Message from the Chair

I would like to welcome you to the inaugural issue of our ECCS newsletter. The intention of the newsletter is not only to introduce the department and to report its news, but also to connect with our alumni. I strongly believe that it is advantageous to share information with one another. Doing so will have a positive impact on our current students, and they certainly will benefit from our alumni’s valuable experiences.

We now are on a semester system, and the department continues to offer three distinct programs: electrical engineering, computer engineering and computer science. The newly developed semester curricula are optimized and up-to-date to ensure that our students are prepared for the future and to be industry-ready engineers. In addition, we understand educational challenges and market demands, and, as a result, the department is offering an advanced energy concentration in collaboration with the mechanical engineering department. For more information about the department, please visit us at www.onu.edu/academics/engineering/departments/eccs.

The current focus of the department is to increase the number of students in ECCS, strengthen our curricula, and promote our programs more widely. Here is where our alumni can play a major role in helping the department to achieve these goals.

Everyone agrees that alumni are the outward representation of a university. Since you are our greatest testimony to the strength of our programs, I am asking your help to represent it dynamically, because broad alumni participation is vital to the success and sustainability of any institution. So, if you are proud of your education at ONU (and I hope you are!), please spread the word to your friends and to the people you know by stressing ONU’s benefits and your fond memories. Also mention the reasons why you are proud of your education at ONU.

Finally, I would like to extend my thanks to both the ECCS faculty, for their continuous efforts and dedication to elevating the education at ONU to higher standards, and to the ECCS Program Working Group for their thoughtful insights. In addition, I remain deeply grateful to our alumni for their encouragement and support, for sharing their knowledge and experiences, and for recruiting our graduates.

Sincerely,
Dr. Khalid S. Al-Olimat, P.E.
Professor and chair

Alumni Corner
The idea of the Alumni Corner is to give an opportunity to our alumni to share their stories, memories and experiences, and to give advice to current ECCS students. This will be a recurring and important element of our subsequent newsletters. If you would like to share your experiences, please send your essays and pictures through email to Dr. Khalid Al-Olimat at k-al-olimat@onu.edu.
Khalid Al-Olimat, Professor and chair
Electromagnetics, Energy Systems 1 and 2, and Advanced Power

Nathanial Bird, BSCPE ’03, Assistant professor
Programming, Data Structures and Algorithms, Operating Systems, Computer Security, Programming Languages, and Computer Vision

Gregory Bucks, Visiting assistant professor
Introduction to Engineering, Programming, and Electronics

John Estell, Professor
Introduction to Engineering, Programming, User Interface Design, and Mobile Computing

Firas Hassan, Assistant professor
Electric Circuits, Communication Systems, and Information Theory

Sami Khorbotly, Assistant professor
Digital Logic, Signals and Systems, Digital Signal Processing, and Advanced Digital Signal Processing

Ken Reid, Associate professor and director of first-year engineering
Introduction to Engineering

David Retterer, Associate professor
Net-Centric Computing, Software Engineering, Databases, Design Patterns, Programming Environment, and Theory of Computation

Srinivasa Vemuru, Professor
Computer Architecture, Embedded Systems, VLSI System Design, and Computer Networks

In addition, the following professors helped the department in teaching control systems:

Dr. Eric Baumgartner, Dean of the College of Engineering

Dr. Julie (Harvey) Hurtig, BSEE ’91, Associate vice president for academic affairs


Received the Henry Holtdt Outstanding Teaching Award from the College of Engineering.


Srinivasa Vemuru and his SmartOutlet senior design team received Best Paper Award, First Place at the ASEE North Central Conference.

Kyle See, a junior computer engineering major from Lucasville, Ohio, Aaron Anderson, a senior computer engineering major from Perrysburg, Ohio, Tyler Bednarz, a junior electrical engineering major from Canton, Ohio, Elizabeth Gall, a junior electrical engineering major from Baden, Pa., and Bridget Davis, a sophomore electrical engineering major from Newark, Ohio, participated in the Micromouse Competition at the IEEE Student Activities Conference in Erie, Pa., on April 16, 2011.

Allan Hall, BSEE ’11, Josh Stone, BSCPE ’11, and Brandon Helms, BSEE ’11, participated in the Design Show Competition at the IEEE Student Activities Conference in Erie, Pa., on April 16, 2011.

Bryan Burkholder, a junior computer engineering major from Bluffton, Ohio, Matthew Yingling, a senior computer engineering major from Canton, Ohio, Ryan Lawson, a senior mechanical engineering major from Toledo, Ohio, and Timothy Chaffin, a senior computer engineering major from Creston, Ohio, participated in the International RoboGames Competition in San Mateo, Calif., from April 15-17, 2011.

