

UNION UNIVERSITY

# Engineering NEWS

## Chair's Message

We hope you enjoy another edition of the Union University Engineering News newsletter!

We would like to keep you up to date on the latest news and information from our department. If you have any information you'd like to contribute towards a future issue, please email [crowland@uu.edu](mailto:crowland@uu.edu)

Congratulations to our entire 2011 Spring graduating class for successfully passing the Fundamentals of Engineering (FE) exam!

- 100% took the April exam. 100% passed!
- Excellent faculty!
- Excellent students!

The three Capstone senior design projects were challenging, practical and beneficial. One of the three received the Best Student Research Project from the Union University's Edward P. Hammons Center for Scientific Studies.

It has been an excellent academic year!



## Congratulations to the Engineering Class of 2011!

### Inside this issue:

Chair's Message	1
Special Seminars	2
Student Projects and Pictures	3
Faculty News	4
Student Projects and Pictures	5
Faculty & Staff Members	6



Pictured left to right: Bailey Moore, Daniel Sikes, Chris Hayes, Claire Elmsblad, James Jones, Tayo Adedokun, Lee Stewart, Robert Lynn, Paul Morris, Rhett Woody, Kyle Harris

## Special seminars in the spring semester

- Union Engineering students participated in the **Union University Scholarship Symposium (UUSS)** by presenting 12 different very interesting projects highlighting their theoretical and practical learning. Engineering abstracts may be found on pages 28-31 of the 2011 UUSS Program (<http://www.uu.edu/events/uuss/>). Pictures of these poster and oral project presentations may be found at [www.uu.edu/dept/engineering/news.cfm](http://www.uu.edu/dept/engineering/news.cfm)
- Mr. Bill Dement, President Dement Construction (<http://www.dementconstruction.com>) spoke in the Senior Seminar on April 20, 2011. The topic: "**Managing Personal/Professional Development for the Engineer from a Business Perspective.**"
- Mr. David Nash, Director R&D, Dana Corporation ([www.dana.com](http://www.dana.com)) spoke in the Senior Seminar on April 20, 2011. The topic: "**Communication and Continuous Learning in a Global Engineering Environment.**"

Dr. Michael Hayes, Professor of Chemistry, Union University ([www.uu.edu](http://www.uu.edu)) spoke in the Senior Seminar on April 13, 2011. The topic: "**Patents: Understanding, Getting and Using Them in Business**".

- Mr. Ryan Holmes, Mechanical Engineer, TLM Associates (<http://www.tlmassociates.com>) spoke in the Senior Seminar on April 13, 2011. The topic: "**10 Things to Avoid for Young Engineers-- Things to Learn Now that You've Gotten Your Degrees.**"
- Mr. Keith Anderson, Electrical Engineer and doctoral candidate at the University of Memphis ([www.memphis.edu](http://www.memphis.edu)) spoke in the Senior Seminar on March 16, 2011. The topic: "**A Career as a Christian Engineer--Life Lessons from where the Rubber Meets the Road.**"
- Dr. Georg Pinggen, Assistant Professor of Engineering, Union University ([www.uu.edu](http://www.uu.edu)) spoke in the Senior Seminar on March 9, 2011. The topic: "**A Multi-disciplinary Graduate Research Experience: Kinetic Theory applied to Engineering Design.**"
- Mrs. Jacqueline Taylor, Director Career Services, Union University (<http://www.uu.edu>) spoke in the Senior Seminar on March 2, 2011. The topic: "**Career Strategies for 21st Century Engineers**" (Part II).
- Mrs. Jacqueline Taylor, Director Career Services, Union University (<http://www.uu.edu>) spoke in the Senior Seminar on February 23, 2011. The topic: "**Career Strategies for 21st Century Engineers**" (Part I).
- Mr. Jason Snyder, Senior Mechanical Engineer, TLM Associates (<http://www.tlmassociates.com>) spoke in the Senior Seminar on February 23, 2011. The topic: "**What Do You Do When You Make a Big Mistake...**"
- Mr. Chris Morris, Senior Engineer, Pictsweet Compnay (<http://www.pictsweet.com>) spoke in the Senior Seminar on February 16, 2011. The topic: "**Top 10 Things To Do for Young Engineers.**"
- Mr. Rodney Brooks, President of the Jarvis Caster Company (<http://www.jarviscaster.com>) spoke in the Senior Seminar on February 9, 2011. The topic: "**Engineers: Transitioning to Business Environment.**"



## Union University Engineering Presentations at the Scholarship Symposium



Brandon S., Brady S., Scott K., Tom D., Jonathan G., Philip J., Ryan S., Matt W., Rachel C., Wilson H. presented a Materials Engineering project.



Rebecca S., Ky B., Matt W., Philip J., Jonathan G., Wilson H. presented a design, build & test of a Solar Cooker project.



Daniel S., Paul M., and Chris H. presented a design, build & test of a Basic Utility Vehicle project.



