Jeff Newcomer, ENGD Department Chair

Greetings Alumni and Friends of the Engineering & Design Department!

Greetings from Bellingham! I hope that all of you are well and enjoyed your summers. For the first time in three years, we are entering the new academic year with the expectation of doing all of our classes and labs face to face and on campus, and that has all of us excited for the year. While things are not completely back to the way they were before the pandemic – for example enrollments are down a little bit throughout the University, and not all of our programs are impacted right now – this is the closest things have felt to being normal in the last two and a half years.

Even with somewhat curtailed operations last year, our students continued to do great things, included a number of award-winning efforts from Industrial Design, Manufacturing Engineering, and Plastics & Composites Engineering students. Last year also marked the FSAE team’s return to competition for the first time since the pandemic disrupted everything, and their first entry into the Electric Vehicle (EV) competition. They did not get the result they hoped for, but it was great learning experience and has set them up for future success.

There are a number of exciting program changes that are occurring this year or are on the near horizon. The Makerspace, which is located in the mezzanine that used to house the wind tunnel, has become wildly popular with students and is due to be renovated soon. The Industrial Design program has started a search for a new faculty position. The Electrical & Computer Engineering program has introduced two new concentrations, Artificial Intelligence & Machine Learning and Wireless Networking & Signal Processing, and is planning to introduce an M.S. degree soon. Polymer Materials Engineering is the new name of the Plastics & Composites Engineering program. All three of the engineering programs are also preparing for an accreditation review this fall. Finally, construction on the new building, Kaiser-Borsari Hall, that will eventually become the Electrical & Computer Engineering program’s new home, is due to start sometime winter quarter.

There are a number of new faces in the department. We have two new faculty members in Electrical & Computer Engineering, Assistant Professors Yuzhang Zang and Wala Saadeh, and a new Lab Manager in Polymer Materials Engineering, Russell Choi-Pearce, and we expect to be searching to fill a new staff position that will focus on industry relations and projects in Electrical & Computer Engineering sometime this fall. We’re also finally getting to introduce you to Assistant Professor Bhaskar Ramasubramanian, our new Office Assistant Jodie Permen, and new Instructors Tina Smilkstein and Kirk Desler, all of whom started with us last year under crazy pandemic conditions. Finally, we said goodbye to Dell King, who had taught the senior Industrial Design studio longer than most of us have been at Western, and Steve Sandelin, and we’re saying goodbye to long-time technicians Steve James and Mark Dudzinski, both of whom are moving on to the next chapters of their lives. We’re going to miss all of them, and we wish them all the best!
Now entering its third year, the Becoming Engaged Engineering Scholars (BEES) Program provides a systematic sequence of financial, academic, social, and career services to support students during their critical first two years of engineering study. The program was initiated by a $1M grant from the National Science Foundation, and is led by engineering faculty Jill Davishahl, Andy Klein, and Sura Al-Qudah.

Photos: The incoming BEES cohort participated in a maker-centered bridge program (Viking Launch) the week before fall quarter began. Students learned how to use makerspace equipment including 3D printers and laser cutters and completed a maker-based project that showcased their new skills.
The department “Student Engagement Liaisons” (SEL) are a group of students who work to support and connect students across disciplines. The SEL team hosts activities and events designed to connect and engage students. Events include game nights, craft events, community projects, and discussions (just to name a few!). They also keep folks connected via social media avenues. In May 2022, the SEL team traveled to Vancouver BC to present their work at the American Society of Engineering Education conference.

SELS from the 2022 academic year, photographed left to right: Nathan Winney, Leo Shibata, Emilia Mediavilla, Asaki Nelson

Follow our ENGD Instagram!
Outstanding Graduates
2021-2022

Being selected as an Outstanding Graduate is a high honor at WWU which is based on grades, research and writing, service to the campus and community, and promise for the future. We would like to congratulate:

Robert Butnar
Manufacturing Engineering

Juliana Covarrubias
Plastics and Composites Engineering

Rose Solway
Electrical and Computer Engineering

Dylan Willis
Industrial Design
The Engineering and Design Department would like to recognize the following students for their achievements and commitment to excellence.

