



Joint Engineering Program

University of Missouri–St. Louis ■ Washington University in St. Louis

PATHWAYS

2014-2015



Networking within the St. Louis Engineering Community

The Joint Program acknowledges the importance of networking in the engineering profession and works with students to ease the transition from student to working professional. The Program ...

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DEAN'S MESSAGE



Joseph O'Sullivan, PhD
Dean, UMSL/WUSTL Joint Undergraduate Engineering Program

The Joint UMSL/Washington University Engineering Program continues to gain momentum as we strive to meet the needs of both students and employers of the St. Louis region. This past academic year, 61 students graduated from the Program ...

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Joint Program Welcomes Greg Mayhew, PhD – Electrical Engineering Advisor

In 2004, Dr. Mayhew joined Washington University as an adjunct professor of electrical engineering in the School of Engineering ...

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Joint Engineering Program In the News

UMSL, WUSTL reshape face of engineers in the region.

Urban Program Helps Boost Minorities, Women in Engineering.

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MORE INFORMATION

For more information regarding admission to the Joint Undergraduate Engineering Program, contact the UMSL Office of Admissions: (314) 516-5451 or umslengineering@umsl.edu

If you are an employer and are interested in hiring students in the program, contact UMSL Career Services: (314) 516-5111 or careerservices@umsl.edu



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Message from the Dean

The Joint UMSL/Washington University Engineering Program continues to gain momentum as we strive to meet the needs of both students and employers of the St. Louis region. This past academic year, 61 students graduated from the Program bringing the total number of graduates to 704 since the program's inception in 1993. During the same academic year period, 54 students began their pre-engineering coursework on the UMSL campus while 96 students began their upper-level coursework on the Washington University campus.

Whether you are a prospective student, counselor, teacher, or employer of engineers, we hope this newsletter will provide you with additional information regarding the Program. Please do not hesitate to let us know how we can help serve your needs.

In this issue we welcome Greg Mayhew, PhD as electrical engineering advisor to students in the program. Greg's experiences in electrical engineering and his knowledge of the St. Louis engineering community will be a great asset to the Program. Additionally, we address the Programs efforts to help students network with professionals in the St. Louis engineering community. Aimed primarily at prospective engineering students and counselors is a new segment called "Spotlight on Engineering". In this segment, we hope to educate our constituents about a certain aspect of engineering and its impact on all of our lives. We hope you find it informative and enlightening. Also included in this newsletter are links to news stories about some of the people and events that make this Program so special.

UMSL and Washington University are committed to the mission of educating engineers for St. Louis. Stop by or call to see if our 'Pathway' is right for you.

Joseph A. O'Sullivan
Dean, UMSL/Washington Joint Undergraduate Engineering Program

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Networking within the St. Louis Engineering Community

The Joint Program acknowledges the importance of networking in the engineering profession and works with students to ease the transition from student to working professional. The Program strives to provide students with resources and opportunities to network with professional engineers in the St. Louis region. The curriculum not only includes the usual technical content required of all ABET accredited engineering degrees but also has required components in engineering ethics, technical communications (both verbal and written), and professionalism.

As early as the first semester on the UMSL campus, students are introduced to engineering professionals during their Introduction to Engineering course as well as through lunch-time seminars sponsored by the Society of Future Engineers (SOFE). These seminars feature alumni of the Program as well as other engineers who wish to share their profession experiences and insight with up-and-coming engineers. Additionally, SOFE has organized trips to MSD water treatment facilities, Ameren UE, various construction sites, and other local facilities that employ and rely on engineering professionals.

Students are encouraged to join engineering groups at Washington University such as Engineers Without Borders, National Society of Black Engineers, Society of Women Engineers (SWE), the UMSL/Washington University Chapter of Institute of Transportation Engineers (ITE), and many others. Since many students in the Joint Program plan to stay in the St. Louis region, they may become working colleagues with each other as well as their professors. Students are encouraged to get to know each other as well as their teachers. Some students have found job leads as well as profession support in the person sitting next to them in class or the person providing their class lecture. Faculty in many upper-level engineering design courses and are often senior engineers at some of the largest engineering companies in the St. Louis area.

Students in the Joint Program are encouraged to register with, and be active in the career centers of both universities. UMSL and Washington University offer student career counseling, career fairs, mentorship programs, resume writing workshops, etc. Students can make appointments with career counselors at each University to help them everything from how to approach a company at a career fair to compensation negotiations.

The proximity of UMSL and Washington University to the **Engineers' Club of St. Louis** provides students with direct access to professional engineers beyond the university environment. The club offers free student memberships and students are encouraged to take advantage of this benefit. Throughout the year, instructors who are members of the Engineers' Club will take groups of students to monthly meetings introducing them to the organization and its membership. The Engineers Club provides numerous networking opportunities as well as career fairs, volunteer activities, and social events that students can be active in long after they graduate.

Within the past several years over a dozen Joint Program students have been selected for the Engineering Mentorship Program sponsored by the St. Louis Regional Business Council (**RCB**). This program works to partner students at local universities with executives or managers at some of the area's largest companies. Joint Program students have had mentors from companies such as Paric Corporation, Guarantee



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Electrical Company, Nidec Motor Company, The Boeing Company, HOK Group, Inc., MiTek, Polsinelli Shughart PC, FMP Inc., Thompson Coburn, and Assension Health. Ryan Harp, a civil engineering student who recently participated in the mentorship program with a Paric Corporation executive said, "It was one of the best experiences of my time as an undergraduate. I recommend the RBC mentorship program to all of my friends in the Program."

