

# Administration Track

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal C2

## **Korean (GNU) Four-Week American Industry Internship and Cooperative Experience–2016**

Mr. Norman Philipp, Pittsburg State University, Pittsburg, KS

Dr. John L. Iley, Pittsburg State University, Pittsburg, KS

Attendees will understand the development and implementation of Korean (GNU) Four-Week American Industry Internship and Cooperative Experience and how a similar international collaborative programs could be developed at other universities to provide international experiences and interactions that benefit both international students and American industries.

## **The Journal of Technology, Management, and Applied Engineering: Data Analytics**

Dr. Gretchen Mosher, Iowa State University, Ames, IA

Dr. Robert Chin, East Carolina University, Greenville, NC

Dr. Randy Peters, Indiana State University, Terre Haute, IN

The audience will learn about current data analytics drawn from the *Journal of Technology, Management, and Applied Engineering*. Implications for publication choices and continuous improvement of the Journal will be discussed.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal C3

## **The Tradition Trap: How Low Turnover in Successful Programs Can Lead to Resistance to the Different Skill Sets that New Faculty Bring**

Dr. Michelle Surerus, Chowan University, Murfreesboro, NC

Programs, students, and faculty can all benefit when new talent are hired. For programs that have experienced very low turnover and now face the task of replacing retiring faculty, new faculty can bring opportunities and fresh insight that can complement current curriculum and create opportunities for students that would have otherwise been untapped and unknown. Administration and faculty must open their minds to see the benefits and embrace the possibilities rather than resist opportunities for change and not see new faculty with backgrounds that include more than what has been the status quo. Don't miss out on new opportunities just because a person may have a more diverse background! It could be a great new adventure where everyone wins!

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal C3

## **Creating a Community as a Method of Retaining Female Students in a Male Dominated Academic Field**

Mrs. Janet Fick, Ball State University, Muncie, IN

Ms. Jennifer Warner, Ball State University, Muncie, IN

Dr. James Jones, Ball State University, Muncie, IN

Attendees will learn proven methods to connect female students in a male dominated curriculum to both their current academic field and to their future profession. Perspectives of both faculty and the program director are provided.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal C2

## **March of the Millennials: Rebranding a Blue Collar Program**

Dr. Kimberley Gordon, University of Arkansas - Fort Smith (UAFS), Fort Smith, AR

Dr. Ken Warden, University of Arkansas - Fort Smith (UAFS), Fort Smith, AR

Attendees will be given a historical account of the regional workforce development efforts at UAFS to rebrand and relaunch two STEM programs in conjunction with dual credit instruction and industry-heavy mentoring and coaching. Attendees will hear about the programs challenges, occasional stumbles, current successes, and projected expectations.

## **A Model for Building Strong, Sustainable, and Program Specific Industry Relations**

Dr. Rod Flanigan, University of Nebraska at Kearney, Kearney, NE

Mr. Ben Brachle, University of Nebraska at Kearney, Kearney, NE

Attendees will learn about novel techniques used to attract state, regional, and national partners to the ID program at UNK. Attendees will also learn how the UNK ID industry relations model helps to build value for all shareholders, both internal and external use to achieve a satisfactory level of illumination. Current types and amounts of water fixtures should be taken into account as well, since these may be replaced with water saving alternatives. For the buildings being demolished and rebuilt or replaced, care should be taken that green building practices are included in the designs of new construction.

# Administration Track

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal C3

## **Creating a Cyber Security Major in a Liberal Arts Institution**

Dr. William Pizio, Guilford College, Greensboro, NC

Dr. Chafic BouSaba, Guilford College, Greensboro, NC

The attendees will gain insight into curricular development for a cyber security program that focuses on both the technical and non-technical skills.

## **Survey of Manufacturing Programs Taking SME Certification Exam and Manufacturing Student Outcome Assessment**

Dr. Nageswara Rao Posinasetti, University of Northern Iowa, Cedar Falls, IA

Dr. Julie Zhang, University of Northern Iowa, Cedar Falls, IA

Manufacturing certification exams from professional societies such as SME, ATMAE and others can be useful in student learning outcome assessment. This study presents a survey that will reveal how manufacturing programs practice this task. The insights obtained from the survey will help academic programs carry out student outcome assessment and therefore improve teaching quality continuously and help in easy accreditation.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal C2

## **Global Journey on Four Paths**

Prof. Daniel Lybrook, Purdue University, West Lafayette, IN

Attendees will learn about the development of our Global Experience requirement, from idea to fruition. Details of how the requirement can be satisfied, of the design down to the individual courses, will be presented.

## **Application of Project Management Principles in Higher Education Administration**

Dr. Olusegun Odesina, Central Connecticut State University, New Britain, CT

Dr. Nicholas Akinkuoye, Imperial Valley College, Imperial Valley, CA

Setting up a Project Management Office and employing project management methodologies in higher education will deliver results needed to achieve strategic organizational goals and will alleviate overload of subject matter experts.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal C3

## **Enhancing the Learning and Engagement of Women and Underrepresented Minority Students**

Dr. Shweta Chopra, Iowa State University, Ames, IA

Dr. Gretchen Mosher, Iowa State University, Ames, IA

Ms. Pamela Rodriguez, Iowa State University, Ames, IA

The audience will learn about a mentoring program used in retaining female and other underrepresented minorities in the field of technology. Challenges faced by women and URMs in STEM field at workplace will also be shared. Ways to successfully overcoming such challenges and identify ways to become successful in career of their choice will conclude the presentation.

## **Approaching Accessibility Needs of Both Students and Faculty in Technology Programs**

Mrs. Valerie Birk, Ball State University, Muncie, IN

Dr. James Jones, Ball State University, Muncie, IN

Mr. Gary Birk, Ball State University, Muncie, IN

Attendees of this presentation will understand successful approaches for addressing accessibility issues for students and faculty members in the construction and renovation of learning environments. Perspectives of administrators and faculty members are provided, along with examples and case studies.

Thursday, November 3, 2016 - 3:00: PM - 3:45 PM - Universal C2

## **Technical Curricula of ATMAE Accredited University Programs**

Dr. Mark Doggett, Western Kentucky University, Bowling Green, KY

Mr. Farshid Alavi, Western Kentucky University, Bowling Green, KY

This presentation presents research on the technical curriculum of ATMAE accredited university programs and student perceptions of its value. The information will show the types of technical courses in typical ATMAE accredited university programs and how students in the baccalaureate curriculum rank the technical competencies in terms of value and coverage.

# Administration Track

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal C2

## **Developing Accurate Rubrics for Both Classroom and Program-Level Assessments**

Mr. Kenny Rigler, Fort Hays State University, Hays, KS

Participants in this presentation will gain a thorough understanding of the correct design and application of rubrics for course-based assignments and program-level accreditation assessments.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal C3

## **The ATMAE Lean Six Sigma Prep Course: Affordable Training Just a Click Away**

Dr. Mark Miller, The University of Texas at Tyler, Tyler, TX

Dr. Heshium Lawrence, The University of Texas at Tyler, Tyler, TX

Dr. E. Shirl Donaldson, The University of Texas at Tyler, Tyler, TX

Dr. Dominick Fazarro, The University of Texas at Tyler, Tyler, TX

As ATMAE certification programs continue to improve and provide academia, individuals, and industry with important assessment data, individuals not associated with academia seldom earn the certifications since there is no opportunity for them to find training to prepare for them. This presentation details the first online training program associated with an ATMAE certification and its impact on improving the pass rate on the ATMAE Lean Six Sigma Exam.

## **The Defined, Measured, Analyzed, and Improved ATMAE Lean Six Sigma Exam: What You Need to Know for the Future**

Dr. Heshium Lawrence, The University of Texas at Tyler, Tyler, TX

Dr. Mark Miller, The University of Texas at Tyler, Tyler, TX

Dr. E. Shirl Donaldson, The University of Texas at Tyler, Tyler, TX

Dr. Dominick Fazarro, The University of Texas at Tyler, Tyler, TX

As the term “continuous improvement” is a concept that resonates with Lean Six Sigma, the Lean Six Sigma Certification Exam was improved; questions were revised and analyzed. Since this exam was the first one to be developed under the new ANSI accreditation standards, the exam has to be checked periodically to make sure that it continually meets those standards. The focus of this presentation will be to review the revised Lean Six Sigma Exam as well as give the audience an update on future training programs associated with the exam.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal C2

## **Assessing Student Performance of Program Outcomes: A Case Illustrating a Model Process for Continuous Program Improvement and Accreditation**

Dr. Suhansa Rodchua, University of Central Missouri, Warrensburg, MO

Dr. Ronald Woolsey, University of Central Missouri, Warrensburg, MO

Mr. William Ford, University of Central Missouri, Warrensburg, MO

Student performance of program outcomes can be an efficient response for maintaining high levels of quality in teaching and course delivery. With a successful students' achievement, stakeholders' satisfaction, and increasing number of enrollment, this proposed model is in its fourth complete review cycle. The model is useful as a mechanism for tying together various technical areas of curriculum review and assessment at the program level. This model using traditional grade book tools for assessing learning effectiveness and student satisfaction can assist course developers, instructors, and administrators to plan, design, implement, and manage productive learning systems.

## **Industry 4.0 or the Internet of Things (IoT): What Should ATMAE Program Undergraduate students Know?**

Dr. Abu Haddud, Eastern Michigan University, Ypsilanti, MI

Attendees will be gain insights and possible curricular implementation guidelines that will add value to ATMAE undergraduate program completers.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal C3

## **Improving 2-Year Technology Program Member Engagement**

Dr. Robert Chin, East Carolina University, Greenville, NC

Ms. Sharon Rouse, Mitchell Community College, Statesville, NC

An examination of the 2-year technology programs accredited by ATMAE was undertaken. The data suggests that there are alternatives ATMAE can pursue to capture the attention, affiliation, and loyalty of its members and potential members. The data also provide some sense of the highly relevant value-building activities the Association can provide.

# Administration Track

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal C3

## **Military Veterans Affinity Group Program: A Proactive Intervention for Transition to Higher Education**

Mr. Steven Bell, Iowa State University, Ames, IA

Mr. Matthew Harvey, Iowa State University, Ames, IA

Dr. Steven Freeman, Iowa State University, Ames, IA

Attendees will gain an understanding of the needs of the returning military veteran and how those needs are addressed through the implementation of the Affinity Group Program. Though specific to an academic degree program and industry career opportunity, this program is suitable for use in its adaptability for meeting the unique requirements of many higher education/career pathways. The outcomes and lessons learned will be disseminated with intent to stimulate replication.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal C2

## **The Unintended Consequence Resulting from Superior Preparation of Students in Technology for Industry; Diverting the Pipeline Away from Advanced Degrees and Academic Careers**

Dr. E. Shirl Donaldson, The University of Texas at Tyler, Tyler, TX

Dr. Mark Miller, The University of Texas at Tyler, Tyler, TX

Dr. Heshium Lawrence, The University of Texas at Tyler, Tyler, TX

Dr. Dominick Fazarro, The University of Texas at Tyler, Tyler, TX

The authors will discuss the current climate of student preparedness, educational cost containments, workforce readiness and STEM pipeline issues in higher education. Realistic scenarios, relevant terminology with data will be presented. Plausible solutions to address the unintended consequence will be explored.

## **Eligibility of Master's Degree Applicants for Tenure-Track Faculty Positions in 4-Year Programs**

Dr. Dana Ingalsbe, Jacksonville State University, Jacksonville, AL

Dr. Jess Godbey, Jacksonville State University, Jacksonville, AL

Attendees will leave this presentation with a better understanding of how 4-year engineering technology and applied engineering programs view the master's degree applicant as tenure-track eligible. This information should be useful for any program's faculty recruiting efforts.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal D1

## **ATMAE Faculty Demographics and Salaries: Trends and Characteristics of the ATMAE Faculty**

Dr. Ahmad Zargari, Morehead State University, Morehead, KY

This presentation will provide ATMAE professionals with an accessible, relevant, and recent database regarding the key characteristics and qualifications of faculty members who currently teach in ATMAE accredited programs. The data will assist administrators to make informed decisions regarding the future of the profession.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal E1

## **ATMAE Alumni: A Trends Analysis and Demographics of ATMAE Accredited Programs Alumni**

Dr. Ahmad Zargari, Morehead State University, Morehead, KY

Dr. Yuqiu You, Ohio University, Athens, OH

Although ATMAE has recognized the importance of programs graduates feedback by asking ATMAE accredited programs to conduct an alumni survey and disseminate the results, a review of literature indicates that very limited research data is available on alumni perceptions of their programs.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal C2

## **WTII Boot Camp Session—An Educating the Wood Industry Professional Workforce Collaboration**

Mr. Charlie Phillips, Pittsburg State University, Pittsburg, KS

Mr. Jordan Backs, Pittsburg State University, Pittsburg, KS

Dr. John L. Iley, Pittsburg State University, Pittsburg, KS

Attendees will learn about the collaborative development and implementation of the WTII Boot Camp Session and how a similar program could be developed to meet needs of professionals--product managers, sales professionals, executives, associated with other manufacturing industrial fields.