**Award Winner**

Kelsey Leppek
ID Sensor

**Grant writer**

John Lehr
Sampe treasurer

**Award winner**

Claire Drury
PCE junior

“My name is Claire, and I’m a junior in the PCE program at Western. I am pursuing a degree in the hope of pursuing research and development of more environmentally friendly plastics and composites. During the 21-22 academic year, I have had the opportunity to work alongside other students and faculty on carbon fiber recycling research. Currently, most carbon fiber composites are unable to be recycled because they are cured into a thermoset matrix. This research focuses on chemically recycling an epoxy carbon fiber composite. Thus far we have been able to recycle up to 60% of the carbon fibers. This summer I will continue working on this research with the goal of increasing this percentage and determining if the resin matrix can be reused as well.”
1st place

Asaki Nelson
ID Junior
GPU shroud design
Digital Art Category

1st place

Connor Barrett
MFGE Senior
WWU x intel: Future of Manufacturing
PC Builds & Mods Category

First Place

Madeleine Gerst
ID junior
Wave UV-C Breadbox

Second Place

Rose Kirby
ID junior
Osmo-Refrigerator

Third Place

Carson Porter-Keese
ID junior
Gro Herb Planter

Third Place

Elliot Quasha
ID junior
Té Immersion Boiler
ENGD Makerspace
The ENGD Makerspace in Action...

Students from all over campus can be found in the ENGD Makerspace working on a myriad of projects and activities. The makerspace provides students with open access to 3D printers, laser cutters, vinyl cutters, and sewing machines. More than just a place to work and experiment, the makerspace serves as a place where students develop community and connections across disciplines. As one student says “I love working in the makerspace because I get to know what my peers are doing in their classes and programs. It is fun to see the different projects people are working on and to share our experiences with one another.” The ENGD Markerspace is excited to announce that they recently received funding from The Student Technology Fee (STF) for new equipment including 12 new Prusa 3D printers, new computers, sewing machines, and more!

Follow the Makerspace!

If you would like to support the Makerspace with a donation, click here.
The 2021-2022 year was a year of growth and learning for WWU Racing. The team took Viking 63, Western’s first Electric Formula SAE vehicle, to the 2022 FSAE competition in Brooklyn, Michigan in June, placing 12th in design and 17th overall.

When starting the year, we had very few members with the machining or mechanical knowledge needed to begin building the car, largely due to COVID-19 restricting lab access for over a year. This setback was compounded by the team’s challenge to build its first fully electric vehicle and successfully get it to the competition. However, after returning back in person in the fall, our group grew not only in knowledge and experience that was required to complete the car, but also as a team.

We would like to thank the ENGD staff and faculty for all their support, along with team sponsors and alumni. We could not have accomplished this without all your help!

Students interested in learning more can contact the team at info@wwuracing.com or see info about upcoming meetings on Instagram @wwuracing.
Deborah Glossee, PhD
Assistant Professor, College of Science and Engineering
Institute for Energy Studies

Deborah Glossee won the 2021 Wason Medal for Materials Research from the American Concrete Institute, along with co-authors Drs. Burkan Isgor and Jason Weiss, for their paper “Non-Equilibrium Thermodynamic Modeling Framework for Ordinary Portland Cement/Supplementary Cementitious Material Systems” published in the November 2020 issue of the ACI Materials Journal, pp. 111-123. The prestigious award is bestowed annually for work that makes extraordinary contributions or impact on the state of knowledge of cement-based materials used in the construction industry.

Research: Cognizant Learning for Autonomous Cyber-Physical Systems
Bhaskar Ramasubramanian, PhD - Website
Assistant Professor, EECE
Research Sponsor: National Science Foundation

The objective of this research project is to develop a cognizant learning framework for cyber-physical systems (CPS) that incorporates risk-sensitive and irrational decision making. The necessity for such a framework is exemplified by two observations. First, CPS such as self-driving cars will share an environment with other CPS and human users. Human drivers demonstrate a heightened sensitivity to changes in speed, and can easily adapt to changes in the environment and road conditions, which makes it essential for a CPS to have an ability to recognize non-rational behaviors.

