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College of Engineering and Applied Sciences

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Engineering management joins ranks of globally certified programs
WMU's master's degree in engineering management is now one of six programs certified globally by the American Society for Engineering Management (ASEM).

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Graduate students awarded research and travel grants
Congratulations to the recipients of the Graduate Student Research and Travel Grants during 2016-17.

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Engineers Week features comedian

New director of academic advising joins the college

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Dr. Sam Ramrattan received the prestigious British Foundry Medal

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Engineering management joins ranks of globally certified programs

WMU’s master’s degree in engineering management is now one of six programs certified globally by the American Society for Engineering Management (ASEM). The certification is designed to recognize master’s programs that meet the rigorous standards of the organization.

According to ASEM, “Certification represents outstanding achievement in quality and content by those programs who achieve this distinction, and it places them among the elite in the country in offering their graduate programs.”

“We are so pleased to have our program recognized with this prestigious certification,” said Dr. Steve Butt, chair of the Department of Industrial and Entrepreneurial Engineering and Engineering Management. “Our faculty is outstanding and have created a solid program that meets the needs of employers, challenges our students and makes them ideal candidates for leadership positions in industry.”

Dr. David Lyth and Dr. Larry Mallak lead the program and were notified that it passed its initial certification in November. ASEM evaluators visited campus in October to assess the program quality and meet with students, faculty, alumni and staff involved in the program. The evaluators were impressed with what they observed and noted the rigor of the program.

Engineering management is a multidisciplinary field that bridges the gap between engineering and business, integrating the management of people, money and projects. This focus appeals to students with engineering and technical backgrounds who seek to advance their technical knowledge while adding management skills. The demand for leadership in modern manufacturing and service-based industries has dramatically increased the need for people with both skill sets.

Senior, full-time engineering faculty teach courses in the program, with core courses in engineering management, quality, capital budgeting and project management. Graduates of
WMU’s program lead engineering efforts in companies such as Google, Apple, General Motors, Stryker, Denso, JR Automation and many others.

Students who graduate from the newly certified program will earn the Certified Associate in Engineering Management (CAEM) credential. The CAEM is recognized internationally in the engineering management community as a mark of quality for professionals in engineering management and is the stepping stone to the Certified Professional in Engineering Management (CPEM) credential. Graduates of the engineering management master’s program already benefit from WMU’s Registered Educational Provider status with the Project Management Institute and earn credit toward project management certifications as a Project Management Professional (PMP) and a Certified Associate in Project Management (CAPM). Many also graduate with their Six Sigma Green Belt certification.

The 30-credit graduate program is offered in Kalamazoo, as well as in Grand Rapids and beginning in fall 2018, at a regional location in Florida. Florida classes will meet monthly on Fridays and Saturdays to accommodate busy professionals and those who fly in for classes.

For additional information, contact the program advisor, Dr. David Lyth, at david.lyth@wmich.edu or (269)276-3368.

**Graduate students awarded research and travel grants**

Congratulations to the following recipients of Graduate Student Research and Travel Grants during 2016-17. Twenty students from the College of Engineering and Applied Sciences received the awards. WMU’s Graduate Student Research Fund and Travel Grants supports graduate students engaged in independent scholarly research, scientific inquiry, inventive technology and original artistic activity. Grants are fully funded and administered by the Graduate College and range up to $1,000. Students may apply for up to $600 of additional support to defray the cost of international travel.

*indicates student received additional funding for international travel

**Akram, Ayaz**

Electrical and Computer Engineering

Travel (Sep 16)

X86 Computer Architecture Simulators: A Comparative Study

**Akram, Ayaz**

Electrical and Computer Engineering
Travel (Jan 17)

X86 Computer Architecture Simulators: A Comparative Study

**Alcantara, Jerico**
Chemical and Paper Engineering
Research
Direct Succinic Acid Production from Lignocellulosic Biomass Using Sequential Solid-State and Slurry Fermentation with Mixed Fungal Cultures

**Aledhari, Mohammed A.**
Computer Science
Research
Design and Implementation of Eye-Like Smart Wearable Device for Blind and Visually Impaired People

**Aledhari, Mohammed A.**
Computer Science
Research
A New Obstacle Avoidance Algorithm In Support of Visually Impaired Individuals

**Al Qaralleh, Mohammad**
Civil and Construction Engineering
Research
Fatigue Behavior of Reinforced Concrete Beams Strengthened with Externally Bonded Carbon Fiber Reinforced Polymers

**Awan, Muaaz Gul**
Computer Science
Research
Accelerating Proteomics Software Pipeline Using Graphical Processing Units for Speeding Up Protein Analysis for Systems Biology Studies
*Bansode, Subodh

Electrical and Computer Engineering
Travel
Design and Implementation of Regulated Pressure Brace with On-Board Control and Monitoring Abilities for the Treatment of Scoliosis

Bilal, Ghassan

Electrical and Computer Engineering
Travel
Network Reduction for Frequency Domain Transient Analysis of Power Components

Chlaihawi, Amer Abdulmahdi

Electrical and Computer Engineering
Travel
Novel Screen Printed and Flexible Low Frequency Magneto-Electric Energy Harvester

