to develop new online courses for offering in Summer 2019 and 2020.

EDUCATION

AY 2018-2019 Student Data: NOTE: Student data will be obtained by the Undergrad Office and shared with you when it is received.

Includes EE/CompE	Enrollment					Degrees Awarded AY18-19	
	Total Enrolled	Male	Female	US minority	Int.		
Undergraduate							
Freshmen	61	53	8	22	7	B.S.	77
Sophomores	76	66	10	30	8	Minors	
Juniors	91	77	14	27	6		
Seniors	144	128	16	43	9		
Total	372	324	48	122	30		
Graduate							
M.S.	27	20	7	20	7	M.S.	9
M.Eng.	8	6	2	8		M.Eng.	0
Ph.D.	74	59	15	25	49	Ph.D.	16

AY 2018-2019 Senior Design Information

# Projects/ Teams	28
# Students Participating	83
# Company Sponsors	25
\$ Revenue from Sponsors	114,523

Please list up to five of your department's most important initiatives or accomplishments in undergraduate education.

- (1) For the third year in a row, the UConn chapter of HKN (Eta Kappa Nu: the electrical engineering honor society) was honored with the IEEE-HKN Outstanding Chapter Award
- (2) Submitted a proposal to the NSF Revolutionizing Engineering Departments program to transform our core undergraduate curriculum.
- (3) Senior Design students **William Brown, Donald O'Boyle** and **Laurne Williams** with Prof. Sung Yeul Park won first prize in the air pollution sensor category at the 2018 WERC Environmental Design Competition at New Mexico State University.
- (4) The department joined the School of Engineering common offering of ENGR1166.
- (5) Undergraduates **Nathan White, Daniel Trombetta** with Prof. Ashwin Dani co-authored "*Shape Estimation of Flexible Object/Electronics using Camera Sensor for Robotic Manipulation.*" Also, undergraduates **Jim Lin, Noah Lyke, James Quintanilla** with graduate students Raj Hari Gudlavalleti and Barath Parthasarathy with Prof. Faquir Jain co-authored "*Quantum dot gate FET's exhibiting three-state characteristics.*"

Please list up to five of your department's most important initiatives or accomplishments in graduate education.

- (1) A new Graduate Certificate in Grid Modernization was approved and will start fall 2019
- (2) **Yan Li**, who received her Ph.D in May, was presented with the 2019 CT Women of Innovation Award by the Connecticut Technology Council. She also received the Outstanding Senior Women Academic Achievement Award from the Graduate School and the 2018 Rising Star award from the Connecticut Power and Energy Society.
- (3) **Lingyi Zhang**, a Ph.D student, is the first recipient of the Vijaya G. Raghavan Fellowship.
- (4) A paper co-authored by **Danxu Zhang**, Peter B. Luh, Junqiang Fan, and Shalabh Gupta, "Chiller Plant Operation Optimization: Energy-efficient Primary-only and Primary-secondary Systems," won the **2018 Best Paper Award** for the IEEE Transactions on Automation Science and Engineering
- (5) **Bing Yan** was selected as a finalist for a 2019 CT Women of Innovation Award

RESEARCH

AY 2018-2019 Research Development Data

Through Apr 2019 From Kerrie	Expenditures	Proposals Submitted thru April 2019		New Awards From OVPR quarterly Reports Q1, Q2	
		Number	Value \$	Number	Value\$
Industry	688,350	10	1,247,150	3	133,000
Federal	4,778,821	16	13,565,496	10	5,993,994
State					
Other	175,122	1	148,009		
Total	5,642,293	27	14,960.655	13	6,126,994

AY 2018-2019 Research Products Data

	Number
# Patents Awarded	7
# Journal Papers	105
# Conference Papers	211

Major Faculty Awards and Honors. Please list up to 10. *Please include the name of the faculty member and the name of award or honor.*

- (1) **Bahram Javidi** was awarded the prestigious C.E.K. Mees Medal from The Optical Society (OSA) and selected as a National Academy of Inventors Fellow.
- (2) **Peter Luh** was named a University of Connecticut Board of Trustees Distinguished Professor
- (3) **Peng Zhang** was selected as a Centennial Term Professor in the School of Engineering. He was also the recipient of the 2018 IEEE Region 1 Technological Innovation Award and the Connecticut Power and Energy Society Excellence in Energy Award.
- (4) **John Chandy** was appointed Head of the Department and was elected to The Connecticut Academy of Science and Engineering.
- (5) **John Ayers** received the 2019 AAUP Career Teaching Excellence Award
- (6) **Marten van Dijk**'s 2013 paper "Path ORAM: An Extremely Simple Oblivious RAM Protocol," was selected last year as one of the Top Picks in Hardware and Embedded Security.
- (7) **Shengli Zhou** received the 2017-2018 ECE Faculty Award for outstanding teaching achievement. He was also appointed Associate Head of the Department.
- (8) **Yang Cao** received the 2017-2018 ECE Outstanding Research Achievement Award.

