

**CAREERS CONFERENCE/CAREER CLUSTER WORKSHOP (DRAFT: 12-17-09)**

**CLUSTER: Science, Technology, Engineering, & Math (STEM)**

Monday, January 25, 2010

1 pm - 5 pm

Concourse Hotel and Governor's Club

1 West Dayton Street, Madison

It's not news that many students arrive at postsecondary institutions lacking the background needed to succeed in the types of jobs available in today's global economy. What curriculum and content lead to well-prepared students? How can we strengthen the connections between high school and postsecondary institutions so that students have the academic background and knowledge needed for 21st Century careers? This workshop will engage participants in exploration of the content in two key career clusters for the purpose of equipping them to better counsel and advise students considering this cluster, and to support secondary STEM instructional programs and co-curricular activities.

Presenters will provide varied perspectives on ways to update curriculum for programs of study, including academics, applied learning, internships, and other approaches. Counselors, teachers, and administrators from high school and postsecondary institutions will learn about mapping appropriate pathways to prepare students for school and workplace success. Groups or teams from a school or district are encouraged to attend together. Participants choose to focus on one of three career clusters. Presenters include a panel of postsecondary level faculty and instructors, outreach staff, and community/professional representatives.

- Goals:
1. Provide a non-technical overview of the cluster, pathway, and instructional and career development strategies.
  2. Consider cluster-specific trends, developments, and recent research findings.
  3. Identify current practices and advanced models for developing programs of study, dual-credit arrangements, and pre-college programs.
  4. Identify successful practices for developing K-16 partnerships.

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**Workshop Overview**

1:00 pm

Steve Cramer, Associate Dean, College of Engineering,  
UW-Madison (invited)  
Van Walling, Executive Director, Scientists and Engineers  
of Milwaukee (invited)

**A National Perspective**

*Engineering in K-12 Education: Understanding the Status  
and Improving the Prospects*

*Implications/Recommendations for Career Development*

A 2009 Report from the National Academy of Engineering  
Alan G. Gomez  
NAE Committee Member

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**STEM Cluster Overview**  
**1:45-2:45 pm**

Brent Kindred, DPI  
Technology and Engineering Education Consultant  
James Mackey, WTCS  
Education Director - Manufacturing Engineering

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The States' Career Cluster Project  
An Overview of the STEM Cluster:

The 15 Critical Components of Cluster Implementation  
Career Development  
Discussion of other components

Essential Knowledge and Skills  
Cluster Knowledge and Skill Chart

The Pathways:

Engineering and Technology: Knowledge and Skill Chart  
Science and Mathematics: Knowledge and Skill Chart

Programs/Plans of Study

Student Organizations: SkillsUSA, Science Olympiad

Program Articulation and Transfer Agreements

Industry Certificates, Credentials and Assessments

Industry and Professional Association Websites

**BREAK**

**STEM Postsecondary**  
**Partner Perspectives**  
**3:00—4:00 pm**

**UW Madison, College of Engineering**

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K-12 Engineering Outreach  
Programs

Manuela Romero, Assistant Dean

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Integrated Engineering 160

John Murphy, Professor of Engineering Physics (*invited*)  
*Teaching and learning experience in an introductory course*

The Engineering Grand  
Challenges: Engineering  
Literacy

Susan Hagness, Professor of Biomedical Engineering  
Amy Wendt, Professor of Electrical and Computer  
Engineering (*invited*)

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**STEM Postsecondary  
Partner Perspectives  
4:00 – 5:00 pm**

**Madison Area Technical College**

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Center for Agriscience  
& Technologies

Dean: David Shonkwiler  
Associate Dean: John Stransky

Model Partnerships and Programs of Study  
Key Components  
Design and Implementation Challenges  
Measures of Program and Impact  
Unanticipated Outcomes

*School District A: to be named*  
*School District B: to be named*

Transfer Partnerships  
MATC-Milwaukee School of Engineering  
MATC-UW Madison, College of Engineering

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