# Administration Track

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal C2

## **Implementing Zero-based Budgeting in a Department of Technology: Linking Budget Priorities to the Mission and Goals of the Institution**

Dr. Jeenson Sheen, Norfolk State University, Norfolk, VA

Mr. Charles Hunt, Norfolk State University, Norfolk, VA

Mr. Munir Sulaiman, Norfolk State University, Norfolk, VA

As higher education institutions continue to employ zero-based budgeting in their decision-making and resource allocation processes, administrative personnel in departments of technology must ensure that scarce budgeted resources are prioritized and aligned with the institution's priorities. This presentation will provide attendees insight regarding the development of a zero-based budgeting model for linking departmental priorities to the mission and goals of the institution.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal C2

## **Revision of the Master's Program in Engineering and Technology Management (MSETM) at Morehead State University**

Dr. Hans Chapman, Morehead State University, Morehead, KY

Dr. Ahmad Zargari, Morehead State University, Morehead, KY

Dr. Nilesh Joshi, Morehead State University, Morehead, KY

These changes will provide increased efficiencies in scheduling courses for the program and will increase the competitiveness of the MSETM program, throughout the Commonwealth, given the two tracks of specialization. The updated MSETM program will better align with current research findings at other institutions, marketability and currency.

## **Faculty Scholarship – A Career Guide**

Dr. Fred Walker, Edinboro University, Edinboro, PA

Dr. Charles Patrick, Penn State University - Fayette Campus, Lemont Furnace, PA

Presentation participants will be provided an overview of faculty scholarship considerations. A discussion of faculty expectations will follow as a lead into a description of effective scholarship development. Participants will be provided information with emphasis placed on transmitting information. The presenters will design the presentation with distinct intervals and examples placed to allow participants opportunities for questions and audience interaction. The authors of this presentation are experienced public speakers who know how to manage a presentation in order to involve participants in higher-order thinking (analysis, synthesis, evaluation).

**#ATMAE2016**

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal D1

## **Equal Opportunity Robotics Programs: Engaging Female Students for Future Careers in STEM**

Ms. Belinda McMurry, Southeast Missouri State University, Cape Girardeau, MO  
Dr. Sophia Scott, Southeast Missouri State University, Cape Girardeau, MO

Keeping females engaged in STEM in high school and college is an important step in increasing female representation in future STEM fields. Having engaging robotics programs that allow equal opportunities for our female students can help achieve this goal. This presentation will explore successful female high school robotics programs and their partnership with universities. This presentation will also describe the connection of successful high school all-female robotics programs and the impact on future college and career choices in the STEM fields.

## **Leveraging Lean and Project Management Certificates within an Applied Engineering Program**

Dr. Neil Littell, Ohio University, Athens, OH  
Dr. Zaki Kuruppalil, Ohio University, Athens, OH

Attendees will gain an understanding of how two new certificates complement the curriculum within the Engineering Technology and Management department at Ohio University. The audience will gain insight into the certificate requirements at Ohio University and they will be able to ask questions on the prospects and outcomes of technical certificates.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal C2

## **Recruiting Best Practices in Technology Undergraduate Programs**

Dr. Rod Flanigan, University of Nebraska at Kearney, Kearney, NE  
Mr. Ben Brachle, University of Nebraska at Kearney, Kearney, NE

Attendees will learn about novel recruiting techniques that have allowed the ID program at UNK to attract top talent from throughout the region. The proposed recruiting "best practices" have improved not only the numbers of students in a program, but also the quality of students recruited. These recruiting strategies have allowed the UNK ID program to be a leader on the UNK campus, as well as in the industrial distribution industry. Top companies from throughout the country come to the UNK campus each semester to recruit ID students during the UNK ID Career Event.

# Administration Track

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal C2

## **Korean (GNU) Innovation Engineering, Project Management & Disaster Shelter Design Program–Spring 2016**

Mr. Norman Philipp, Pittsburg State University, Pittsburg, KS  
Dr. John L. Iley, Pittsburg State University, Pittsburg, KS

Attendees will understand the development and implementation of Korean (GNU) Innovation Engineering, Project Management & Disaster Shelter Design Program and how a similar international collaborative programs could be developed at other universities to provide international experiences for students—international and domestic.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal D1

## **Analyzing Enrollments Trends for all Construction Management and Manufacturing programs Accredited by ATMAE**

Dr. Richard Miller, Ohio Northern University, Ada, OH  
Dr. Trevor Robinson, Ohio Northern University, Ada, OH

Attendees will acquire enrollment trends for standard majors such as construction and manufacturing while finding potential areas of growth in their majors. Additionally, attendees will get the opportunity to see what majors are trending upwards in our current technological state toward the future and what majors are trending downward. Lastly, a glimpse at changes made in a program to attract students by incorporating specializations or areas to assist in trending enrollment back up.

## **University and Industry Partnership for Training for Middle Management**

Mr. Terry Marbut, Jacksonville State University, Jacksonville, AL  
Dr. Jess Godbey, Jacksonville State University, Jacksonville, AL  
Dr. Dana Ingalsbe, Jacksonville State University, Jacksonville, AL

Attendees will leave this presentation with an understanding of how a regional university created a comprehensive leadership training program in partnership with a local industry that might be duplicated in some form at other institutions.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal D1

## **LEED Documentation Requirements for Commercial Building Projects: Problems and Solutions**

Dr. Andrea Ofori-Boadu, North Carolina Agricultural & Technical State University, Greensboro, NC

Dr. Lewis Waller, North Carolina Agricultural & Technical State University, Greensboro, NC

Attendees will be provided with practical solutions for addressing LEED documentation problems. Recommended LEED documentation practices should enhance the ease of attaining LEED credits and building certification in a timely and cost-effective manner.

## **On the Automated Demand-Response Infrastructure and High-Performance Green Buildings**

Dr. Shinming Shyu, Eastern Michigan University, Ypsilanti, MI

Automated Demand-Response (Auto-DR) technology provides an opportunity for high-performance building to play a significant role in the operation of the electric grid by reducing or shifting their electricity usage during peak periods. A building energy management and control system (EMCS) shall be installed to integrate with building systems in order to receive an interoperable Auto-DR relay or internet signal so as to reduce peak electricity demand.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal D1

## **Environmental Life Cycle Analysis of Timber Flooring versus Carpet in Residential Projects**

Dr. Sherif Attallah, Ball State University, Muncie, IN

Dr. Tarek Mahfouz, Ball State University, Muncie, IN

Mrs. Janet Fick, Ball State University, Muncie, IN

Attendees of this presentation will understand how life cycle analysis is used to assist in environmental decision making related to design of sustainable construction with an emphasis on decisions on selection of timber flooring versus carpet as typical choices for flooring materials in residential projects.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal D1

## **The Effects of Envelope Design on Building's Thermal Performance and Energy Efficiency in Relation to Human Health**

Ms. Na Han, Eastern Michigan University, Ypsilanti, MI

Dr. Shinming Shyu, Eastern Michigan University, Ypsilanti, MI

The research adopts a qualitative approach to data collection and retreated analysis. Energy-related information will be collected from Energy Information Administration while the thermal property of construction materials will be based on American Society of Testing and Materials. In addition to analyzing available data to synthesize finds and draw conclusions, the research will intergrade sustainable design principles into the study. In this regard, the qualitative research method will be used in analyzing the impact of building envelope design on thermal performance and energy consumption in HVAC building systems.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal D1

## **An Assessment of the Impact of Green Building Training on the Quality Characteristics of U.S. Residential Contractors**

Dr. Lewis Waller, North Carolina A & T State University, Greensboro, NC

Dr. Andrea Ofori-Boadu, North Carolina A & T State University, Greensboro, NC

Attendees will be exposed to key components of green building training, education and professional development. The implementation of effective green building training programs could improve the quality characteristics of residential contractors. In the long term, U.S. residential contractors should be better prepared to meet housing demands with minimal impacts on the environment.

## **BIM: A New Tool for Planning and Managing Safety**

Dr. James Stein, Eastern Michigan University, Ypsilanti, MI

Mr. Umeash Sugabramam, Eastern Michigan University, Ypsilanti, MI

A survey of 10 construction companies is analyzed to determine possible uses of BIM for safety planning and management. Barriers to use and training requirements are also considered in the survey.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal D1

## **Analysis of Smart Home Susceptibility to Intentional Electromagnetic Interference Attacks**

Dr. Tarek Mahfouz, Ball State University, Muncie, IN  
Mr. Sukhrob Davlyatov, Ball State University, Muncie, IN  
Dr. Sherif Atallah, Ball State University, Muncie, IN

Attendees will gain knowledge about IEMI and its types, susceptibility of Smart Homes to IEMI attacks, currently available mechanisms of defense, and their associated costs for new or remodeled residential properties. They will be engaged in a lively discussion about the topic.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal D1

## **Smart Home Module Development for Education of Construction Management Majors**

Dr. Junyong Ahn, Florida Institute of Technology, Melbourne, FL

Attendees will understand the smart home module development procedures into construction education and how it can be used to educate construction management program students.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal C3

## **The Capability of Technology in Representing Identity Value in Designing Kinetic Facade of Buildings**

Miss Negar Matin, Eastern Michigan University, Ypsilanti, MI  
Dr. Shinming Shyu, Eastern Michigan University, Ypsilanti, MI

To optimize the daylight performance in an interior space, the implementation of building kinetic facades is an innovative method. Through the design process of kinetic facades, various patterns are used as the underlying geometry of design. The rich geometric characteristics of Persian patterns, which are potentially applicable to kinetic facades to enhance daylight performance of building envelop, entail more research attention. Persian geometric patterns are syntactically proper to derive kinetic facade design since the pattern variations enable daylight optimization in interior spaces.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal C3

## **Characterization of Sugarcane Fiber Stabilized Earth Bricks for Low-Income Housing**

Dr. Andrea Ofori-Boadu, North Carolina Agricultural & Technical State University, Greensboro, NC

Attendees will be provided with the materials and methods required for the development of sugarcane fiber reinforced earth bricks. Also, an improved understanding of the physical and mechanical properties of natural fiber reinforced bricks could advance the diffusion and adoption of this sustainable material. The use of this material for low-income housing has several economic, social and environmental benefits.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal C3

## **Using Collaboration Between Industry, Students, and Alumni to Design, Develop and Install a Solar Project at a University Nature Center**

Dr. Richard Miller, Ohio Northern University, Ada, OH

Attendees will have the opportunity to see the development of the project and how faculty enlisted the assistance of alumni and industry to bring together a project with university administration. Secondly, the opportunity to participate in the discussion of how to get alumni engaged in mentoring undergraduates and forging industry relationships for emerging markets. Lastly, the opportunity to see how solar fields are calculated and possible granting sources available for educational research geared toward renewable energies.

## **Cost Study of Nano-enabled Thermal Insulation in Construction Projects**

Dr. Sherif Attallah, Ball State University, Muncie, IN  
Mr. Gary Birk, Ball State University, Muncie, IN

Attendees of this presentation will get insights on the cost of thermal insulation products with enhanced nano-properties in comparison to traditional insulation materials in the USA market. The comparison is based on a typical residential project located in the state of Indiana.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal C3

## **Evaluating the Impact of Stakeholder Management on the Construction Industry in Jamaica**

Mr. Miguel Newman, The University of Technology, Jamaica, Kingston Jamaica

Mrs. Rachelle McFarlane, The University of Technology, Jamaica, Kingston

Attendees will be exposed to the many challenges that hinder timely 'turn over' of projects in the Jamaica by sharing data collected from different local projects. The presenters will also outline measures and techniques that can be used to efficiently execute projects in Jamaica.