Second, large amounts of data generated during their operation and limited access to models of their environments can make a CPS reliant on machine learning algorithms for decision-making to meet performance requirements such as reachability and safety. Our research will be grounded on improving behaviors of autonomous vehicles in realistic traffic situations. Outcomes from this effort will contribute to the development of a research paradigm unifying control, learning, and behavioral economics. Our solutions and algorithms will (i) integrate feedback from multiple heterogeneous sources, (ii) be resilient to actions of malicious and dishonest participants, and (iii) provide provable performance guarantees.
Russell is the new Instructional Classroom Support Technician 4 (ICST 4) for the PME program. As a product of Western’s physics program, Russell is excited to return to WWU after six years of service to Whatcom Community College’s physics and engineering programs, and a two-year stint at the University of Washington where he received his master’s degree in mechanical engineering. Russell’s experience serving as a technician and physics instructor has been focused on facilitating hand’s-on student-centered learning and finding ways for students to confront their misconceptions. He sees working as a lab technician as an avenue for helping people grow as scientist and engineers while also having the opportunity to solve technical and logistical problems to promote a safe and well-functioning lab space. He can’t wait to bring his curiosity and energy to his work with PME students and faculty.

Kirk is a graduate of WWU’s plastics program, 2000, as well as WWU’s MBA program, 2018. He began his career as a Composite Design Engineer at Innovative Composite Engineering then went work for Safran as a Manufacturing Engineer, Tooling Engineer, and Operations Manager. During this time Kirk worked on a wide range composite material and process development projects with an emphasis on automation. Recently becoming a certified teacher, Kirk spends time volunteering for various engineering related activities within the Bellingham school district, sharing his enthusiasm and helping provide a university connection for students at the high school level. Kirk enjoys getting outdoors with his wife and two daughters skiing, biking, and hiking.

Jodie joined the Engineering and Design Department as an Office Assistant 3 in March 2022. Along with great zeal to be a part of the WWU community, Jodie brings a decade of customer service and digital media editing experience to this role. She earned her B.A. in Humanities: History of Culture with Thesis (2020) at WWU where she was honored as the Department of Global Humanities and Religions’ Outstanding Graduate for her campus leadership and research on social ethics in early medieval Irish hagiography. Jodie is now excited to shift gears and work behind the scenes at WWU where she feels immensely privileged to support ENGd’s exceptional students, faculty, and staff with a myriad of goals on campus.

Off campus, Jodie loves to sing, ramble the countryside with her dog, and travel the British Isles in search of colorful stories, coastlines, and pubs.
Bhaskar Ramasubramanian joined Western in Fall 2021 as an Assistant Professor in Electrical and Computer Engineering. Previously, he was a Postdoctoral Research Associate in the Network Security Lab at the University of Washington, Seattle, WA. He obtained his Ph.D. in Electrical and Computer Engineering from the University of Maryland, College Park, MD. His research is in the broad area of cyber-physical systems, with an emphasis on using techniques from control, reinforcement learning, formal methods, and game theory. Bhaskar’s research is currently supported by an NSF CISE Research Initiation Initiative grant titled ‘Cognizant Learning for Autonomous Cyber-Physical Systems.’ At Western, Bhaskar teaches courses in Artificial Intelligence & Reinforcement Learning, Control Systems, and Cyber-Physical Systems.

Wala Saadeh is an Assistant Professor in the Electrical and Computer Engineering program at WWU. She was an assistant professor in the Electrical Engineering Department at Lahore University of Management Sciences, Pakistan from 2016 to 2022. Previously, she joined the Test-Chip Integration team, Global Foundries, Germany, as a Test-Chip intern in 2013. Her current research interests include machine learning for healthcare applications and portable/wearable biomedical devices. Dr. Saadeh is the recipient of the IEEE International Symposium on Circuits and Systems (ISCAS) 2015 Best Paper Award (BioCAS Track) and the ISCAS 2015 Runner-Up Best Student Paper Award. She is also co-recipient of the Best Paper Award (IC Design Track) of the 1st International Conference on Microwave, Antennas & Circuits (ICMAC 2021). Dr. Saadeh loves cooking and enjoys trying new recipes. In her free time, she likes traveling and exploring new places.
TINA SMILKSTEIN
LECTURER, EECE

Tina has come on as a lecturer Winter 2022. Tina’s specialties include digital and analog integrated circuit design and design tools, medical technology and DEI issues. A 3-month training visit to Japan stretched into 20+ years of living in Japan where Tina got their BS and then worked for Hitachi for a number of years before leaving and working for Mitsubishi, NTT, and a number of other companies as a contract worker. After a downturn in the Japanese economy and hitting a glass ceiling, Tina returned to the States and earned an MS and PhD at Berkeley in electrical engineering largely working on high-speed clock distribution in integrated circuits. An important qualification for the new position at WWU is their pogo stick jumping record at the age of 12 that got them into the Guinness Book.