Team Robot (Jones, Bailey, Harris and Woody (not in picture) demonstrated their design, build & test of an autonomous robot.



Claire E., Ian A., Robert L., and Tayo A. (next picture) presented their humanitarian project of building an Hammam (public bath house) for a typical village in North Africa.



The design, build, test and commission of the Hammam project earned them the best student research project in Engineering awarded by the Union University's Edward P. Hammons Center for Scientific Studies.

- Dr. Russ will be on research leave until the Spring 2012.  
Congratulations!
- Dr. Pingen is the co-author of the paper *Topology Optimization for Unsteady Flow*. Other authors are Sebastian Kreissl and Kurt Maute. The paper is scheduled to be published by the highly regarded International Journal for Numerical Methods in Engineering.
- Dr. Schwindt will be presenting at the Christian Engineering Education Conference (June 2011) with a paper entitled “An Introduction to the Christian Liberal Arts: An Engineer’s Perspective”.
- Dr. Schwindt will be presenting at the ASEE Annual Conference (June 2011) with a paper entitled “*A First-Order Approximations Module for a First-Year Engineering Course*”.
- Drs. Schwindt and Pingen led a group of engineering students to North Africa for a mission trip to install a public bath house operated on renewable energy.
- Dr. Van presented at the Midsouth Annual Engineering and Science Conference in Memphis (May 2011) on “*Energy Efficiency and Sustainability—Coming Together or Coming Apart?*”.
- Dr. Pingen presented at the Midsouth Annual Engineering and Science Conference in Memphis (May 2011) on “*Transient Topology Optimization for Fluids using the Lattice Boltzmann Method*”. A full paper “Lattice Boltzmann Optimization for Transient Flows” co-authored by Andrew Kirk, Sebastian Kreissl and Kurt Maute has been scheduled to be published in the conference proceedings ([www.maesc.org](http://www.maesc.org))
- Dr. Bernheisel attended The 3rd Annual IEEE International Conference on Technologies for Practical Robot Applications. TePRA is aimed at catalyzing the development of enabling technologies and encouraging their adoption by robot designers.





James A. and John H. presented the design and build of a Wind Tunnel



Eric O., (not in pictures Aaron P., and Rob C.) presented a design, build & test of a project producing Alternative Fuels for Developing Nations.



Nate P., Grayson H., Rachel Q., Karl M., and Jeff M. presented a design, build & test project of an Electronic System for Room Reservation.



Caroline Mc., and Rachel C. presented an engineering problem solved by employing the Lattice Boltzmann Modeling method.



Ian A., Daniel K., and Jacob H. (not in picture) presented an iconic model of a twisting Wind Turbine blade project.



DEPARTMENT of ENGINEERING  
1050 Union University Drive  
Jackson, Tennessee 38305

Visit us on the web [www.uu.edu/dept/engineering](http://www.uu.edu/dept/engineering)

## Faculty & Staff Members

### **Don Van, PhD., PE., CEM**

Department Chair & Professor of Engineering  
Office: PAC B-7, Box 1855, 731-661-5534  
Email: [dvan@uu.edu](mailto:dvan@uu.edu)

\*Teaching area: Mechanical Engineering

\*Interest: Energy— Engineering &  
Management

\*PhD Institution: New Jersey Inst. Technology

### **Jeannette Herring Russ, PhD., PE., MBA**

Professor of Engineering  
Office: PAC B-3, Box 1856, 731-661-5542  
Email: [jruss@uu.edu](mailto:jruss@uu.edu)

\*Teaching area: Electrical Engineering

\*Interest: Medical Image Processing

\*PhD Institution: Vanderbilt University

### **Jay D. Bernheisel, PhD., PE**

Associate Professor of Engineering  
Office: PAC B-6, Box 1887, 731-661-6586  
Email: [jbernhei@uu.edu](mailto:jbernhei@uu.edu)

\*Teaching area: Mechanical Engineering

\*Interest: Robotics

\*PhD Institution: Northwestern University

### **Randal S. Schwindt, PhD., PE**

Associate Professor of Engineering  
Office: PAC B-2, Box 1845, 731-661-5594  
Email: [rschwind@uu.edu](mailto:rschwind@uu.edu)

\*Teaching area: Electrical Engineering

\*Interest: Physical Electronics

\*PhD Institution: University of Illinois,  
Urbana-Champaign

### **Georg Pinggen, PhD.**

Assistant Professor of Engineering  
Office: PAC B-5, Box 1874, 731-661-5544  
Email: [gpingen@uu.edu](mailto:gpingen@uu.edu)

\*Teaching area: Mechanical Engineering

\*Interest: Computational Analysis and  
Optimization (Fluids/Solids)

\*PhD Institution: University of  
Colorado at Boulder

### **Christine Rowland**

Administrative Assistant  
Office: PAC B-1, Box 1855, 731-661-5270  
Email: [crowland@uu.edu](mailto:crowland@uu.edu)