## **User's Perception of the Effectiveness of Current Facilities Management Practices at a Selected Tertiary Institution in Jamaica**

Miss Krystal-Kay McKenzie, University of Technology, Jamaica, Kingston

Attendees will learn the importance of facilities management practices in how users feel in an environment they occupy . Attendees will understand that performance measurement provides the basis for an organization to assess how well it is progressing towards its predetermined objectives. It helps to identify areas of strengths and weaknesses and decide on future initiatives with the goal of improving organizational performance.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal C3

## **ABET, ACCE, and ATMAE Accreditation Requirements of Construction Management Degree**

Dr. Shahram VarzaVand, University of Northern Iowa, Cedar Falls, IA

All three accreditation organizations dictate Student Outcome / Program Outcome base accreditation norms. Some stresses regimented and rigid course work in the construction curriculum while others provide moderate flexibility to the construction program. In fact many construction management and construction technology programs may be eligible to receive multiple accreditation from accreditation organizations.



# Distance Learning Track

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal F2

## **How Does “Quality Matters” Help? — Effectiveness Analysis of Development and Implementation of Online Courses Containing Intensive Technical Contents**

Dr. Julie Zhang, University of Northern Iowa, Cedar Falls, IA

Dr. Ali Kashef, University of Northern Iowa, Cedar Falls, IA

Despite of the success of online education in many disciplines, there is still a challenge to provide quality and teaching effectiveness when the online course contains rigorous technical contents, such as subjects related to math and sciences, whereas the traditional face-to-face teaching shows more advantages. Attendees will view how online courses are developed and implemented with the QM and new educational technologies, how effectiveness of the courses is assessed in qualitative and quantitative approaches, and how insights are reflected for continuously improving online education at UNI.

## **Teaching and Learning On-line - Staying in Touch with Our Students**

Prof. Dianna Schuster Stair, Ivy Tech Community College, Lafayette, IN

Ms. Angelia Yount, Ball State University, Muncie, IN

Attendees will gain thoughts and ideas of how to create an effective and organized internet course. They will understand the importance of the creation of an effective communication system between themselves and the students and between the students themselves. Creating a good deal of interaction and communication throughout the course will help ensure an effective online course. We have learned the students not only need consistency and organization, they need the Instructor to be available throughout the course and the communication to be effective, in order to achieve the most benefits from learning. We will look at ways to communicate, as well as how to make the communication more effective.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal F2

## **Quality Courses: Using the Quality Matters Rubric as a Measuring Tool**

Mrs. Angelia Yount, Ball State University, Muncie, IN

Dr. Kwesi Tandoh, Ball State University, Muncie, IN

The purpose of this presentation is to discuss how our use of the QM rubrics has improved the quality of our online courses. Also, how enabling our faculty to take the APPQMR course it has helped them to better understand what it takes to implement a quality course. Lastly, results of how our process has affected the faculty, students, and staff. We would like to share success stories from the implementation of QM.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal F2

## **Implementing a Distance Learning Course for Control and Automation Applications**

Prof. Shelton Houston, University of Louisiana at Lafayette, Lafayette, LA

The presentation will demonstrate the differences between a traditional course that covers the area of C&A and a Distance Learning course that covers C&A.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal F2

## **Improving Online and Hybrid Courses using Quality Matters (QM) Rubric**

Dr. Mahmoud Al-Odeh, Bemidji State University, Bemidji, MN

Attendees will be exposed to an example of a QM certified course and will learn about strategy that might be used to help faculty improve their online and hybrid courses. Attendees will have a better understanding of how to prepare a hybrid and/or online course to meet the QM rubric.

## **Fluid Power Laboratory Modes versus Resource Utilization Effectiveness**

Dr. Randy Peters, Indiana State University, Terre Haute, IN

The planned changes to MET 329 will make the course more palatable for students. Greater emphasis on labs and experiential learning have proven track records for increasing student success. Additionally, breaking apart the lecture and laboratories into separate courses will provide greater scheduling flexibility, as well as provide a measure of damage control when student performance is lacking in either the theoretical lecture or the hands-on experiential learning laboratory. The greater challenge will be finding a suitable interface that gives faculty insight in students' virtual lab activities.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal F2

## **Using Video Forums to Increase Peer-to-Peer Interaction in an Online Class**

Dr. Sophia Scott, Southeast Missouri State University, Cape Girardeau, MO

This presentation will discuss the need to increase peer-to-peer interaction in an online class through video forums. The strategies for creating engaging video forums will be introduced, along with methods for giving feedback. Conference attendees will be provided with examples meant to enhance their forum discussions in online classes.

# Distance Learning Track

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal F2

## **Developing Leadership at a Distance**

Prof. Daniel Lybrook, Purdue, West Lafayette, IN

Attendees will learn about the development of a distance model for our leadership program, from idea to fruition. Details of the program, of the design down to the individual courses, will be presented.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal F2

## **Distance Learning: Blackboard and its Impact on 21st Century Learning for Nontraditional Students in the Contemporary Workforce**

Dr. Jessica Murphy, Jackson State University, Jackson, MS

Blackboard for 21st century nontraditional students had the best way to becoming more involved with school without being there. Having blackboard is a great tool for teachers to use because it cuts down different assignments to grade. Blackboard is mostly distance learning as in you do your online assignments at your own pace. The best part about blackboard is the way students can go on a virtual chat with the teachers and they can assist you when you are online. Each school provides students assignments online and gives them responsibility to do complete assignments and actives by promoting self-governing.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal E3

### **Web Crawling and Data Mining with Apache Nutch**

Dr. Rendong Bai, Eastern Illinois University, Charleston, IL

Dr. Wutthigrai Boonsuk, Eastern Illinois University, Charleston, IL

In this presentation, we will explain why web crawling and data mining are important for business intelligence. We will introduce common features of web crawlers and design issues in web page fetching and indexing. We will focus on Apache Nutch web crawler, discuss its architecture, illustrate system configuration, and demonstrate web crawling examples.

### **Solar Power Plant Optimization Through Automation**

Dr. Gholam Massiha, University of Louisiana at Lafayette, Lafayette, LA

The goal of this project was to ensure that damage to the power plant would not be a result of human error. The three PLCs that control the power plant were integrated and a process that de-selects the Virtual Track control and selects the Stow control whenever the HTF flow rate decreases to a value that is less than 50 gpm was automated. The Wonderware InTouch software allowed the development of a one-screen Human-Machine Interface application that displays all of the controls and data needed to operate the plant.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal F1

### **IPv6 is Here Now: Transitioning to the Latest Addressing and Routing Mechanisms in Networking Laboratories**

Dr. Vigs Chandra, Eastern Kentucky University, Richmond, KY

Prof. Jeff Kilgore, Eastern Kentucky University, Richmond, KY

With the exponential increase in mobile and other networked devices computer network engineers will find an increasing need to deploy, manage, and troubleshoot devices with only IPv6 addresses. The global adoption of IPv6 as the addressing mechanism for the Internet, along with significant enhancements built into its framework is already result is innovative technologies. The virtually limitless computer addressing space with updated networking capabilities will allow household appliances, sensor grids and distributed networks to be configured and supported. Learning how to use this new expanding address space effectively is of importance to network designers and managers. In the presentation attendees will learn about practical ways in which IPv6 concepts can be introduced and reinforced across the curriculum. This will enable graduates to enter the future workforce well prepared for deploying these technologies.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal F1

## **Implementing PID Control in an Autonomous Robot Car**

Dr. Yuqiu You, Ohio University, Athens, OH

Dr. Ni Wang, Eastern Kentucky University, Richmond, KY

Dr. Sanghyan Lee, Morehead State University, Morehead, KY

This presentation will introduce and demonstrate a mechatronics project in designing and building a PID-controlled autonomous robot car with mechanical components, motors, sensors, and a microcontroller. The design and construction of the autonomous robot car will demonstrate an application of mechatronics in solving a real world problem to people from industry as well as academia.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal E3

## **DSL and the Telephone: Paying for Unwanted Telecom Services in Rural Areas**

Dr. Tim Obermier, University of Nebraska Kearney, Kearney, NE

This presentation will review the results of a study to determine the prevalence of "naked DSL" services in a rural state and will examine the cost comparison of rural and urban Internet access when DSL carriers also require the purchase of a telephone line.

## **Assessment of Syngas Production from Various Biomass Feedstock**

Mr. Chirag Pansuriya, Eastern Illinois University, Charleston, IL

The attendees will understand the gasification performance of downdraft gasifier while using different biomass feedstocks such as wood pellets, miscanthus and recycled paper pellets in order to obtain the syngas. The present work allows estimating the better possibilities of the gasification of the different biomass feedstocks studied. The effect of the operating parameters such as temperature, various type of biomass fuels and the performance of the gasification system while using the different mixture of biomass feedstock will be discussed.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal F1

## **Coding the Proportional Integral Derivative (PID) Controller**

Dr. Curtis Cohenour, Ohio University, Athens, OH

Starting with the traditional PID control equation, attendees will rearrange the terms of the equation to eliminate many common problems in the implementation of the PID controller in software. Solving problems of discontinuities, manual inputs, and integral windup will improve control. Discontinuities may occur when changing gains, transitioning from manual to auto, or introducing manual input. Integral wind up can cause large overshoot as the controller approaches the set-point. These problems can all be avoided by properly coding the PID controller. In addition attendees will learn a number of customizations that can be added to improve process control.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal E3

## **Design of a Mobile Grid-Tied Solar Photovoltaic Laboratory Unit for Demonstrations and Laboratory Experiments**

Dr. Faruk Yildiz, Sam Houston State University, Huntsville, TX

This research describes design and development of a Grid-Tied with battery backup Solar Photovoltaic Training Unit using micro- and string- inverters. All the steps of the design proses and curriculum development will be shared with academia.

## **Biomass Go-Kart: An Alternative Energy Vehicle Manufacturing and Testing**

Mr. Haizhou Li, Eastern Illinois University, Charleston, IL

Manufacturing your own gasifier system and applying it to a go-kart will be a good lab project for mechanical and sustainable energy major students. Similar as electric, natural gas and solar energy vehicles that you can currently find in the market, a well improved and developed biomass gasification system as an application of alternative energy may have a bright future in the vehicle market.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal F1

## **A Study of Solar Powered Electric Go-Kart**

Dr. Rendong Bai, Eastern Illinois University, Charleston, IL

Solar Powered Electric Go-Kart is environmentally friendly application for reducing carbon emissions. This presentation will introduce the audience with a simple solar powered electric go kart, including the basic working principle, component and systems, control and possible improvement. It is hoped that this project will help to explore solar power for transportation needs and draw an interests from students.

## **Sustainability Analysis for an Emerging Technology: Drones**

Dr. Burchan Aydin, Texas A&M University-Commerce, Commerce, TX

The attendees will gain understanding of the economical, societal, and environmental impacts of the drone technology, and the existing and future applications of drones.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal E3

## **Unmanned Aircraft System (UAS) Technology: The Future of Modern Agricultural Industry**

Dr. Kuldeep Rawat, Elizabeth City State University, Elizabeth City, NC

Using UAS technology (UAV, sensor payload, software, ground control) for crop surveillance can drastically increase farm crop yield while minimizing the cost of walking the fields or airplane fly-over filming. Long-term, the data generated by UAVs can help farmers gain a more accurate and detailed picture of how crops are reacting to their management strategies, which can lead to more effective use of limited resources to improve farming operations in the agricultural sector.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal E3

### **Applied Software Defined Networking (SDN) Research: Equivalent Test Between Openflow and Ethernet Pipelines of Latency and Jitter to Evaluate the Use of SDN Controllers for Disaster Recovery Exercises (DREs)**

Mr. James Teeter, Indiana State University/Cisco Systems, Terre Haute, IN  
Dr. Ronald Woolsey, University of Central Missouri, Warrensburg, MO  
Dr. Ronnie Rollins, University of Central Missouri, Warrensburg, MO

Attendees will gain an understating for the need to lower the costs and automate Disaster Recovery Exercises (DREs) for businesses. Software Defined Networking (SDN) will be discussed and its possible use to help automate DREs. This will be followed by an overview of a recent study that was conducted in which equivalent tests were run between OpenFlow and Ethernet pipelines to determine the differences in Jitter and Latency.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal F1

### **Simulation Application in OSRAM Glass Technologies Tractor**

Dr. Ni Wang, Eastern Kentucky University, Richmond, KY  
Dr. Vigs Chandra, Eastern Kentucky University, Richmond, KY  
Dr. Tim Ross, Eastern Kentucky University, Richmond, KY

This study will design, build and study the performance of a pneumatic control system, i.e., a lime glass tractor, using automation studio. The presentation will emphasize the results of simulation and system analysis. Attendees will gain insight into an integrated pneumatic control system and understand the applications of simulations to this area.