Brooke Hayden, a junior electrical engineering major from New Carlisle, Ohio, has received a scholarship through the Science, Mathematics And Research for Transformation (SMART) Scholarship for Service Program. Recipients of the SMART scholarship are provided with summer internships and access to world-class facilities. In addition, SMART scholars receive a cash award between $25,000 and $41,000 per year depending on prior education, tuition costs, educational expenses, and textbook and health insurance allowances, as well as the opportunity to continue their research within civil service roles upon graduation.

Peter Kleysteuber, senior electrical engineering major from Fairborn, Ohio, and Bridget Davis, a sophomore electrical engineering major from Newark, Ohio, completed summer internships at AEP.

Stephen Graessle, senior computer engineering major from Chesapeake, Va., completed a research position with the Air Force Institute of Technology’s Center for Cyberspace Research.

J.C. Schroeder, senior computer engineering major from Napoleon, Ohio, completed a summer internship at the Timken Company.

Kyle See, a junior computer engineering major from Lucasville, Ohio, completed a summer internship at Yost Engineering Inc.
Our Program Working Group

The department appreciates the hard work and the advice of the following individuals who serve as the Program Working Group.

Matthew Batcha, BS ’02
Software Development Group Manager
Fenetech Corporation
Aurora, Ohio

Megan Bessick, BS ’05
Software Engineer
Charles Schwab Corporation
Richfield, Ohio

Scott Campbell, BSEE ’85
Assistant Professor
Miami University
Oxford, Ohio

Michael Carr, BSEE ’96
President
Carr Engineering Inc.
Dublin, Ohio

Lynn (Roeder) Child, BA ’84
CEO
Aardvark/CentraCom Communications
Findlay, Ohio

Jeffrey Garlock, BS ’85
Associate Chief Engineer
Honda of America Manufacturing
Marysville, Ohio

Shane Griggs, BS ’96
Software Architect
Fiserv
Dublin, Ohio

Mathew Hargett, BSEE ’92
Senior Engineer
Honda R & D Americas Inc.
Raymond, Ohio

Mark Longbrake, BSEE ’81
Principal RF Systems Engineer
Wright-Patterson Air Force Base
Fairborn, Ohio

Mark Mishler, BSEE ’86
Director Program Management
L-3 Communications Fuzing & Ordnance Systems
Cincinnati, Ohio

Gordon Neumann, BA ’81
Lead Programmer
Lexis-Nexis
Dayton, Ohio

Mark Pfouts, BSEE ’86
Manager International Device Engineering
Abbott Nutrition
Columbus, Ohio

Stephen Pomesky, BSEE ’95
Engineering Manager
HANCO International
Canton, Ohio

Walter Schilling, BSEE ’97
Assistant Professor
Milwaukee School of Engineering
Milwaukee, Wis.

Justin Schultz, BSEE ’03
Electrical Engineer
Metro CD Engineering
Dublin, Ohio

Sandy Snyder-Stevens, BSEE ’92
Product Manager
Bauer Controls
Ann Arbor, Mich.

Roger Thornton, BSEE ’83
Senior Design Engineer
GE Aviation Systems LLC
Vandalia, Ohio

Nicholas Vidovich, BSCPE ’04
Software Engineer
Battelle Memorial Institute
Columbus, Ohio

Charles Weininger, BS ’95
Principal Development Lead
Microsoft Corporation
Redmond, Wash.

Cecelia (Peters) Wigal, BSEE ’85
Professor and Assistant Dean, NSF Scholars Program Director
The University of Tennessee
Chattanooga, Tenn.
Senior Design Projects 2011-12

Tour Guide Assistant
Saeed Al Nasr, senior mechanical engineering major from Fairvax, Va.
Kelly Casanova, senior mechanical engineering major from Copley, Ohio
Christina Garmatter, senior electrical engineering major from Rawson, Ohio
Alicia Hathaway, senior electrical engineering major from Fostoria, Ohio
Matthew Yingling, senior computer engineering major from Canton, Ohio

This project is to design and build a robot that will be used as a tour guide assistant for future prospective students’ visits in the college of Engineering. The robot must have a cart-like structure with multi-levels that can hold, in addition to its battery & circuitry, a Laptop, brochures, folders, and other documents that the tour guide may need. The robot should be motorized and equipped with a vision system that allows it to track and autonomously follow the tour guide at a specified distance. The robot must also be able to detect obstacles to avoid running into walls and humans.