Ferguson, Alexandra

Electrical and Computer Engineering
Travel
Using Experimentally Informed Neuron Models to Find Optimal Neural Stimuli in the Medicinal Leech

Hussain, Mohammed

Electrical and Computer Engineering
Travel
Equivalent Representation of Machine Winding in a Frequency Domain Model for Fast Transient Studies
Save the Date
Engineers Week Dinner

February 20, 2018 in the Bernhard Center

5:30 pm Social Hour
6:30 pm Dinner
7:30 pm Program

Featuring Don McMillan, nationally known comedian and engineer

"The Funny Side of Engineering"

Watch for details and ticket information in the February InSPIRE!
New director of academic advising joins the college

Tammi Smith joins the college this month as Director of Academic Advising. She replaces Rebecca Scheffers, who departed at the end of the year to spend more time with her family.

Smith has been an academic advisor at WMU since 1999, most recently serving as assistant director of advising and coordinating pre-health advisor for the College of Arts and Sciences. She has a bachelor of science degree in biology and environmental studies from Western, and a master of science degree in animal behavior/chemical ecology, also from WMU.

Smith has received a number of awards from WMU, including the Carl and Winifred Lee Honors College Distinguished Service award for advising efforts with Honors College students (2012) and the semiannual “Make a Difference Award” (2014).

58 undergraduates receive research awards

Congratulations to the following students who received Undergraduate Research Excellence Awards during 2016-2017. Of the 67 awards university-wide, 58 were presented to students from the College of Engineering and Applied Sciences.
Alhouz, Odai
Civil Engineering
Effectiveness of Bicycle Signals for Improving Safety and Multimodal Mobility at Urban Intersections
Faculty Mentor: Dr. Jun-Seok Oh

Anderson, Adam
Aerospace Engineering
Preventing Concussion with Innovative Smart Helmet
Faculty Mentor: Dr. Pnina Ari-Gur

Aurand, Andrew
Mechanical Engineering
3D Printer Plastic Recycler
Faculty Mentor: Dr. Lee Wells

Bakker, Joshua
Aerospace Engineering
Preventing Concussion with an Innovative Smart Helmet
Faculty Mentor: Dr. Pnina Ari-Gur

Black, Dustin
Civil Engineering
Developing Policies and Guidelines for Enhancing Non-Motorized Mobility within Construction Zones
Faculty Mentor: Dr. Upul Attanayake

Bliss, Mark
Mechanical Engineering
BCM Espresso Machine
Faculty Mentor: Dr. Richard Meyer
Bosma, Gregory  
Mechanical Engineering  
Development of a CubeSat Separation Mechanism  
Faculty Mentor: Dr. Kristina Lemmer

Brower, Christian  
Mechanical Engineering  
Plastic Recycler Project  
Faculty Mentor: Dr. Lee Wells

Carlo, Eric  
Industrial and Entrepreneurial Engineering  
Laser Augmented Diamond Drilling  
Faculty Mentor: Dr. John Patten

Caruso, Joseph  
Manufacturing Engineering Technology  
SLA 3D Bio Printer  
Faculty Mentor: Dr. Pavel Ikonomov

Chantrenne, Tyler  
Mechanical Engineering  
CubeSat ADCS Validation and Testing Apparatus  
Faculty Mentor: Dr. Jennifer Hudson

Cole, Ian  
Mechanical Engineering  
Compressor for Portable Biogas Purification System
Cook, Eric
Manufacturing Engineering Technology
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Curle, David
Mechanical Engineering
BCM Espresso Machine
Faculty Mentor: Dr. Richard Meyer

Drumm, Robert
Mechanical Engineering
Use of a Magnetorheological Fluid for System Actuation
Faculty Mentor: Dr. Claudia Fajardo-Hansford

Drummond, Andrew
Mechanical Engineering
WALI (Western Aerospace Launch Initiative) CubeSat Separation Mechanism
Faculty Mentor: Dr. Kristina Lemmer

Griffith, Matthew
Aerospace Engineering
Separation and Orbital Propagation
Faculty Mentor: Dr. Jennifer Hudson

Haji, Magreth
Aerospace Engineering
Shape Memory Alloys (Nano-Composite)
Faculty Mentor: Dr. Pnina Ari-Gur

**Hiller, Ross**
Mechanical Engineering
Design and Kinematic Analysis of CubeSat Separation Method
Faculty Mentor: Dr. Kristina Lemmer

**Hiltner, Samuel**
Aerospace Engineering
LASS Unmanned Aerial System
Faculty Mentor: Dr. William Liou

**Hughey, Logan**
Chemical Engineering
Periphyton-Fungi Co-Culture Systems for Capturing Non-Point Phosphorus
Faculty Mentor: Dr. Andro Mondala

**Izaguirre, Gregory**
Aerospace Engineering
Propellant Tank and Feed System
Faculty Mentor: Dr. Kristina Lemmer

**Kerber, Thomas**
Aerospace Engineering
NEON-EAGER Air Microbiome Sampler
Faculty Mentor: Dr. Kristina Lemmer

**Kurth, Robin**
Mechanical Engineering
Compressor for Biogas Purification System
Faculty Mentor: Dr. Muralidhar Ghantasala