The Program's encouragement of making professional work experience and networking an integral part of a student's undergraduate education seems to be paying off. Since upper-level classes begin after 4:00PM, students often find companies are willing to hire them and create a work schedule that benefits both parties. Following is a partial list of companies at which Joint Program students are working, either full-time or part-time, while they are earning their undergraduate engineering degree.

- Boeing
- Leidos Engineering
- Maverick Technologies
- Nidec Motor Corporation
- McClure Engineering
- Component Bar Products
- U.S. Army Corps of Engineers
- Paric Corporation
- Ameren Illinois
- Laclede Gas
- Ameren Missouri
- City of O'Fallon
- Missouri Dept. of Transportation
- Metropolitan Sewer District (MSD)
- DTAA, Inc.
- UMSL, Planning & Construction
- Code 3 Public Safety Equipment
- Bilfinger Industrial Services
- Poe & Associates
- Boldt Construction
- Exp, US Services, Inc.
- Granger Contracting
- Ameren
- Briem Engineering
- Frontenac Engineering
- Power Engineers, Inc.
- SAK Construction
- Abengoa



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Spotlight on Engineering : Water Resources

Water is Life ... Water is Worth it.

Where does our water come from? Where does it go? How is it delivered to you? How do you know it is safe to use? How big is a 100 year storm? Water resource engineering is a major discipline within civil engineering concerned with the management of the world's water supply. Water resource engineering is concerned with everything from water collection and discharge, to drought and flood control, to the design of water treatment facilities and pollution control.

Water resource engineering involves coordination with many engineering, biological, physical and social sciences. Water resource engineers work with such diverse disciplines such as mechanical and industrial engineering, public health, ecology, meteorology, geology, chemistry, land development/use, economics, and law. With all of these parties involved, it is obvious that water resource engineers need to have solid technical background as well as strong communication and problem solving skills. Engineers meet the water related needs of society by formulating and implementing resource management strategies, planning, designing, constructing, operating and maintaining structures and facilities.

Civil Engineering students in the UMSL/Washington University Joint Undergraduate Engineering Program take fluid mechanics, fluid mechanics laboratory, and hydraulic engineering courses. Those students wishing to gain addition specialization in water resource engineering take classes in surface water hydrology and environmental engineering, a capstone design class in water resources engineering, and an additional civil engineering elective. These courses rely on a solid mathematics, science, and engineering background students gain throughout their undergraduate coursework. Students who are interested in water resources work on such diverse projects as flood control structures, water supply and treatment facilities, river and harbor navigation, and water conservation and sustainability issues. Work on these projects occurs in agencies such as municipalities, water companies, manufacturing and consulting engineering firms, as well as governmental entities such as the EPA, Department of the Interior, USGS, and Bureau of Reclamation.

The water resources courses in the Joint Program are led by Gary Moore who has been a faculty member at Washington University for nearly ten years. Gary is currently Program Manager for the Metropolitan St. Louis Sewer District and is a registered professional engineer in Missouri and Kentucky. In 2011 Gary received the Lifetime Achievement Award from Region 7 of American Society of Civil Engineers.

For additional information regarding water resource engineering please refer to the following links.

- [ASCE – Environmental and Water Resources Institute](#)
- [ASCE – American Academy of Water Resources Engineers](#)
- [EPA – Learn About Water](#)
- [EPA – Water Science](#)
[USGS - Water](#)

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Joint Program Welcomes Greg Mayhew, PhD – Electrical Engineering Advisor

In 2004, Dr. Mayhew joined Washington University as an adjunct professor of electrical engineering in the School of Engineering and Applied Sciences. In 2014, Dr. Mayhew expanded his role to include Faculty Advisor for the electrical engineers in the Joint Engineering Program. He teaches Signals & Systems, Communication Theory, and Digital Signal Processing in the Program. Before joining Washington University, Dr. Mayhew was an adjunct professor at the Missouri University of Science and Technology. He taught Complex Systems Project Management in the Systems Engineering and Management department.

Dr. Mayhew has a PhD in Electrical Engineering from the University of Southern California, a Master of Science in Systems Engineering from Missouri Science and Technology, and a Bachelor of Science in Electrical Engineering from Massachusetts Institute of Technology. He has over forty publications in mathematical and electrical engineering journals.

Previously, Dr. Mayhew was a Technical Fellow at the Boeing Company. He has experience as a technical director, project manager, and department manager. He was technical director on projects such as wireless mobile networks for the Army, satellite communication payloads for the Air Force, and subway communication system for BART. His project management experience includes new business proposals, cost basis-of-estimates, earned value, and integrated master schedules. He was technical lead on capture teams for many projects ranging from \$62 to \$300 Million. His department manager experience includes capital forecasts, procurement, employee hiring, and annual performance appraisals. His frequent customer interactions include technical reviews, program status, project deliveries, and subcontractor management.



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UMSL Chancellor Report to the Community features Travis Johnson, electrical engineering major in UMSL/Wash U Joint Engineering Program at minute 44:20.

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Travis Johnson, electrical engineering student in Joint Program, featured at UMSL Scholarship luncheon. [READ MORE](#)

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