stem ENGAGEMENT

74th Technology
Fall Conference

SUNY Oswego
October 24 & 25, 2013

www.fallconference.com

Thank you for attending the 74th Technology Fall Conference. This year's theme, STEM Engagement, emphasizes our role as Technology and Engineering Educators to bring meaning and context to STEM content. Enjoy presentations from our conference theme threads including: ***STEM in the Human-Built World; STEM and Technology Education Core Ideas/Connections to Common Core and NGSS; Getting Students Engaged—Inspiration through STEM Collaborations; and STEM in the Education Pipeline***. The program also features extended length, hands-on workshops that give you an opportunity to work with current and innovative technologies.

The School of Education renovation project continues to make progress. Our faculty and students have been enjoying new equipment and resources in our Manufacturing Systems and Woods Laboratories. Work continues in Park Hall, and we are moving into new facilities soon after the conference. We are looking forward to our new Communications, CAD and Engineering Graphics, Transportation and Energy, Electronics and Mechatronics, Design, and Methods Laboratories. These laboratories will be outfitted with all new equipment, furniture, and computing resources.

The department is constantly working to update and improve our program offerings. Our renovated laboratory resources allow us to offer new coursework in Computer Aided Manufacturing, CAD Engineering and Analysis, Engineering Concepts for Technology and Engineering Education, Mechatronics, and an Introduction to Materials Technologies course. We have also added a new Technology Minor to our program offerings that is open to all students on campus.

We are welcoming Ms. Carol Taormina to our Field Placement office as the Assistant Field Placement Coordinator for Technology Education and Vocational Teacher Preparation. The department offers congratulations to Mr. James Decker who retired from that position this year. We appreciate Mr. Decker's service over the past decade.

Our graduates are still being highly sought after in New York State across the nation. Encourage your students to visit SUNY Oswego and consider a degree program in Technology Education or Technology Management.

Enjoy the 74th Technology Fall Conference, and mark your calendar for the 75th Technology Fall Conference on October 30 & 31, 2014.

Mark W. Hardy, Ph.D.
Chair, Department of Technology

GENERAL INFORMATION

COMMERCIAL EXHIBITS

Connector between Wilber Hall and Shineman Center

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Thursday, 8:30 a.m. – 4:30 p.m.
Friday, 8:30 a.m. – 12:30 p.m.
Exhibits will be open during lunch time.

SHIP'S PROGRAM*

Wilber Hall Lobby

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Thursday, 12:45 p.m.
Friday, 12:30 p.m.
**You must be present to win a prize.*

CONFERENCE RECEPTION*

Elk's Lodge, West Fifth and Bridge Streets (Route 104)

•

Thursday, 5:00 p.m. – 6:30 p.m.
**Name badges are provided for all paid registrants.*
Please wear your name badge.
To attend the reception, you must be 21 or older.

HOSPITALITY AREA

Wilber Hall North Corridor

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Thursday, 7:30 a.m. – 11:00 a.m.
Friday, 7:30 a.m. – 11:00 a.m.

COMPLIMENTARY WIFI ACCESS

Oswego-Guest SSID

Username: tech2013 Password: tech2013

Persons with disabilities needing accommodations to attend the conference should contact Teri Davis in the main department office at 315.312.3011

FALL CONFERENCE STAFF

Conference Chair
Daniel V. Tryon

Conference Program & Website
Mark Springston

Budget and Finance
Teri Davis

Commercial Exhibits & Reception
Michael Nehring

Conference Printing
Office of Publications

Graphics and Signs
John Belt

Shuttle Services
Thomas Kubicki

Publicity & Program Editor
Judith Belt

Registration
Richard Bush

Presenter Services
Mark Hardy

Conference Outreach
Donna Matteson
Edward Zak

Graduate Assistants
Erica Querns
Joseph Lorefice

THANKS

to all who have helped with our technology endowment!

Our goal to raise $1 million is slowly moving forward, but we aren't there yet. Brochures describing the endowment can be found in your conference packet. Thank you for ensuring that the department will be here to serve the next generation of technology candidates. Contact Rich Bush to learn more about the Technology Endowment.

THURSDAY ITINERARY OCT. 24, 2013

REGISTRATION

7:30 a.m. Wilber Hall Lobby

HOSPITALITY AREA

7:30 a.m. - 11:00 a.m. Wilber Hall North Corridor

Enjoy the coffee and donuts.

Additional seating available in the new Richard S. Shineman Center

COMMERCIAL EXHIBITS

8:30 a.m. - 4:30 p.m.

Connector between Wilber Hall and Shineman Center

LUNCH ON YOUR OWN

11:15 a.m. - 12:45 p.m.

$6 Lunch tickets are available for specified dining halls.
Must be purchased at the registration desk.