Autonomous Golf Cart
Abdulmalek Alobra, senior mechanical engineering major
David Ferguson, senior computer engineering major from Mansfield, Ohio
Tim Hutchinson, senior electrical engineering major from Canfield, Ohio
John Sharp, senior computer science major from Ashville, Ohio

This project looks to expand the capabilities of the Ohio Northern autonomous golf cart. The cart is already "drive-by-wire," i.e., it is digitally controllable by computer. The goal of this project is to add intelligence to the machine. Sensors, including laser rangefinders and GPS, will be incorporated into the system and algorithms developed to allow the cart to navigate to specific destinations outdoors while avoiding obstacles.

Multi-Modal Small Robot
Aaron Anderson, senior computer engineering major from Perrysburg, Ohio
Nicholas Ericson, senior computer engineering major from Lima, Ohio
Justin Maag, senior mechanical engineering major from Pandora, Ohio
Matt Smith, senior mechanical engineering major from Norton, Ohio
Jeffrey West, senior mechanical engineering major from Wooster, Ohio

The goal of this project is to build a small multi-modal robot, that is a robot with multiple means of mobility and the ability to switch between the two. This could be a ground/submersible, ground/air, air/watercraft, or any combination. The main purpose is to maximize mobility of a small robot.

Balancing Robot
William Brown, senior mechanical engineering major from East Liberty, Ohio
Eric Moseman, senior computer engineering major from Ashland, Ohio
Corey Von Sickle, senior mechanical engineering major from New Philadelphia, Ohio

The objective of this project is to design a one-wheeled robot that can maintain its balance without any external support. Balancing must be autonomous. Driving can be controlled through wireless communication.

FPGA-based reliable, flexible, and secure smart meter for Smart Grid Applications
James Baumgartner, senior electrical engineering major from Medina, Ohio
Stephen Graessle, senior computer engineering major from Chesapeake, Va.
Chris Jones, senior electrical engineering major from Powell, Ohio
Adam Pagan, senior electrical engineering major from Ellicott City, Md.

The objective of this project is to design and prototype a smart meter that measures the consumption of electrical energy. The power provided and consumed, as well as the current and voltage, to the device will be measured. The smart meter will communicate with some other personal devices (ex. Laptop) and display the consumption of electrical energy, for both monitoring and billing purposes.

Digital Wattmeter and Power Factor Reader
Aaron Fogle, senior electrical engineering major from West Mansfield, Ohio
Patrick Giles, senior computer engineering major from Naperville, Ill.

The aim of this project is to build a device that can measure real power and power factor. It must operate for an ac voltage of 120 V or smaller. The Wattmeter must be capable to display up to 50 Watts accurately. The power factor reader must display the value of the power factor and indicate whether leading or lagging. The project requires students to build 15 devices to be used in the Circuits laboratory.

Robotic football
Travis Ballinger, senior mechanical engineering major from Findlay, Ohio
Anthony Dilisio, senior computer engineering major from Raleigh, N.C.
Ron Grzybowski, senior mechanical engineering major from Ada, Ohio
Alexandria Herman, senior mechanical engineering major from Tiffin, Ohio
Daniel Smith, senior mechanical engineering major from Avon, Ohio

This project is a continuation and expansion of this year’s robotic football competition. ONU will field an entire team this year to compete against Notre Dame students. The Capstone team will design and build 3 robots and coordinate with other students who will be building the remaining robots.

Industrial Hydro Regeneration
Breanna Daniel, senior mechanical engineering major from Buffalo, N.Y.
Alison Garshe, senior mechanical engineering major from New Philadelphia, Ohio
Andrew Marshall, senior electrical engineering major from Saint Clairsville, Ohio
Thomas Reed, senior mechanical engineering major from Springfield, Ohio

Students will work with an industrial partner to design and develop a hydropower regeneration facility within a manufacturing environment. In large industrial facilities there are several places where there is the potential to recover energy from water operations. Students will work to determine the potential for electrical power generation, and design a system to recover that energy and put it to use elsewhere in the plant.

Call for Project Proposals
Dear Alumni: If you have a project in mind and would like students to work on it, please send an email to Dr. Khalid Al-Olimat at k-al-olimat@onu.edu with a brief description of the project. We will get back to you with more details. In addition, ECCS faculty members are capable of delivering prototypes; if you have an idea and you like to bring it to reality, please contact us for more details.
Look for the next email announcement with a direct link to the next issue of the ECCS NEWSLETTER

www.onu.edu/eccs