Most Significant Faculty Professional Leadership Positions, including society officer, journal editorships. Please list up to 10. Please include the name of the faculty member and the name of leadership position.

- (1) **Peng Zhang** was appointed a TUM (Technical University of Munich) August Wilhelm Scheer Visiting Professorship for 2018. This honor is award to scientists with an outstanding international reputation.
- (2) **Peter Luh** became the IEEE Technical Activities Board Periodicals Committee Chair
- (3) **Peng Zhang** was named as an Associate Editor of the *IEEE Transactions on Power Systems*
- (4) **Peng Zhang** was named as an Associate Editor of the *IEEE Transactions on Sustainable Energy*
- (5) **Omer Khan** was named as an Associate Editor of the *ACM Transactions on Architecture and Code Optimization*
- (6) **Yang Cao** was named as an Associate Editor of the *IEEE Transactions on Dielectrics and Electrical Insulation*

OUTREACH

Please list your department's top 3 achievements and initiatives in outreach.

- (1) Prepared and distributed a **newsletter** highlighting ECE achievements during the previous year.
- (2) The department with the help of the School sponsored a **FIRST Robotics team** at E.O. Smith High School. The team advanced to the world championships in April. The team was assisted by Prof. Ashwin Dani and the UCONN FIRST Club.
- (3)

DEVELOPMENT

Please list your department's top 3 achievements and initiatives in development.

- (1) Pik Power made a donation of \$202,000 worth of electronic components and parts that will be used in undergraduate power electronics and machines laboratory classes as well as in the research laboratories of Profs. Sung-Yeul Park and Ali Bazzi.
- (2) The Estate of Tina Lewis generously donated \$202,635 in support of the Tina and Blake Scholarship Fund
- (3) Dr. Matthew and Mrs. Margarethe Mashikian donated \$15,000 to the ECE department in support of their scholarship fund.

PERSONNEL

Please provide the numbers of faculty and staff in each category.

	FT	PT	Total
Faculty			
Tenured/ Tenure Track	28*		
Research Faculty	3		
Post-Docs	5		
Teaching			

(In-Residence, Visiting, etc.)			
Adjunct		2	
Total			
Staff			
Administrative	3.5		
Lab/ Technical	1		
Other			

*includes Thomas Katsouleas

Alumni Accomplishments:

Saeed Khan (Ph.D. Electrical Engineering '94), Professor and coordinator of the electronic and computer engineering technology and unmanned aircraft systems design and integration degree options at Kansas State Polytechnic, has been granted a patent for a helical antenna wireless power transfer system by the U.S. Patent and Trademark Office

Jane Wang (Ph.D. Electrical Engineering '02), is a professor at The University of British Columbia. She was recently elected Fellow of the Canadian Academy of Engineering. Dr. Wang is an IEEE Fellow as well as the chair and founder of the IEEE Vancouver SP chapter.

Zhaohui Wang (Ph.D. Electrical Engineering '13), was promoted with tenure to Associate Professor in Electrical and Computer Engineering at Michigan Technological University.

Roy Maddocks, Jr. (B.S. Electrical Engineering '89) has retired as Fleet Master Chief following a distinguished 36-year career in the [US Navy](#) that began in the post-Vietnam era when the military was in a state of disarray. As a SEAL, Maddocks was involved in operational missions stretching from Afghanistan and Iraq to Bosnia and Kosovo. His awards consist of the Bronze Star Medal, Meritorious Service Medal (two awards), Joint Commendation Medal, Navy Commendation Medal (two awards), Army Commendation Medal, Navy Achievement Medal (two awards), and numerous Campaign medals. Maddocks earned an M.A. in national Security and Strategic Studies at the U.S. Naval War College.

Bing Yan (Ph.D. Electrical Engineering '17), Xin Shen (Ph.D. Electrical Engineering '18), and Yan Li (Ph.D. Electrical Engineering '19), and will all be joining academia as new assistant professors this fall at Rochester Institute of Technology, Massachusetts College of Liberal Arts, and Penn State University, respectively.

Jean Homere (B.S. Electrical Engineering '93), Administrative Patent Judge for the US Patent and Trademark Office, **Raymond Petniunas** (B.S. Electrical Engineering '67), founder of Utility Resource Consulting, and **Vijaya Raghavan** (M.S. Electrical Engineering '94, Ph.D. Electrical Engineering '96) were all selected as members of the School of Engineering Academy of Distinguished Engineers.