Exhibits will be open during the lunch break.
Please take the time to support the commercial exhibitors.

SHIP'S PROGRAM

12:45 p.m. Wilber Hall Lobby

You must be present to win a prize.

SESSIONS

SESSION 1 • 9:00 a.m. - 9:45 a.m.

SESSION 2 • 10:30 a.m. - 11:15 a.m.

SESSION 3 • 1:15 p.m. - 2:00 p.m.

SESSION 4 • 2:30 p.m. - 3:15 p.m.

SESSION 5 • 3:45 p.m. - 4:30 p.m.

SESSION 1 THU. 9:00 a.m. - 9:45 a.m.

3D Printing with Autodesk — **Mario DeCarolis, Scott Read**
163 Wilber

Join us in learning how to use Autodesk software to design, create, and print on an Afinia 3D printer. This session will highlight the creation of a 3D object using Autodesk Inventor then using the easy but powerful Afinia 3D printer.

Adventures in Duck Tape™ — **Greg Di Stefano**
192 Wilber

Over the past two years a unit of study has been developed that uses Duck Tape™ as the primary material for creativity and innovation. The start of this adventure begins with each student fabricating a wallet designed by the teacher as a warm up activity. Things evolve when students are asked to design or improve an existing Duck Tape™ product and produce fool proof directions along the way. This unit is delivered at the middle school level and is extremely popular with the students because they get to personalize the products with fun Duck Tape™. *NOTE: A materials fee of $3 will be collected from participants.*

Behind the Scenes Tour of the New Shineman Center — **Allen Bradberry**
Shineman Center

Repeated in SESSION 8: Friday 1:00 p.m. -1:45 p.m.

The Richard S. Shineman Center for Science, Engineering and Innovation stands as an environmentally friendly tribute to its own name, brimming with sustainable innovations that educate as they conserve—from the highly visible twin LED touch screens monitoring the building's energy pulse in the main entry way to the nearly invisible largest geothermal-well installation in the state. Join the Project Coordinator of SUNY Oswego Facilities and Design for an in-depth look at this state-of-the-art complex, which is built to achieve LEED Gold certification.

NOTE: *The tour is limited to 24 participants and starts outside the Shineman Center entrance within the Wilber-Shineman Center connector.*

Everything You Need To Know About FIRST Robotics and VEX Robotics — **Matthew Starke**
253 Wilber

Repeated in SESSION 8: Friday 1:00 p.m. -1:45 p.m.

Starting and continuing a robotics team can be a daunting task. Many technology education minded schools have discussed the idea of having a robotics team be part of their departments. In New York State, the two most popular programs seem to be FIRST Robotics and VEX Robotics. But, which is the best fit for your program? Attend this session to hear advice from 12 years of being involved with various robotics clubs. Discussion with questions and answers are encouraged.

Teach Technology Students Teamwork Skills Through Activities — **Tom Heck, B5 Wilber**

Do you want your students to learn team and leadership skills? Are you looking for strategies, tactics, and tools to help you teach these skills in your technology education classroom? If so, attend this hands-on session with a former high school technology educator with years of experience teaching K- 12 students to be leaders and work in teams through "experiential team building exercises" or games. The founder of International Association of Teamwork Facilitators hosted on teachmeteamwork.com, he has several publications including *Duct Tape™ Teambuilding Games: 50 Fun Activities to Help Your Team Stick Together.* Participants will receive a free 33-page team building games e-book *Team Building Games on a Shoestring,* which includes detailed lead-it-yourself instructions and videos for seven fun and engaging team building activities.

NOTE: *Tom will be leading this workshop live via a Google Plus Hangout On Air session, and the session will be posted to YouTube. This session may extend into the break.*

DOUBLE SESSION 1&2

THU. 9:00 a.m. - 11:15 a.m.

Robotics Engineering Curriculum - VEX Programming Workshop — **David Crowell, Joe Zahra, B2 Wilber**

Repeated in TRIPLE SESSION 3, 4, and 5: Thursday 1:15 p.m. - 4:30 p.m.

This tuition-free workshop demonstrates how to implement a successful engineering program, especially for CTE/STEM teachers and administrators. Discover how REC can move you beyond the "we have technology" stage to "we have a robotics program." Work with VEX, easyC, and REC to see how this proven program can prepare your students for robotics competitions.

STEM-to-STEAM: the synergetic art of making connections — **Joseph Clinton, 191 Wilber**

Repeated in DOUBLE SESSION 8 and 9: Friday 1:00 p.m. - 2:45 p.m.

Integrating science, technology, engineering, and mathematics is the core to the STEM approach of the new philosophical view for developing educational curriculum. A comprehensive anticipatory design science method for applying the synergetic ART of making the connections is needed for STEM to become STEAM. A brief description will be given on the comprehensive anticipatory design science method and how it could be applied to make connections among all disciplines. The discussion will be followed by hands-on model making to demonstrate interconnections and varying points of view among the disciplines exemplified in STEM.