### **Projection and Calibration of Aerial Surveillance Imagery**

Dr. Curtis Cohenour, Ohio University, Athens, OH

Attendees will learn the basics of camera optics, projection of aerial images, and calibration. The basic operation of a camera is presented, followed by modifications to facilitate the projection of aerial images. The aerial image is first projected into space, then rotated to compensate for the attitude of the camera with respect to the ground. Given the location of the camera and the ground, the image is then mapped to the ground. The means of calibration is described along with methods of identifying and resolving errors. The attendees will leave with a basic understanding of how aerial images are recorded and projected to the ground with a calibrated camera model.



Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal E3

## **Hardware-Accelerated Machine Vision using Field-Programmable Gate Arrays (FPGA)**

Mr. John Haughery, Iowa State University, Ames, IA

A hardware-accelerated vision system for object tracking was developed and implemented using FPGAs. Based on Amdahl's Law equation, the final hardware design outperformed a similar software implementation by a factor of 7.7.

## **Photovoltaic Laboratory Exercises for Renewable Energy Courses**

Dr. Mehmet Goksu, Millersville University, Millersville, PA

Dr. Faruk Yildiz, Sam Houston University, Huntsville, TX

This presentation is focused on hands-on activities, especially designed for students taking renewable energy courses. The integration of these activities will strengthen curriculum in the department. All of the information including the laboratory manual of the activities will be shared with the academia so they can be implemented easily at different institutions.

Thursday, November 3, 2016 - 4:15 PM -5:00 PM - Universal F1

## **Systematic Study of Efficiency Limiting Factors of High Efficient Solar Cells for Their Algorithm Development for Adaptive Photovoltaic Tracking Systems with MATLAB/Simulink**

Dr. Sanghyun Lee, Morehead State University, Morehead, KY

Dr. Yuqiu You, Ohio University, Athens, OH

Dr. Ni Wang, Eastern Kentucky University, Richmond, KY

Attendees will gain the concept about efficiency limiting factors of solar cells and their systems which determine a set of solar tracking algorithm to maximize maximum power point (MPPT).

## **GIS Application for Sustainable Energy**

Mr. Jeffrey Chandler, Eastern Illinois University, Charleston, IL

Dr. Wutthigrai Boonsuk,, Eastern Illinois University, Charleston, IL

Biomass gasification can reduce the dependence on fossil fuels and provide a renewable energy source that is also environmentally friendly. Geographic information system (GIS) can be an effective tool to facilitate a wider application of biomass as a renewable energy resource. The creation and implementation of a GIS application to identify sustainable resources is significant for production planning of biomass energy.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal F1

## **Implementing UL Lafayette Solar Plant as a Lab for Technology and Engineering Students**

Dr. Gholam Massiha, University of Louisiana at Lafayette, Lafayette, LA

Dr. Shelton Houston, University of Louisiana at Lafayette, Lafayette, LA

Louisiana which is a developing state mainly depends on conventional plants for its electricity. As there is always an increase in need of energy, it is the best time for the state of Louisiana to look forward for the solar thermal energy as it is suitable and has considerable resources for constructing solar plants. At present, the solar levelized energy cost is relatively high compared to conventional electrical power generation methods. This will be reduced in the future by technology improvements and mass production. Faculty and students involved in the solar power plant project conduct presentations and workshops during the school year. Students give presentations and distribute handouts on how to reduce energy consumption and improve their energy usage habits.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal E3

## **Calculating the Real Energy Costs of Running Successful ATMAE Programs**

Dr. Trevor Robinson, Ohio Northern University, Ada, OH

Dr. Richard Miller, Ohio Northern University, Ada, OH

Mr. Brady Schulte, Ohio Northern University, Ada, OH

Mr. Eric Radford, Ohio Northern University, Ada, OH

In this presentation, attendees will see the breakdown of total energy costs of running accredited manufacturing and construction programs. Attendees will be provided detailed solutions that were developed to cut energy spending. The information provided can allow programs to save money without harming the integrity of the faculty, equipment, or teaching.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal E3

## **Tabletop Automation: Comparing Microcontrollers for Teaching Control Concepts in the Technology**

Dr. Vigs Chandra, Eastern Kentucky University, Richmond, KY

Dr. Ni Wang, Eastern Kentucky University, Richmond, KY

The presentation will emphasize the need to strengthen microcontroller-based competencies in EECT/AEM graduates. With a multitude of reasonably priced microcontrollers and single-board computers available, deciding on the right system is not easy, and care should be taken for matching each with the appropriate learning tasks. It also requires faculty members to update skills regarding these technologies which are themselves evolving. Key resources which can be used for making these decision and for ongoing training will be shared with the participants. In this interactive session, suggestions for improving teaching with microcontrollers are especially welcomed, helping improve competencies vital to the future.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal F1

## **Development of Mobile Robot for 3D Indoor Mapping Using Lidar Sensor**

Dr. Wutthigrai Boonsuk, Eastern Illinois University, Charleston, IL

Attendees will learn the usefulness of lidar sensor for producing 3D point cloud. The steps to design and develop mobile robot equipped with a lidar sensor will also be discussed. Finally, data collection process and algorithm for 3D transformation of point cloud will be demonstrated.

## **An Arduino GPS Clock for Image Time Registration**

Dr. Curtis Cohenour, Ohio University, Athens, OH

Attendees are given an introduction to aerial surveillance, and image projection. The importance of time registration in accurate projection of aerial imagery is explored. With this background the importance of the clock as a diagnostic tool is provided. The features and operation of the clock are discussed. Case studies are given, and performance is evaluated.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal E3

## **Intelligent Vehicles and Autonomy: Why are We Safer with Cars that Can Drive Themselves?**

Mr. Alexander Richards, University of Central Missouri, Warrensburg, MO

Participants will understand and be able to describe the intelligent vehicle based on technology of the past, present and future. They will also understand the history of intelligent vehicle and route guidance systems and be able to explain how that history plays into current technology. They will also be able to define autonomy as it applies to vehicles, and decipher between intelligence and intelligent design. Attendees will understand the need for autonomous vehicles. Attendees will participate in a lively discussion and Q&A with the presenter in an open discussion format.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal F1

## **Collaborative Robots: Future of Robotics and Automation**

Dr. Bandara Gamini, University of Wisconsin, Platteville, WI

This presentation will provide attendees with a working knowledge of the trend in automation and robotics, collaborative robots. It is imperative Industrial Technology and the associated ATMAE programs implement Collaborative robots as a viable option in their Robotics and Automations programs. This presentation will compare the implementation of traditional robots compared to collaborative robots. Furthermore, the attendees will gain knowledge why industry must automate in order to retain and improve market shares and retain American jobs.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal F1

## **Weather Impact on the Surface of Energy Production Solar Photovoltaic Solar Arrays**

Mr. Ayaz Khamisani, Eastern Illinois University, Charleston, IL

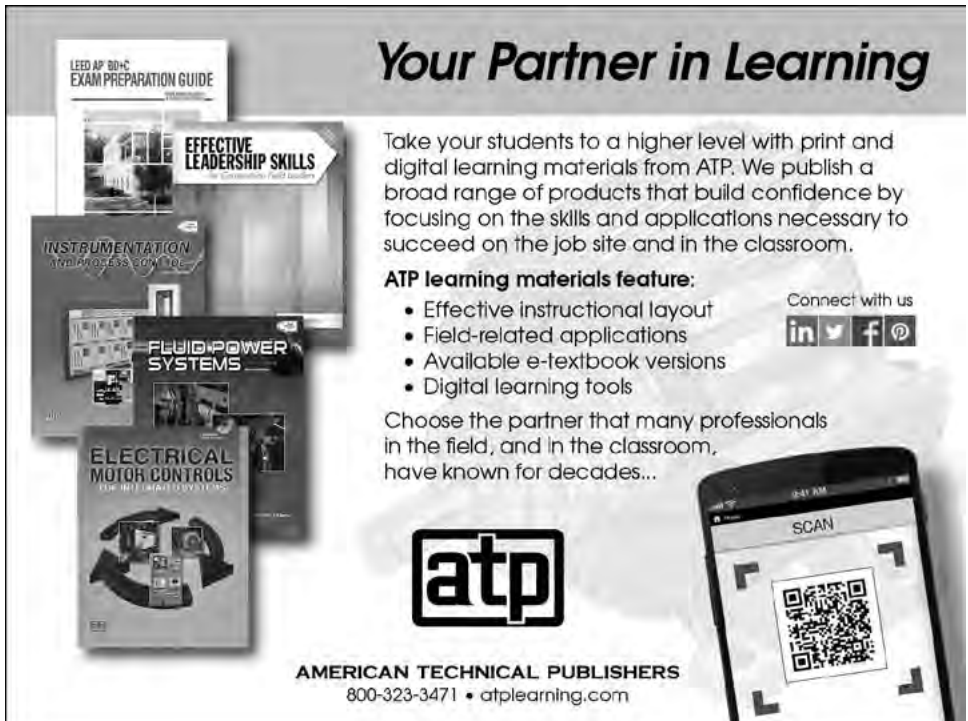
Solar as the renewable energy source, is anticipated to help reduce the nation's dependency on foreign oil or other fossil fuels. The world is moving towards more solar energy, the pace is improving day by day. It is important to study the factors which encouraging the performance of solar PV systems. This Study will help identify impact of dust accumulation on efficiency of PV plant. This study will further identify the suitable methods to avoid these energy losses.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal F1

## Wearable Devices and Platforms for Senior and Patient Health Monitoring

Dr. Jin Zhu, University of Northern Iowa, Cedar Falls, IA

As the society is aging, advances in wearable devices technologies may provide more benefit in the area of seniors and patient health monitoring. The current technologies, devices, and platforms for seniors and patient monitoring will be investigated and compared based on cost and performance. Emerging technology and research topics will also be discussed.



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Friday, November 4, 2016 - 10:45 AM - 11:30 AM - Universal D3

## **Deviation Comparisons of 3D Printed Features Produced from Material Extrusion Machines**

Dr. Rudy Ottway, Murray State University, Murray, KY

Attendees will gain knowledge of the mean deviation of features 3D printed from an Afinia H480, a MakerBot Replicator 2X, and a Stratasys Mojo. Attendees will gain insight from the 3D printer deviation comparison and the resulting information can be considered when purchasing a desktop 3D printer. Attendees will have the opportunity to ask questions about specific desktop 3D printing technology and hear a firsthand account of utilizing desktop 3D printers.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal D3

## **Influence of Substrate Properties (weight/thickness and brightness) on Color Quality of Electro-photographic Digital Color Printing**

Dr. Naik Dharavath, Central Connecticut State University, New Britain, CT

The presentation will be limited to colorimetric and densitometric data only. This presentation is based on the outcome of a research experiment. Session participants will learn about the influence of substrate properties for quality digital color printing. Graphic communication educators, industry professionals, and researchers may find this information meaningful and useful, however the colorimetric and densitometric data collected in this study may not be generalizable to all digital printing systems. Additional studies using similar systems (dry-toner) and substrates is recommended.

## **Entering the Future: Re-Imaging Popular Photography With Smartphones**

Dr. Thomas Mitchell, University of Central Missouri, Warrensburg, MO

In this environment an opportunity exists for education institutions to consider smartphone integration into many course curriculum that can not only teach the basics of photography, photographic vision, composition, and creativity, but also utilize the power of mobile communication to drive student active learning instead a hindrance and annoyance in classrooms. But there must be research and reflection on our practices and curriculum to facilitate the use of the shifting in imaging technology. The result can be captivated students learning relevant visual skills utilizing cameras and editing devices to communicate visually using smartphones they already possess and use daily.

Friday, November 4, 2016 - 2:00 PM - 2:45 PM - Universal D3

## **A Study of Ideas and Perceptions of Sustainability in Packaging**

Dr. Yu Ju Wu, Appalachian State University, Boone, NC

Attendees will (1) develop an understanding of sustainable packaging; (2) gain knowledge about available alternative materials for sustainable packaging; and (3) be aware of current industry practice in sustainable packaging.