Lerner, Kevin
Aerospace Engineering
Magnetorquer Controller
Faculty Mentor: Dr. Jennifer Hudson

Lloyd, Nathan
Construction Engineering
Laboratory Evaluation of a Bridge Field Monitoring System
Faculty Mentor: Dr. Upul Attanayake

Malphrus, Jason
Mechanical Engineering
Cooling System Development for an Automotive Application
Faculty Mentor: Dr. Claudia Fajardo-Hansford

McNamara, Dylan
Mechanical Engineering
BCM Espresso Machine
Faculty Mentor: Dr. Richard Meyer

Melton, Andrew
Mechanical Engineering
Fatigue Testing of Materials
Faculty Mentor: Dr. Daniel Kujawski
Miller, Cole
Engineering Management Technology
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Mirshab, Ramin
Mechanical Engineering
Advanced Materials and Manufacturing Techniques for IC Engine Induction Systems
Faculty Mentor: Dr. Claudia Fajardo-Hansford

Mohsini, Ali Akbar
Aerospace Engineering
Magnetorquer Controller
Faculty Mentor: Dr. Jennifer Hudson

Molina, Roberto
Aerospace Engineering
3-Axis Magnetorquer for CubeSat
Faculty Mentor: Dr. Jennifer Hudson

Mooney, Margaret
Aerospace Engineering
Airborne Microbiome Project
Faculty Mentor: Dr. Kristina Lemmer

Nimtz, Brandon
Mechanical Engineering
Biogas Separator and Storage Tank
Faculty Mentor: Dr. Muralidhar Ghantasala
Nye, Jacob
Mechanical Engineering
Design of Computerized Surgical Screwdriver
Faculty Mentor: Dr. Peter Gustafson

Ostroy, Greg
Computer Science
Sampling Criteria for Monitoring Influenza Emergencies Under Constrained Testing Capabilities
Faculty Mentor: Dr. Diana Prieto

Pines, Wilson
Engineering Design Technology
SLA 3D Bio Printer
Faculty Mentor: Dr. Pavel Ikonomov

Pokorzynski, Vincent
Mechanical Engineering
Piezoelectric Energy Harvesting for White Canes
Faculty Mentor: Dr. Pnina Ari-Gur

Pool, Michael
Aerospace Engineering
LASS Unmanned Aerial System
Faculty Mentor: Dr. William Liou

Preston, Mackenzie
Mechanical Engineering
Plastic Recycler
Richardson, Trevor
Mechanical Engineering
Biogas Separator and Storage Tank
Faculty Mentor: Dr. Muralidhar Ghantasala

Graduate students shine in 2017 Research and Creative Activities Poster Day

Congratulations to our graduate students who were winners in WMU’s 2017 Research and Creative Activities Poster Day:

Ahmed Sulaiman M Alharbi
Mentor: Dr. Elise de Doncker
Computer Science
“Deep Neural Network Model for Twitter Sentiment Analysis by Incorporating User-Level Information”

Hasnaa Imad Al Shaikhli
Mentor: Dr. Elise de Doncker
Computer Science
“An Approximation Algorithm Motif Finding in DNA Sequences”

Katie Gaviglio
Mentor: Dr. Andro Mondala
Chemical and Paper Engineering
“Phosphorus Speciation of Riverbed Sediments from a Eutrophic Watershed in SW Michigan: Assessment of Phosphorus Recovery Potential”

Megan Kuk
Mentor: Dr. Steven E. Butt
Industrial and Entrepreneurial Engineering and Engineering Management

“Analysis of Emergency Medical Services Response Continuum for Motor Vehicle Crashes in Michigan”

Robert Makin
Mentor: Dr. Steven Durbin

Electrical and Computer Engineering

“Exploiting Disorder in Novel Semiconductors for Optoelectronic Devices”

Lusanni Acosta Rodriguez
Mentor: Dr. Valerian Kwigizile

Civil and Construction and Engineering

“Evaluation of the Effectiveness of Clearview Font and Fluorescent Yellow Sheeting on Michigan’s Freeways”

Trials Funded by the U.S. Institute of Education Sciences

Tai-Hsien Wu
Sponsor: Dr. William Rantz

Chemical and Paper Engineering

A Numerical Approach to Investigate the Influence of Deformable Blockages on Blood Flow in an Elastic Vessel

Congratulations to Dr. Sam Ramrattan

Congratulations to Dr. Sam Ramrattan, professor in the Department of Engineering Design, Manufacturing and Management Systems, who recently received the prestigious British Foundry Medal at a ceremony in London. He is a world leader in metal casting research and runs the college’s student-centered metal casting lab.

Dr. Sam Ramrattan receiving his British Foundry Medal.
College Snapshot: 2016-17 Career Outcomes for Undergraduates

- 91% of those who earned an undergraduate degree are employed or in graduate school.
- 81% work in Michigan.
- 95% are satisfied with their job.
- 85% are employed full time.
- 96% have a job related to their degree.