SESSION 2 THU. 10:30 a.m. - 11:15 a.m.

Autodesk and VEX Robotics Education — **Mario DeCarolis, Scott Read**
163 Wilber

Attend this session to learn about new products from Autodesk and VEX Robotics including the new VEX IQ for K-8 robotics. We'll show you how Autodesk software and curriculum are used with VEX Robotics solutions, including the Autodesk VEX Assembler App.

Behind the Scenes: Developing Presentations for a Digital Planetarium — **Scott Roby**
Planetarium
2nd Floor, Shineman Center

Repeated in SESSION 9: Friday 2:00 p.m. - 2:45 p.m.

After briefly discussing the hardware of the new planetarium at SUNY Oswego, we focus on the techniques and software used to create live presentations and short animations for this digital planetarium. Topics include: design and implementation of short animations using the ATM4 scripting software; using the Starry Night Dome and ATM4 scripting programs for interactive live presentations; and, the design and editing of text, slides, audio, and videos used in shows and classrooms.

NOTE: *Demonstration is limited to the first 35 participants.*

The One-iPad Classroom — **Mike Amante, William Depaolo, Samuel Leone, Justin Montois,**
B5 Wilber

What do you do if you have a class full of students and only one iPad? It might seem as if having only one iPad for an entire class of students is limiting; however, that one device can be integrated into the daily classroom tasks and activities in several ways.

Using Reverse Engineering to address STEM Concepts — **Donna Matteson**
253 Wilber

This presentation will discuss the principles of reverse engineering and provide examples of how the process can build and reinforce STEM concepts. Participants will participate in a hands-on reverse engineering activity that can be replicated in the classroom. Classroom resources will be provided.

LUNCH ON YOUR OWN

THU. 11:15 p.m. - 12:45 p.m.

Lunch tickets can be purchased at the conference registration desk for Lakeside and Cooper Dining Centers. The Campus Center also offers a variety of lunch options. **See map on page 8.**

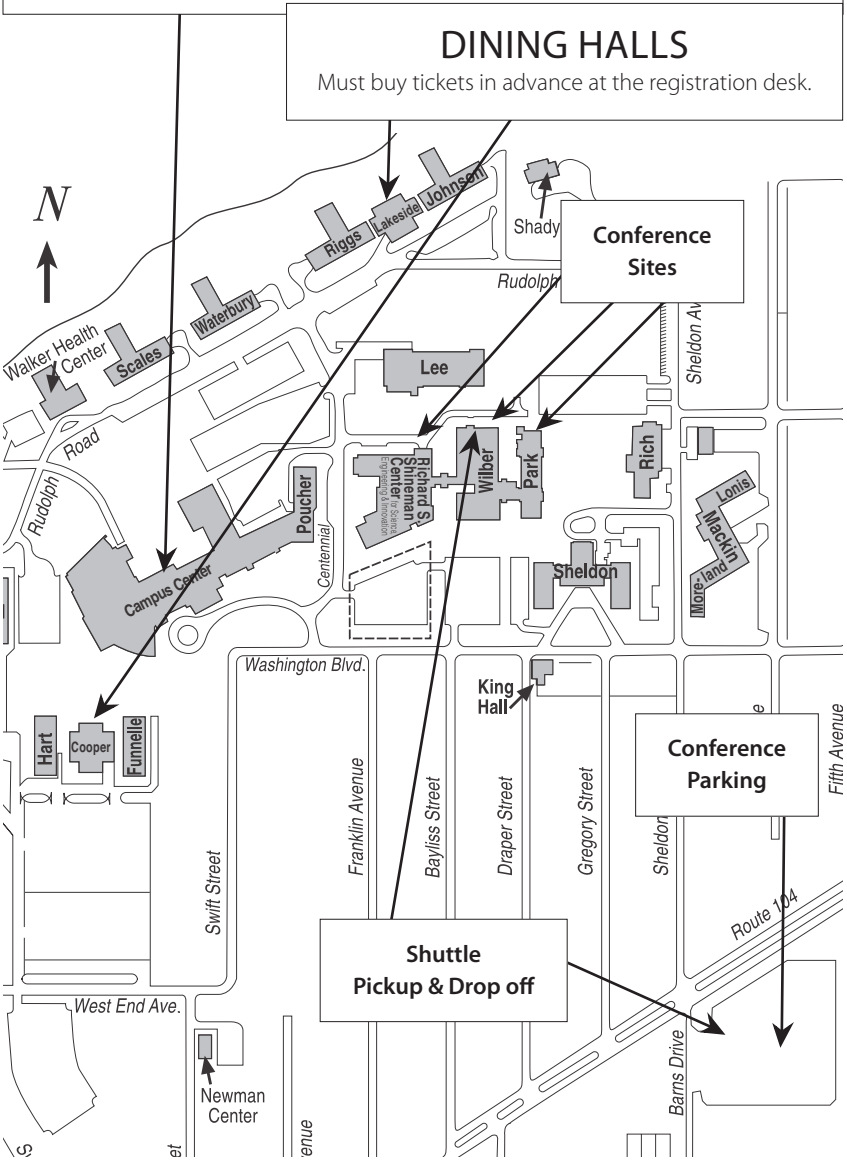
Commercial Exhibits: open until 4:30 p.m.
Ship's Program drawings: 12:45 p.m.