## **Modifying the Recipe: How to Combine the “Cookbook” Approach with Inquiry-Based Teaching**

Dr. Hope Carroll, Georgia Southern University, Statesboro, GA

The challenge in teaching a hands-on lab is to provide students with ways to develop hands-on skills while offering them the opportunity to use those skills to design solutions to real-world scenarios. Attendees will be offered a new strategy to incorporating the “cookbook” approach with inquiry-based teaching for student engagement. Recommendations for teaching methods, lesson planning, and supplemental resources will be provided.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal D3

## **Designing Solid Models for 3D Printing**

Dr. Todd Waggoner, Bowling Green State University, Bowling Green, OH

Attendees from graphic design, Architecture, engineering, engineering technology, and industrial technology will be encouraged to discuss what is new in their areas of 3D printing, 3D image capture, processing, and printing. The contemporary nature of this topic usually brings out exciting and lively discussions in these presentations.

## **Physical to Virtual to Physical: Using 3D Scanning to Create Rapid Prototypes**

Mr. Andrew Graham, Bemidji State University, Bemidji, MN

Mr. Lyle Meulebroeck, Bemidji State University, Bemidji, MN

The audience will gain a basic understanding of rapid prototyping using 3D scans and the slicing/2D assembly processes. Using real-world examples, the presenters will demonstrate how easy it can be to go from an idea to a finished product in no time at all.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal D3

## **Are We Missing an Opportunity Here? How Adding a Sales Component to your Graphic Communications Capstone Course could Yield Great Results!**

Dr. Michelle Surerus, Chowan University, Murfreesboro, NC

Sales positions are in constant demand and provide a great opportunity for graphic communications students to make a good living upon graduation using the knowledge, skills, and aptitudes developed in their coursework. By creating and cultivating opportunities for our students to learn about careers in sales, we are helping to fill a need that is going to grow as the current sales force moves towards retirement age.

## **Color Science Exploration for Graphic Communications**

Dr. Carl Blue, University of Southern Maine, Gorham, ME

This presentation will provide both the foundations for developing or revitalizing a course or components of color science curriculum for your Graphics Programs. Competencies will be presented, examples of lectures, and lab projects.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal D3

## **Out of the Box Recruitment Strategies for Graphic Communications Programs**

Dr. Hope Carroll, Georgia Southern University, Statesboro, GA

Current recruiting practices will be presented. Successes and failures for recruiting will be reviewed. Out-of-the-box techniques will be presented and discussed.

## **Principles of Casting Pattern Design Using SolidWorks and 3D Printing: A Class Challenge Exercise**

Mr. Jesus Pagan, Ohio University, Athens, OH

Dr. Neil Littell, Ohio University, Athens, OH

The use CAD software such as SolidWorks in the creation of a mold or a pattern design for the casting process is important because it provides the students with a quick and practical use of 3D printing to apply the principles being taught in the classroom. After printing the pattern using a MakerBot 3D printer, preparation of the part through sand casting was performed and pouring was achieved as part of the course laboratory exercises.



Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal D3

## **Virtual Reality and Exhibit Design**

Mr. Andrew Graham, Bemidji State University, Bemidji, MN

Mr. Lyle Meulebroeck, Bemidji State University, Bemidji, MN

The audience will gain a basic understanding of virtual reality. The presenter will demonstrate the workflow for creating Virtual Reality spaces and getting those spaces to run in real-time. The presentation will also showcase real-world technology and applications.

## **Hack Attacks on Digital Related Printing Services: Safeguarding Digital Assets**

Dr. Thomas Spotts, Ball State University, Muncie, IN

Dr. John Craft, Appalachian State University, Boone, NC

Dr. David Hua, Ball State University, Muncie, IN

The contents of data handled by printers, whether variable data and digital printing or content manipulated in cloud computing, no matter how harmless it may seem, can lead to greater data security breaches. This presentation will be discuss information security issues and provide best practices for securing printing resources.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal D3

## **Web Design Gone Mobile**

Dr. Charles Weiss, Clemson University, Clemson, SC

Attendees will leave this presentation with a better understanding of the changing role of mobile devices when it comes to accessing the World Wide Web. The usage of the Internet is continuing to move away from the traditional desktop computer to the mobile devices we carry around with us. The basics of responsive web design will also be discussed in relation to the creation of websites that automatically respond to the size of the device viewing the website.

## **Applications of Unmanned Aerial Vehicles (UAV) in Graphics and Media**

Dr. Gabriel Grant, Eastern Illinois University, Charleston, IL

Attendees will be able to discuss the applications of UAV's in graphics and cross media production, research governmental regulations related to utilization of UAV's, and assess integration of UAV's in graphic communication and/or cross media programs.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal E1

## **Total Quality Case Study of International Student Enrollment at Morehead State University**

Dr. Hans Chapman, Morehead State University, Morehead, KY

The research revealed that over the period studied, emphasis was placed on enrolling international students from Europe, Asia, and Australasia. It is recommended to extend this emphasis to other areas, such as South America and Africa. It is also recommended that the services available for international students, such as housing, food, and transportation, be improved, while at the same time, communication across cultural barriers be enhanced.

## **Research & Development: Is it Still an Economic Necessity for Industry and Education in the United States?**

Dr. Jeffrey Ulmer, University of Central Missouri, Warrensburg, MO

Dr. Troy Ollison, University of Central Missouri, Warrensburg, MO

Dr. Doug Koch, University of Central Missouri, Warrensburg, MO

This presentation will provide insight into the challenges of re-integrating basic and applied research & development in the United States in tandem with a discussion of cutting-edge technologies that can turn the tide back to the good old U.S.A.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal E1

## **Implementing Value Stream Costing Analysis to Support Lean Management & Process Improvement**

Dr. Mahmoud Al-Odeh, Bemidji State University, Bemidji, MN

Attendees will be exposed to the concept of Value Stream Costing (VSC). This is a new and contemporary technique that can be used as one of the lean tools to evaluate the efficacy of implementing value stream mapping. Case study of VSC application will be shared to discuss the concept and to show the savings that can be gained by implementing VSM. This technique might be used in any lean environment to support lean efforts and to evaluate process improvements.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal E1

## **Technology Adoption in India's Food Security Program: A Qualitative Management Approach**

Mr. Varun Chhabra, Iowa State University, Ames, IA

Dr. Shweta Chopra, Iowa State University, Ames, IA

The attendees will get an in-depth information of role of ICT in Indian food security system and various challenges it poses to the users of new technology, affecting the performance of PDS. Application of six sigma methodology to improve ICT implementation in e-governance will be discussed. Implications of the work on PDS performance will be shared.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal E1

## **Identifying the Gap in Continuous Improvement Maturity and Sustainability Outcomes**

Mr. Jeremy Johns, Purdue University, West Lafayette, IN

By the end of this presentation, attendees should be able to start to recognize where their own organizations fall from a continuous improvement maturity perspective. Along with that, participants should start looking at improvements their organization is making and be able to recognize how those improvements can be related to triple bottom line results for the organization. Finally, participants should be able to recognize that pending their organizations CIM level the improvements their organization is making may vary on how much impact they have on any given pillar of sustainability.

## **Implementing Lean in Universities: Need, Benefits and Challenges**

Dr. Zaki Kuruppallil, Ohio University, Athens, OH

Dr. Todd Myers, Ohio University, Athens, OH

The presentation attendees could gain knowledge of the topic of lean, its relevance in improving operational efficiencies in service sectors such as education and how differently lean is applied in those sectors.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal E1

## **Application of Quality Tools to Characterize Patterns in a Workers' Compensation Claims Database**

Mr. Sai Ramaswamy, Iowa State University, Ames, IA

Dr. Gretchen Mosher, Iowa State University, Ames, IA

Attendees will understand and appreciate the wider applicability of quality tools to not just solve technical problems in the manufacturing process but also other challenges across the business, specifically in using a large database to manage and characterize a firm's safety performance.

## **Incentive Systems in Organizations: The Scientific Perspective**

Mr. Matthew Harvey, Iowa State University, Ames, IA

Organizations use incentive systems to motivate employees to contribute toward organizational success. However, a lack of understanding of how incentives affect employee behaviors lead to implementation of incentive systems that gain undesired outcomes. The presentation will review the psychological and social factors of incentive systems and how to utilize this knowledge in order the structure effective incentive systems.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal E1

## **Contributions of Lean Based Systems in Sustainability Performance of Supply Chain**

Dr. Kanchan Das, East Carolina University, Greenville, NC

Dr. Nageswara Rao Posinasetti, University of Northern Iowa, Cedar Falls, IA

This research presents a new approach for defining sustainability metrics taking a lean based view. It will then integrate sustainability criteria in a supply chain planning model to improve overall business performance. A numerical example will illustrate applicability of the model. The research will facilitate supply chain managers to implement the planning approach in their unique businesses to achieve desired sustainability performances.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal D1

## **Application of an Improvement Selection Tool to Diversity Sustainable Outcomes**

Mr. Scott Abney, Purdue University, West Lafayette, IN  
Mr. Jeremy Johns, Purdue University, West Lafayette, IN  
Mr. Paul McPherson, Purdue University, West Lafayette, IN

With the focus in Sustainability appearing to gain broader appeal within companies, it seems that tools found within Lean Six Sigma would be ideal for pairing in order for companies to achieve Sustainability metrics. The framework created by the researchers originally was in a generic form that could be applied through multiple organizations. This study served a two-fold purpose for the researchers. First, it allowed the framework to be tailored to a particular organization, and secondly it allowed researches as well as the organization to have a first-hand example of what did and did not work upon implementation. This study is viable for other organizations that are considering implementing a tool to help bridge Sustainability/Lean/Six Sigma initiatives as well as expanding the knowledge on why such a tool will be needed for companies going forward that are focusing on the triple bottom line.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal E1

## **Maximizing the Benefits of Project Management Techniques in Managing Small Projects**

Mr. Beluchukwu Ebede, Eastern Illinois University, Charleston, IL

Attendees will gain a better understanding on how to identify small projects. They will also learn the benefits of subjecting projects of all sizes to observe the project life cycle and the implications of ignoring this process.

## **Analysis of the New Six Monthly Distribution Strategy for Food Grains: A Study of Public Distribution System of Indian Punjab**

Mr. Abhay Grover, Iowa State University, Ames, IA  
Dr. Shweta Chopra, Iowa State University, Ames, IA

The audience will get an insight into the value stream of PDS for food grains in Indian Punjab, the key stakeholders of the system, and the impact of the new policy on these stakeholders. Furthermore the factors affecting the adoption of the new policy among the beneficiaries will be discussed.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal D1

## **How To Integrate Big Data And Six Sigma To Improve The DMAIC Projects In Service Industry**

Ms. Na Li, Purdue University, West Lafayette, IN

Dr. Chad Laux, Purdue University, West Lafayette, IN

The Attendees will learn the origin of the Six Sigma and the nature, foundation, and current challenges of the Six Sigma and Big Data. Integration of these fields will be described. The authors will also present postulations on the best manner in which to embed Big Data analytics in the DMAIC model in Service Industry.

## **Process Improvement Software Platform for Lean Management in the Healthcare Sector**

Dr. Shweta Chopra, Iowa State University, Ames, IA

The audience will gain knowledge on the importance of process improvement software for increasing the efficiency in healthcare sector. Further, information on technology acceptance models on user behavior will be provided. The application of UTAUT model will show the audience, the performance of employee behavior with the process improvement software platform in healthcare sector.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal E1

## **Internal Social Media: Disruptive Technology That Impacts Employee Engagement and Competence**

Dr. Abu Haddud, Eastern Michigan University, Ypsilanti, MI

Attendees will gain insights regarding the emerging disruptive technology that is internal social media. The impacts, changing role, and lessons learned by one large multi-national organization will be revealed along with possible implications for ATMAE programs.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal E1

## **An Empirical Factor Analysis of Efficiency Ratios and Profitability Metrics of the U.S. Retail Industry**

Dr. Nilesh Joshi, Morehead State University, Morehead, KY

Dr. Hans Chapman, Morehead State University, Morehead, KY

Dr. Yuqiu You, Ohio University, Athens, OH

This research provides an overview of historical trends in efficiency ratios and profitability metrics in the U.S. Retail Industry during the last decade. Further, the relationship between the two is explored using Pearson correlation and a multiple regression models.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal D3

## **Efficiently Managing Human Resources in an Organization Through Lean Six Sigma Techniques**

Mrs. Aswathy Suresh, Purdue University, West Lafayette, IN

Dr. Chad Laux, Purdue University, west Lafayette, IN

This paper and presentation provides strategies to efficiently manage human resources in an organization by improving the employee recruiting process and increasing the employee satisfaction and retention. We will be utilizing the DMAIC approach related to Lean Six Sigma methodologies. Our strategies can improve, fix and sustain human resource processes in an organization and thereby reduce the costs in everyday human resource functions. Our method is applicable to small, medium and large scale industries.