In their spare time, Tina likes to run trails, road bike and play with their 2 old dogs and 11 birds.

Yuzhang Zang earned her bachelor’s degree from Harbin Institute of Technology in 2014, her master’s degree from Worcester Polytechnic Institute in 2016, and her Ph.D. in Electrical and Computer Engineering from the University of Wisconsin, Madison in 2021. Her research interests are antennas, applied electromagnetics, decoupling networks. Before joining WWU, Yuzhang served as a visiting assistant professor at Valparaiso University. Yuzhang will be joining the Electrical and Computer Engineering Program as an Assistant Professor.

In her time not researching and teaching, she enjoys traveling, hiking, doing puzzles and playing with LEGO® sets.
Steve James

The ENGD Department would like to recognize Steve James for his 37 years committed to WWU and his contributions he has made to our department most recently as our Engineering Technician Lead. Thank you, Steve.

How did you get started at WWU?
I moved to Bellingham in 1983 to take a job as a machinist at the old Georgia Pacific paper mill. Twenty-nine days later they closed the plant and Bellingham became a ghost town. I was a man of leisure for a year until the WWU Technology Department hired me.

What are you most proud of?
I’ve always been active in the Union that represents the technical staff. We have a close and productive relationship with the administration, and success in making WWU a great place to work. I am particularly proud of my work mentoring other technicians who were struggling with work or personal challenges.

What are your plans for after WWU?
I plan to travel extensively, including a snowboarding trip to Spain in December.

Is there anything you’d like to add?
I’m very proud of WWU and the integrity of people that I’ve had the honor to work with. I’ve enjoyed every day.

Mark Dudzinski

The ENGD Department would also like to extend our gratitude to Mark Dudzinski for his 15 years dedicated to WWU, with his most recent role being the Instruction & Classroom Support Technician 2 in our department.

When did you begin at WWU?
I came to WWU to attend the Vehicle Research Institute Post Baccalaureate program under Mike Seal in 1994. I returned to WWU Engineering Department in 2007 as an adjunct faculty teaching CAD and Intro to Engineering courses. I was hired on as technical staff a short period later.

What was your favorite part of your role at WWU?
I derived great joy out of working with a variety of folks within the Western Community. I loved linking different skill sets on campus to find creative ways of tackling problems most. It’s been a lot of fun to watch the department grow and to have been a part of it.

What does the next chapter look like for you?
I will certainly miss everyone (but I won’t be a stranger!). Wishing continued success to the entire WWU community! Next, I’ll spend time with my family. I feel blessed to have the space to spend half the week with my kids over these next few short years.

Left to Right: Mark, Gabor, Illiamna, and Miriam.
Looking

DEPARTMENT UPDATES...

**POLYMER MATERIALS NAME CHANGE**

The Plastics and Composites Engineering program has changed its name to Polymer Materials Engineering. This change has been made in an effort to increase the breadth of students to the major by continuing to reflect our core concentration of polymer materials and processes. Sustainable materials, hands-on learning, and students working on real-world problems from industry partners continue to be a main focus in the curriculum.

**EECE BUILDING**

Design of a new $72 million facility for Electrical and Computer Engineering is nearing completion, with the hope that the doors will open in the second half of 2024. The facility, to be called Kaiser Borsari Hall, will provide modern teaching and laboratory facilities and will accommodate the growth of the EECE program. The building will be shared with part of Computer Science as well as the Institute for Energy Studies, and as a “smart build-
-ing,” it will exceed LEED standards for energy use, carbon, and other environmental indicators.

When complete, Kaiser Borsari Hall is expected to be the only carbon neutral academic facility in the region, among a handful in the nation, and it will significantly advance Western’s vision to become the region’s first carbon neutral university campus.

For more information, visit [Building Washington’s Future](#).

Architectural rendering courtesy of Perkins&Will.
Upcoming Event

In-Person
TECHNOLOGY & ENGINEERING CAREER & INTERNSHIP FAIR
Thursday, November 3, 2022
11AM - 2PM
Viking Union | Multi-Purpose Room
Meet recruiters and hiring managers at this free event for all majors and class levels.
Learn more at www.edu/careerfairs
Sponsored by Career Services Center and the College of Science and Engineering

Support ENGD at WWU

Help us maintain academic excellence in our department with a donation today. You may designate where your gift goes in the button below. Support ENGD scholarships, the Makerspace, and more! Thank you.

Support us today!
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