## **The Revised Certified Technology Manager Exam: The First Year's Results**

Dr. Mark Doggett, Western Kentucky University, Bowling Green, KY

Mr. Farshid Alavi, Western Kentucky University, Bowling Green, KY

This presentation presents the results of the revised CTM exam during the first year. Attendees will learn how the revised exam was created, its new focus, and the exam participants performed the first year. The presentation will discuss the interpretation of the results and suggest areas for further evaluation and refinement.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal E1

## **Re-Shoring - and Why it Makes Sense Now!**

Dr. Patricia Polastri, Texas A&M, Kingsville, TX

This presentation emphasizes the relevance of Re-shoring for the renaissance of the American manufacturing industry with a strong focus on the economic, social and environmental impact it has on our nation.

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal C1

## **AIDC Technology to Build an Authentic Manufacturing Experience in a Capstone Course**

Dr. Neil Littell, Ohio University, Athens, OH

Dr. Paul Deering, Ohio University, Athens, OH

Attendees will gain an understanding of the inventory control requirements that are built into the manufacturing capstone course within the Engineering Technology and Management program at Ohio University, an ATMAE Accredited program. The capstone course will be reviewed, as well as providing the requirements for the development of the inventory control system. The authors will tie these requirements back to the course competencies within the applied technology courses as well as the capstone course. Additionally, the presenters will provide a live demonstration of one of the solutions developed by the students as it was used in production during their capstone experience.

## **Florida's K-20 Pathways for Manufacturing Education**

Dr. Marilyn Barger, Hillsborough Community College, Tampa, FL

For nearly 10 years, Florida's Department of Education has focused on implementing innovative state policy that defines robust, rigorous, and relevant workforce career pathways. Building on this state infrastructure, FLATE developed a flexible and credential-based career pathway that provides multiple opportunities for individuals to shape their own education-based manufacturing career pathway. Acceleration options, aligned industry credentials and articulations from high school through four-year programs hallmark this growing program in Florida. Continued enrollment growth in secondary and post-secondary institutions across the state endorses its viability. This presentation showcases our career pathway model outlining key components and strategies that have worked for its statewide implementation since 2007.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal C1

## **Survey of Digital Manufacturing and Simulation Curriculum Effectiveness for Manufacturing Technology Alumni**

Prof. Paul Nutter, Ohio Northern University, Ada, OH

Attendees will learn from our experiences and alumni responses to our digital manufacturing and simulation curriculum's contribution to their personal and professional development. They will discover the value alumni placed on these technologies, and in the application of these technologies for industrial projects.



# Manufacturing Track

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal C1

## **The Effects of Micro-EDM Process Parameters and their Optimal Values to Achieve the Desired Productivity and Surface Integrity**

Mr. Farshid Alavi, Western Kentucky University, Bowling Green, KY

The findings indicate that the voltage improves the machining time. However, it adversely affects the crater size. The effect of capacitance is beneficial for both tool wear and surface hardness. The effects of TN-coating and electrode rotational speed are not statistically significant. If the importance of all response variables were identical, the optimal process parameters were found to be TN-coated electrode, 60 V, 4700 pF, and 3000 RPM. This study presents the application of factorial design and ANOVA to find out the optimal process parameters for micro-EDM of Ti-6Al-4V. Furthermore, it shows that the effect of capacitance and voltage on response variables are different and they should be studied separately as well as in combination in terms of the discharge energy.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal C1

## **Management Practices to Enhance the Implementation of Process Excellence Using Principles of Lean Six-Sigma**

Dr. Merwan Mehta, East Carolina University, Greenville, NC

This session will present details on how to position a company in terms of management practices and policies to embark on a path of continuous improvement to become a world-class business through the incorporation of best practices.

## **Simulation of Industrial Facility Layout Using Pro-Model Software**

Dr. Farzin Heidari, Texas A&M University-Kingsville, Kingsville, TX

Dr. Ulan Dakeev, Texas A&M University-Kingsville, Kingsville, TX

The design of the facility layout should consider overall objectives of the organization and increase the production capacity of the company. A facility layout simulation model provides insight to optimize utilization of the workforce and equipment. Helpful hints and how to implement simulation software into the industrial management and technology curriculum will be provided.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal C1

## **Integrating Sustainability--Lean and Green Secondary Wood Manufacturing Practices in an University Wood Technology Program**

Mr. Charles Phillips, Pittsburg State University, Pittsburg, KS

Mr. Jordan Backs, Pittsburg State University, Pittsburg, KS

Dr. John L. Iley, Pittsburg State University, Pittsburg, KS

Attendees will understand the development and implementation of this baccalaureate program, BST in Wood Technology, to reflect today's industry sustainability requirements. Program development and practices presented can be applied to other manufacturing programs.

## **Modeling and Simulation of Manufacturing Systems for Continuous Improvement – Efficiency Studies**

Dr. Nilmani Pramanik, University of Northern Iowa, Cedar Falls, IA

Dr. Julie Zhang, University of Northern Iowa, Cedar Falls, IA

The authors propose to present the basic process of using the simulation tools in carrying out the continuous improvement task including assessing process parameters and efficiency studies for the manufacturing industry. This would be of interest to both the manufacturing industry and manufacturing technology curriculum.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal C1

## **Investigating the Cutting Forces and Temperatures Generated During Machining of Ti-6Al-4V Using Conventional Flood Coolant and Sustainable Dry Machining**

Dr. Gregory Arbuckle, Western Kentucky University, Bowling Green, KY

This study will investigate the cutting forces and cutting tool temperature generated during machining of Ti-6Al-4V under both flood coolant and dry conditions. The study will also evaluate the effect of operating parameters on the cutting forces and tool-tip temperatures. Finally, the study will establish correlation between the generation of cutting forces and temperatures with the surface finish and tool wear for machining of Ti-6Al-4V.

# Manufacturing Track

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal C1

## **Entering the Future — Nanomanufacturing: Exploiting the Triple Helix for Advanced Manufacturing Workforce Development**

Dr. Alton Kornegay, North Carolina A&T State University, Greensboro, NC

Today's competitive global nanomanufacturing environments demand more robust workforce education to promote new product fabrication technologies, to maximize the nanomanufacturing megatrend, and to increase nanomanufacturing process efficiencies required for scale-up. The Triple Helix concept of university, industry, and governments must work together to educate graduates who can "hit the ground running" using effective research and innovative development to add more value to themselves and to hiring organizations. Attendees will see that the Triple Helix concept is one solution to increase American manufacturing workforce readiness, innovation and productivity.

## **Sustainable Machining Practices with Metal Working Fluids**

Dr. Rukmini Srikant Revuru, University of Northern Iowa, Cedar Falls, IA

Dr. Kanchan Das, East Carolina University, Greenville, NC

Sustainability is a concept that is well understood, but its practice in manufacturing is not all that widespread. Metal working fluids are a necessity in manufacturing, but at the same time contribute a lot towards the health problems of the machine tool operators. Probably the biggest problem is that many of us may not be aware of all that can be done to mitigate that problem. This paper conducted a survey of the industrial personnel with the aim of understanding their awareness. The results of the survey are presented along with the possible solutions.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal C1

## **An Automated Manufacturing Application with a Hydraulic System**

Dr. Yuqiu You, Ohio University, Athens, OH

Dr. Nelish Joshi, Morehead State University, Morehead, KY

This presentation will introduce and demonstrate a project for designing and developing a fully automated and remotely accessible hydraulic application. The system components, structure, programming method, data acquisition, and web-based application will be demonstrated and discussed. The system efficiency and reliability will be discussed, as well as future research and projects.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal C1

## **Development of a Lean Manufacturing Train System**

Dr. Shaojun Wang, Southeast Missouri Ste University, Cape Girardeau, MO  
Mr. Brad Deken, Southeast Missouri State University, Cape Girardeau, MO

The lean manufacturing train system is composed of three sub systems to reflect the realistic settings in a manufacturing line; and the system layout can be changed between a "U-shape "and an "L-shape". Students can obtain hands-on experience of modern production management, and learn to improve the key performance indicators through adjustment of the operation modes, facilities layout, production line balance and other means.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal C1

## **Using Process Failure Mode Effects Analysis to Improve the Build Quality of Wood Laminate Guitar Bodies**

Dr. Darren Olson, Central Washington University, Ellensburg, WA  
Mr. Scott Calahan, Central Washington University, Ellensburg, WA  
Mr. Charles Pringle, Central Washington University, Ellensburg, WA

This presentation will provide an overview of a Process Failure Mode Effects Analysis (PFMEA) project, which was conducted to identify and implement process control actions aimed at improving the build quality of wood laminate guitar bodies being produced for the STEM Guitar Project.

## **Design and Fabrication of the Power Transmission System of a Large Scale 3D Printer**

Dr. John Irwin, Michigan Technological University, Houghton, MI

The use of 3D printing technology is on the increase as a direct manufacturing alternative. However, one of the major limitations in 3D printing is the size which can be printed. Here, an innovative large scale 3D printer design is proposed having a build envelope of 6 x 6 x 5 ft. The main power transmission component for the rotary worktable is a stepper motor turning a spur gear driving an internal ring gear, which is manufactured by machining segments to be integrated together to form the 62.5 inch pitch diameter internal ring gear.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal C1

## **Developing 3D Antennas for Small Unmanned Aircraft Systems through Fused Deposition Modeling**

Dr. Yi-hsiang Chang, University of North Dakota, Grand Forks, ND

Attendees will be informed about how various FDM materials contribute to developing 3D UAS antennas, and the challenges and best practices of using FDM to construct functional antennas.

# Micro/Nanotechnology Track

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal F3

## **SiC/Spinel Nanocomposite A Promising Candidate for Aerospace Industry**

Dr. Fariborz Tavangarian, Penn State Harrisburg, Middletown, PA

Crack self-healing behavior of SiC/spinel nanocomposite, obtained from talc, aluminum and graphite powders was evaluated as a function of time, temperature and the environment atmosphere. The mechanism that was involved in the crack-healing was investigated and the outcome revealed both physical and chemical phenomena are involved in the healing process. In the presence of oxygen at high temperatures, SiC reacts with oxygen to form SiO<sub>2</sub> which is accompanied with about 80% volume expansion. On the other hand, the formed silica reacts with the matrix and produces some transition compounds which can rebond crack walls together. The results showed that cracks can be completely healed after heat treatment at 1545 °C in static air for only 1 min. Attendees will be familiar with self healing phenomena in ceramics and how they can inspire from nature toward their scholarly activities.

## **Enhance and Evolve Your Tech and Engineering Program with Microsystems – A Rapidly Growing Technology**

Dr. Matthias Pleil, University of New Mexico, Albuquerque, NM

Ms. Barbara Lopez, UNM, Albuquerque, NM

Attendees will learn how to access and acquire the knowledge and skills needed to bring engaging microsystems educational topics to their students. From integrating one or two short hands-on experiences within a STEM course, to creating a Microsystems based course all the way to offering a two-year program, participants will have plenty of resources to access. Consider attending this session if you are interested in evolving your program to include cutting edge MEMS topics to support your regional industry needs.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal F3

## **Authentic Asynchronous Microsystems Technician Training Through Distance Learning and Industry Partnerships**

Dr. Richard Vaughn, Rio Salado College, Tempe, AZ

Attendees will gain insight into the opportunities and technologies available for asynchronous delivery of microsystems training in fabrication and characterization. Discussion will focus on how these technologies can be expanded and adapted to multiple environments within different pedagogical systems.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal F3

## Understanding the Unusual Electronic and Thermal Properties of Graphene - Their Effect on Graphene Transistor Performance

Dr. William Grise, Morehead State University, Morehead, KY

Those who attend will obtain a better understanding of graphene-based transistor performance, and will have access to some MATLAB programs for performing their own assessments of device performance.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal F3

## Using Arduino & LabView for Teaching MEMS Devices

Mr. Andrew Bell, Ivy Tech Community College, Northeast, Fort Wayne, IN

The teaching of how to use and make MEMS devices using technology like Arduino microcontrollers and software like LabView can provide multiple learning opportunities for the student at a small cost for the college. These new kits can be easily integrated into an existing electronics or physics program to provide inexpensive equipment to teach complex concepts.



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## **Drone Usage For Disaster Assessment**

Mrs. Teje Sult, Jacksonville State University, Jacksonville, AL

Attendees will leave the presentation with knowledge of how drones can be utilized to improve efficiency and safety in disaster assessment. There will be a discussion on the potential reasons that users are not fully utilizing drones and how those reasons differ from the beliefs of the designers. Information gained from this presentation can be applied to different areas of engineering and technology where designers need to communicate with the end user to increase the efficiency of the product. Attendees will leave the presentation with knowledge of how drones can be utilized to improve efficiency and safety in disaster assessment. There will be a discussion on the potential reasons that users are not fully utilizing drones and how those reasons differ from the beliefs of the designers. Information gained from this presentation can be applied to different areas of engineering and technology where designers need to communicate with the end user to increase the efficiency of the product.

## **Assessment of the Condition of Power-Take-Off Guarding Systems on Farm Machinery**

Miss Joy Sheldon, Indiana State University, Terre Haute, IN

Dr. Ernest Sheldon, Indiana State University, Terre Haute, IN

This presentation will describe the methodology to be followed throughout the course of the research. This research project will ultimately lead to the production of a farm safety video highlighting the existing problems with PTO guarding systems and encouraging affordable repair/replacement options that many farmers overlook. Attendees will take with them an understanding of the scope of the problem involving the condition of PTO guarding systems on many, if not most, farms.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal E3

## **Nanotechnology Materials: Worker Exposure to Potential Hazards and Risks in the Manufacturing Work Environment**

Mr. Charles Hunt, Norfolk State University, Norfolk, VA  
Mr. Munir Sulaiman, Norfolk State University, Norfolk, VA  
Dr. Jeenson Sheen, Norfolk State University, Norfolk, VA

In highly competitive and fast-changing manufacturing industrial sectors, worker safety and health are vital concerns. This presentation will provide attendees insight on some of the potentially harmful effects of various nanotechnology materials and share practical safe practices for protecting workers from exposure to such engineered materials.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal E3

## **Utilization of Drone Technology to Improve Tower Worker Safety and Productivity**

Mr. Trey Leasher, Eastern Illinois University, Charleston, IL  
Dr. Isaac Slaven, Eastern Illinois University, Charleston, IL  
Dr. Gabriel Grant, Eastern Illinois University, Charleston, IL

Tower workers frequently climb hundreds of feet for their work. They also have one of the statistically most dangerous jobs in the United State; many years frequently exceed the nation's most dangerous jobs' fatality rates. Many climbs are made for a visual inspection. Drone technology can be employed so that a tower worker can reasonably determine if a climb is necessary. In doing this, multiple exposures to fall hazards can be avoided.

## **Employing Safety Control Measures/Methods to Prevent and Reduce Fall Hazards in Medium-sized and Small Commercial Construction Firms**

Mr. Charles Hunt, Norfolk State University, Norfolk, VA  
Dr. Jeenson Sheen, Norfolk State University, Norfolk, VA

In today's complex, high-hazard commercial construction industries the safety of workers and other assets is vital for assuring accident and injury reduction and minimal financial loss. This presentation will provide attendees insight regarding the application of fall prevention, protection, and control techniques unique to medium-sized and small commercial construction firms.



# Teaching Innovations Track

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal D2

## **Make Way for Generation Z: Strategies for Reaching Out to the Next Generation of Students**

Dr. Charles Weiss, Clemson University, Clemson, SC

Dr. Carl Blue, University of Southern Maine, Gorham, ME

Attendees will learn of best practices and strategies from academic professionals and resources for engaging and advising for the next generation of students.

## **Filling the Gap Between Industry and Academia: Teaching Critical Skills in Automation and Control Using Developed, Open-Source Programmable Logic Controller Software**

Dr. Aleksandr Sergeyeve, Michigan Technological University, Houghton, MI

In this paper we present the techniques and approaches used for the PLC system development and implementation

Thursday, November 3, 2016 - 10:45 AM - 11:30 AM - Universal E2

## **A Comparative Study of Motivation and Learning Strategies between Public and Private High School Students of India and U.S.**

Dr. Ulan Dakeev, Texas A&M University-Kingsville, Kingsville, TX

Dr. Farzin Heidari, Texas A&M University - Kingsville, Kingsville, TX

Dr. Faruk Yildiz, Sam Houston State University, Houston, TX

The audience may benefit from the cultural differences of study strategies between Indian and the US based students. The authors will report how and in which categories the various groups need more attention in order to relate the subject to the real world. Additionally, the attendees will learn how gender differences influence the study strategies of high school students in both countries.

## **Quantitative Analysis of Mechatronics and Student Motivation in a First-Year Applied Engineering Course: Preliminary Results**

Mr. John Haughery, Iowa State University, Ames, IA

Dr. Steven Freeman, Iowa State University, Ames, IA

Limited empirical evidence has been found in current literature to support the use of mechatronics in first-year engineering and technology courses to motivate students. In response, this study lays a quantitative evidence base for the use of mechatronic projects in first-year courses and how they impact student motivation, albeit to different degrees for different students.

**#ATMAE2016**

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal D2

## **Self Regulated Learning Pedagogy for Teaching Applied Engineering and Technology Class**

Dr. Mohammed Ali, The University of Texas at Tyler, Tyler, TX

This paper reports implementation of the self-regulated learning (SRL), a teaching innovation pedagogy where test subjects and embedded prompts were designed to simulate the iterative cyclical progression of self-regulated learning processes. Findings of this study demonstrated the innovative method's positive impacts to student learning. It is intended to provide students with training and experience to efficiently practice and develop metacognitive strategies for a successful completion of an applied engineering and technology class.

## **Outcome Assessment, Assessment of Students' Learning: Their Implications for Departmental & Institutional Effectiveness**

Dr. Nicholas Akinkuoye, Imperial Valley College, Imperial, CA

Dr. Olusegun Odesina, Central Connecticut State University, New Britain, CT

Attendees will understand Outcome Assessment Processes, assessment of students' learning their importance and relationship to department and institutional effectiveness and how to develop a culture of assessment based on evidence.

Thursday, November 3, 2016 - 11:45 AM - 12:30 PM - Universal E2

## **Internet Accessible Remote Laboratory**

Dr. HuiRu Shih, Jackson State University, Jackson, MS

This project studies the feasibility of several potential approaches for developing a remote laboratory: LabVIEW, LXI, NI ELVIS, and Remote Desktop Connection. It is necessary for an online/distance program to provide the same learning environment as traditional learning process. Online technology education presents a challenge for institutions to convert real to online labs. This study provides a deeper understanding of the current technology for remote laboratory development.

# Teaching Innovations Track

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal D2

## **An Evaluation of an Interactive Learning Program for freshman students in an Electronics Engineering Technology Program**

Dr. William Clyburn, Indiana State University, Terre Haute, IN

Ms. Edith Wittenmyer, Indiana State University, Terre Haute, IN

Attendees will hear the first year evaluation of using an internet supplied interactive learning system for first year students in an electronics technology program. Program successes and limitations will be shared as well as implications for technology educators.

## **Constructing a Virtual Cross-Institution Design Collaboration with a Multi-National Focus**

Dr. John Earshen, SUNY/Buffalo State, Buffalo, NY

Attendees will be presented with the model we have developed for this virtual cross-institution multi-national design collaboration, with ample time for dialogue and discussion.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal E2

## **Experiential Learning: Service Learning Used to Enrich Learning, Training, and Civic Responsibility for Technology Students**

Dr. Jessica Murphy, Jackson State University, Jackson, MS

Service learning is described in the following ways: curricular connections, student voice, reflection, community partnerships, authentic community needs, and assessment. Curricular connection is integrating learning into a service project, which is essential in gaining experience. Student voice is beyond being actively engaged in the project itself; students have the opportunity to select, design, implement, and evaluate their service activity. Reflection is structured opportunities are created to think, talk, and write about the service experience. However, Service learning projects for EMT students encourage collaboration with Emergency Management professionals and enable students to develop the exceptional skills needed to obtain and maintain successful Emergency Management careers.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal E2

## **Identifying the Causes and Remedies for Skill Gaps in Manufacturing Technology Education**

Dr. Nageswara Rao Posinasetti, University of Northern Iowa, Cedar Falls, IA

Dr. Rukmini Srikant Revuru, University of Northern Iowa, Cedar Falls, IA

Dr. Nilmani Pramanik, University of Northern Iowa, Cedar Falls, IA

Though manufacturing industry contributes significantly to the economy of the nation, unfilled vacancies due to non-availability of suitable candidates is a major challenge for expanding the manufacturing productivity. This severely affects the growth and sustenance of the industry. This paper presents the results from a survey conducted to identify the major skill gaps and understand the possible causes. These results will be useful in designing and fine-tuning the curriculum of manufacturing courses and making the students more employable.

Thursday, November 3, 2016 - 2:00 PM - 2:45 PM - Universal F2

## **An Invitation to Success**

Dr. Timothy Brockman, Bemidji State University, Bemidji, MN

Mr. David Towley, Bemidji State University, Bemidji, MN

Mr. Lyle Meulebroeck, Bemidji State University, Bemidji, MN

Attendees will learn the benefits of sharing their classroom environment with their colleagues by inviting colleagues as guest lectures to cover areas of their expertise. An example will be given to demonstrate a simple format to use in the classroom to lead an open discussion, while building both instructors' Professional Development Reports and resumes.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal D2

## **Integrating Open Source Resources in Robotics Education**

Dr. Paul Restarits, Central Connecticut State University, New Britain, CT

This presentation is about a real robotics class that benefits from open-source resources and collaborative design. The results show that it greatly improves students learning by providing much bigger resources and communities for supports, providing environment where students centered learning truly happens, providing learning experience that is similar to industrial setup.

# Teaching Innovations Track

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal D2

## **Analyzing the Effect of Industry Engagement Activities on Student Learning in the Undergraduate Program**

Mr. Caleb Burns, Iowa State University, Ames, IA

Dr. Shweta Chopra, Iowa State University, Ames, IA

The audience will obtain a better understanding of which activities are found to enhance student learning the most. The results from the research are shared with lecturers to assist them in incorporating industry engagement activities that strongly enhance student learning.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal E2

## **Show and Tell: Making the Case for Competency Based Learning in a Networking Technologies Course**

Dr. Ronnie Rollins, University of Central Missouri, Warrensburg, MO

The presentation will discuss the development of CBE modules for an undergraduate-level networking course. Also, the presentation will discuss the integration of the CBE modules for University of Central Missouri systems engineering and networking technology courses. Students' perceptions and learning experiences from the modules will be illustrated.

## **Phidgets: A Practical Aid in Teaching Student's Computer Programming**

Dr. Paul Deering, Ohio University, Athens, OH

Attendees will understand the challenges involved in teaching engineering technology students event driven application programming. This presentation will share a teaching method to better engage the students making the learning process simpler. The learning process of the presenter will be shared and where the presenter plans to take the class in the future.

Thursday, November 3, 2016 - 3:00 PM - 3:45 PM - Universal F2

## **CAD/Prototyping Development through Design Centered Education**

Dr. Mark Mahoney, Berea College, Berea, KY

Dr. Gary Mahoney, Berea College, Berea, KY

Attendees will understand the curriculum development process and see current activities and interactions used to develop CAD, Parametric Modeling, Additive Manufacture, and Prototyping abilities through design based projects and curriculum. This model has been successful in the fostering of student abilities with regard to the application of the design process and production for the benefit of the students and industry alike.

## **Applied Project Management Methodology for College Degree Program Success**

Mr. David Towley, Bemidji State University, Bemidji, MN

Mr. Lyle Meulebroeck, Bemidji State University, Bemidji, MN

Dr. Timothy Brockman, Bemidji State University, Bemidji, MN

Attendees will be introduced to a strategy that has the potential to improve the success of their student population in terms of student retention, graduation rates, and overall satisfaction.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal D2

## **Managing Industry-Based Projects In a Senior Project Course**

Dr. Manocher Djassemi, California Polytechnic State University, San Luis Obispo, CA

It is expected that the process and tools described in this paper to assist other educators and students in managing their industry-based senior projects in a more efficient and effective manner.

## **Evaluating the Productivity of eLearning Combined with 3D Printed Models in Hybrid Drafting Courses**

Mrs. Roya Azimzadeh, University of Central Missouri, Warrensburg, MO

Attendees will learn innovative and effective methods of Design and Drafting Technology instructional approaches to engage students in their learning process and accommodate their learning needs. The practical activities addressed in this presentation can be incorporated into any drafting course to achieve positive outcomes.

# Teaching Innovations Track

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal E2

## **Experiential Learning in Quality: Setup of a Thin Film Temperature Sensor Processing Line**

Dr. Dennis Field, Eastern Kentucky University, Richmond, KY

Attendees will be given an overview of the processing line stations and flow, along with examples of application of quality tools and statistical techniques to meet student learning objectives.

## **What Factors Influence the Decision-Making Process of Undergraduate Students?**

Mr. Saxon Ryan, Iowa State University, Ames, IA

Dr. Gretchen Mosher, Iowa State University, Ames, IA

The audience will learn about how internship experience influences the student decision-making process. Measurement of internship experience and decision-making components will be discussed. Implications of use for educators and industry will also be shared.

Thursday, November 3, 2016 - 4:15 PM - 5:00 PM - Universal F2

## **Student Certification of a Campus Building through the USGBC LEED® Lab™ Program**

Dr. James Jones, Ball State University, Muncie, IN

Mrs. Janet Fick, Ball State University, Muncie, IN

Attendees of this presentation will understand how the one technology program successfully implemented the USGBC LEED® Lab™ initiative on campus, from course development through building submission.

## **By Moving Interior Design Students into a Complete Digital Drafting Environment, Are They Better Prepared for the Needs of the Industry?**

Ms. Denise Bertoncino, Pittsburg State University, Pittsburg, KS

Ms. Holly Page-Sagehorn, Pittsburg State University, Pittsburg, KS

Mr. Norman Philipp, Pittsburg State University, Pittsburg, KS

Industry trends within the AEC industry are moving into digital implementation and utilization in design and construction, while a large portion of academia are still teaching and emphasizing manual methods. The communication process within a project will be limited when one entity cannot integrate itself with the others. This panel will explore where the balance should be or if there should be a balance between a manual or digital format.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal D2

## **Impact of Preventing Cheating Strategies in the Classroom**

Dr. Eli Aba, Pittsburg State University, Pittsburg, KS

Attendees will understand how preventing cheating techniques impact students. The findings may help attendees appreciate and see the relevance of preventing cheating techniques in helping promote the quality of education for students.

## **Examining Students' Perceptions of Helpfulness from Asynchronous Supplemental Video Modules in a Hybrid Technology Course**

Mr. Matthew Harvey, Iowa State University, Ames, IA

Mr. John Haughery, Iowa State University, Ames, IA

Mr. Sai Ramaswamy, Iowa State University, Ames, IA

Dr. Steven Freeman, Iowa State University, Ames, IA

Dr. Gretchen Mosher, Iowa State University, Ames, IA

While ASVMs are a common pedagogical instrument used to extend learning beyond the classroom, it is unclear how helpful students perceive these to be. Analyzing these perceptions and relating them to the quantity of ASVMs watched by students can clarify the impact of this type of course content. Ultimately, this information can be used to determine the value of investing in the development of ASVMs for a course to increase student learning, satisfaction, and achievement.

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal E2

## **Teaching Industry Relevant and Application Oriented Skills in Automation and Control by Developing an Integrated Robotic Work Cell using 6-axis Robots, PLC, Conveyor and Sensory Vision System**

Dr. Aleksandr Sergeyev, Michigan Technological University, Houghton, MI

In this paper we present the methods used to develop and implement a robotic work cell, and design techniques for pick and place application.

## **Control Problem for the Manufacturing/Mechatronics Curriculum**

Dr. Darwin Boyd, Kent State University, Kent, OH

Attendees will learn how to bring a highly visual control problem to their manufacturing/mechatronics programs.



# Teaching Innovations Track

Friday, November 4, 2016 - 8:15 AM - 9:00 AM - Universal F3

## **A Teachable Communication Model for Technical People**

Mrs. Pamela McGee, Minnesota State University Moorhead, Moorhead, MN

Communication competence with students is not a new issue. Is it time for technical educators, not only to address the issue, but lead other disciplines who are also struggling with the issue? Attendees will gain information on the disparate communication gap between education and industry, a balanced perspective on the side effects of technology on communication, a technical communication model, program practices to improve graduates communications competence, including indirect and direct pre and post-test options. Enhance the future by tackling an issue that continues to be ignored—students ability to communicate.

## **Integration of Project Management Into a Senior Capstone Sequence**

Mr. Joseph Vanstrom, Iowa State University, Ames, IA

Dr. Gretchen Mosher, Iowa State University, Ames, IA

Graduates from technology programs are not only being asked to utilize their technical expertise, but also to manage personnel. By introducing project management in a sophomore-level course, students will be able to utilize these skills as the progress through their education and be better suited to succeed in their professions after graduation.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal D2

## **Course and Laboratory Development in Autonomous Navigation Technology**

Dr. James Ejiwale, Jackson State University, Jackson, MS

This is a presentation on the successes and struggles of course and laboratory development in autonomous navigation technology. Insights on these complex issues from industry, government and educator perspectives are the information necessary to assess the technical training needs of future workers in advanced automotive technology.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal D2

## **An Examination of the Internship Course in the Graphics Field**

Dr. Devang Mehta, North Carolina A&T State University, Greensboro, NC

The internship course in the graphics discipline was examined on various criteria, such as, who is hiring, what students learn, how much students earn, and what students' future plans are. The purpose is to serve students better, find out their needs, and discover what they learn. This presentation will be beneficial to attendees to help students prepare for the future career related jobs.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal E2

## **Improving Teaching Effectiveness of Automotive Sensing and Communication using Virtual Instruments and Customized Signal Conditioning Circuits**

Mr. James Conners, Indiana State University, Terre Haute, IN

We provide practical examples of using mature, inexpensive yet effective computer hardware and software to augment traditional automotive labs to offer better learning experience for students.

Friday, November 4, 2016 - 9:15 AM - 10:00 AM - Universal F3

## **It's Elementary: Promoting STEM Fields to Children**

Ms. Jennifer Warrner, Ball State University, Muncie, IN

Dr. James Jones, Ball State University, Muncie, IN

Mr. Mike Mezo, Ball State University, Muncie, IN

Attendees will understand the value of outreach to elementary schools and other community organizations. Attendees will learn about innovative presentation strategies and activities that could be incorporated into similar programs at other institutions. Attendees will learn how to incorporate current students into outreach initiatives.

## **Teaching STEM Using Electric Guitars**

Mr. Steven Brown, College of the Redwoods, Eureka, CA

Mr. Thomas Singer, Sinclair Community College, Dayton, OH

The STEM Guitar project is being implemented throughout the country and we're looking for more rock star teachers who want to connect their students to STEM. Consider attending a free summer workshop to get started.

# Teaching Innovations Track

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal D2

## **Program Specific Career Events Provide Increased Benefits for Industry and Students**

Mrs. Brenda Jochum, University of Nebraska at Kearney, Kearney, NE

Mr. Scott Jochum, University of Nebraska at Kearney, Kearney, NE

Program specific career events with long term and new company relationships result in sustained program success and near 100% placement of graduates. Industry needs for qualified candidates are met and students have access to companies who are looking for candidates with their skill set. The university benefits through program partnerships and industry involvement.

## **Flipping the Design and Drafting Technology (CADD) Courses: Students' Perceptions of Blended Learning**

Mrs. Roya Azimzadeh, University of Central Missouri, Warrensburg, MO

Attendees will learn innovative and effective methods of Design and Drafting Technology instructional approaches to accommodate the modern age students' learning needs. The practical activities addressed in this presentation can be incorporated into any technical course to achieve positive outcomes.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal E2

## **Addressing Competency-Based Education in the Applied Sciences and Technologies**

Dr. David Hua, Ball State University, Muncie, IN

Dr. Thomas Spotts, Ball State University, Muncie, IN

Competency-based education is centered on the idea that higher education should identify and validate that students are attaining defined levels of competencies in their academic programs. The details on how implementing competency-based education in higher education provides some logistical and pedagogical challenges. This presentation will discuss the challenges, opportunities, and strategies for implementing a degree curriculum based on a competency-based education model.

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal E2

## **A 3D World – Ideation to Prototype**

Mr. Lyle Meulebroeck, Bemidji State University, Bemidji, MN

Mr. Andrew Graham, Bemidji State University, Bemidji, MN

Attendees will be introduced to the creative process and how it generates excitement, collaboration and competition amongst students in a classroom setting. The ultimate goal of the 3D program is to create the best student possible and upon graduation leave our institution with the tools needed to be competitive and successful in a global market!

Friday, November 4, 2016 - 10:30 AM - 11:15 AM - Universal F3

## **SCME's Hands-Online Academy – A Remote Approach to Hands-On Instruction**

Mrs. Barbara Lopez, University of New Mexico, Albuquerque, NM

Dr. Matthias Pleil, University of New Mexico, Albuquerque, NM

This presentation discusses how the Southwest Center for Microsystems Education has created a distance learning academy, how we have transferred our live hands-on workshops to online hands-on instruction, and how this has expanded our Community of Practice. The workshop audience will be provided with access to all of SCME's hands-online courses, and the opportunity to receive a free kit corresponding to each course. The kits allow participants to experience first hand the remote hands-online instruction that SCME's Hands-online Academy offers.

## **CM Industry Experts in the Classroom: Requiring Mentors for a Senior CM Capstone Class?**

Mr. Mike Mezo, Ball State University, Muncie, IN

Ms. Jennifer Warrner, Ball State University, Muncie, IN

Attendees will gain an understanding of a senior Capstone (or thesis) class, and the true value of teaming with the use of all CM faculty, and students involvement with experienced CM Mentors & Leaders. Also, attendees will learn some of the Good, the Bad and the Ugly of a Capstone class, plus advantages of working with others outside of their immediate university network and world!

# Teaching Innovations Track

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal D2

## **Virtual Production Line Development**

Dr. Jorge Ortega Moody, Morehead State University, Morehead, KY

In response to these needs encountered in training in the area of automation and control, the Engineering and Technology Management Department of Morehead State University presents the development of virtual laboratory of industrial scenarios; a laboratory in which the components possess the physical and electrical characteristics of industry thus also behaving similarly to real life situations.

## **Alternatives: Utilizing Visual Communications in the Classroom**

Mr. Gary Birk, Ball State University, Muncie, IN

Mrs. Valerie Birk, Ball State University, Muncie, IN

Mrs. Janet Fick, Ball State University, Muncie, IN

Attendees of this presentation will learn about one technology program's approach to teaching with visual strategies to engage students and aid in development of their visual tools. This approach is aimed at dovetailing information into a more cohesive synthesis and dispensing of information.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal E2

## **Transitioning to the Future: What Students and Employers have Taught Me About the Value of Co-ops and Internships**

Dr. Sara Smith, University of Northern Iowa, Cedar Falls, IA

Miss Bryanne Trice, University of Northern Iowa, Cedar Falls, IA

This presentation will reveal an overview of the challenges and benefits of internships and/or co-op experiences in college programs. A student's perspective, and how the co-op/internship experience can help with career clarification and specialization will be included. In addition, how it enhances the knowledge of the co-op coordinator for curriculum development will be discussed.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal E2

## **Preparing Students for Careers Via Project Based Learning Supported by Industry Partnership**

Mr. Paul McPherson, Purdue University, West Lafayette, IN

Dr. E. Shirl Donaldson, The University of Texas at Tyler, Tyler, TX

Attendees will learn how the industry partnerships developed by the two presenters have assisted in effectively implementing the flipped classroom model in a manner that better prepares students for careers in today's industry. Discussion will include an overview of the projects, goals and objectives, how the authors evaluate student learning, and lessons learned going forward. The projects discussed can be easily integrated into both undergraduate and graduate level courses.

Friday, November 4, 2016 - 11:30 AM - 12:15 PM - Universal F3

## **Transforming Technology Education for the Digital Age**

Dr. Gary Bertoline, Purdue University, West Lafayette, IN

The overall goal is to prepare graduates as T-shaped professionals. T-shaped professionals are characterized by their deep disciplinary knowledge in at least one area, an understanding of systems, and their ability to function as "adaptive innovators" and cross the boundaries between disciplines.

## **Using Video and Voice to Enhance Assessment in a Flipped Introductory Manufacturing Processes Class**

Dr. Mark Laingen, Illinois State University, Normal, IL

The online assessment experience can be enhanced through the use of audio and video tools like Voicethread and Camtasia and reduce some of the issues commonly associated with online assessments. Students and instructors can both benefit from this technique through increased time for lab activities while providing a strong assessment tool that works to minimize compromising the quality and security of the assessment.