CAMPUS CENTER LUNCH VENUES

Palates: Traditional to international flavors. *Lower Level, Food/Activity Court area*
Crossroads: Café & Grill. *Main level across from Welcome/Information Center*
Cutting Board: Sandwiches, pizza, soups & salads. *Lower Level, Food/Activity Court area*
Laker Express: Quick entrées, side dishes & pastries. *Lower Level, Food/Activity Court area*
Freshens Smoothies: Smoothies & coffee. *Second Floor, Compass area*

DINING HALLS

Must buy tickets in advance at the registration desk.



SESSION 3 THU. 1:15 p.m. - 2:00 p.m.

Advanced Manufacturing at Oswego: MasterCam to CIM
Richard Bush, Daniel Tryon
191 Wilber

Repeated in SESSION 7: Friday 10:30 a.m. - 11:15 a.m.

Manufacturing has changed and so have we! Learn how we addressed the problem of new equipment, new laboratories, new software, new processes, and new products! We will describe the new Computer Integrated Manufacturing course developed to teach our students about additive and subtractive manufacturing processes at Oswego. Nine different machine centers and CNC processes will be featured.

Building Motorcycles in a High School Setting
Stevan Jones, Matthew Saramak
163 Wilber

This presentation reflects the work of students and faculty alike at the Eden Jr./Sr. High School from Eden NY. This course, created in 2008, allows students to participate in the design, fabrication, assembly, and testing of a motorcycle. The presentation will take you through the year-long, build process of these award-winning machines.

Engineering byDesign™ (EbD) A Standards-Based Model Program
Kenneth Ford, Ed Hanlon
B6 Wilber

Repeated in SESSION 7: Friday 10:30 a.m. - 11:15 a.m.

The International Technology and Engineering Educators Association's STEM Center for Teaching and Learning has developed the only standards-based national model for Grades K-12 that delivers technological literacy in a STEM context. The model, Engineering byDesign™, is built on the Common Core State Standards (High School / Middle School with NGSS coming soon), Standards for Technological Literacy (ITEEA), Principles and Standards for School Mathematics (NCTM), Project 2061, and Benchmarks for Science Literacy (AAAS). Additionally, the K-12 Program has been mapped to the National Academy of Engineering's Grand Challenges for Engineering.

Helpful Points with APPR / SLO / Common Core with Tech. Ed.
Chuck Goodwin, DTE
253 Wilber

This presentation will assist with new requirements for all teachers with APPR, Common Core, SLO (using DDP) and how technology educators can fulfill these requirements. This presentation should provide insight into your role and offer guidance with how to be successful in the process.

INFORMATION

about the Fall Conference can be found at www.fallconference.com.

Sustainable Design for the Contemporary Technology Classroom

Tim Lyons, Jeff Rodman, Max McBride, Alex Elkins, Tyler Carman, Jon Shyne, Sarah Cerroni, Adam Nesbitt
352 Wilber

This session will present the research into sustainable design best practices. Members of the *Design Sustainability* course will share work in biomimicry, sustainable architecture, and teacher resources. These presenters are pre-service teacher candidates, upper class and graduate, working collaboratively to research new resources and methods to support STEM and sustainability in a contemporary technology classroom.

DOUBLE SESSION 3&4

THU. 1:15 p.m. - 3:15 p.m.

Content Creation and Distribution for iPad

Rick Bettencourt, David Kahn
B5 Wilber

iBooks Author allows anyone to create beautiful multi-touch textbooks—and almost any other kind of book—for iPad. With galleries, video, interactive diagrams, 3D objects, and mathematical expressions, these books bring content to life in ways the printed page cannot. iTunes U is the best way to deliver content and support contemporary teaching strategies. Latest updates allow any faculty member to publish course material, free, from any platform. Share ideas and material in a powerful new way, while students get a rich, immersive learning experience either streamed or downloaded over a standard Internet connection.

TRIPLE SESSION 3,4&5

THU. 1:15 p.m. - 4:30 p.m.

Robotics Engineering Curriculum - VEX Programming Workshop

David Crowell, Joe Zahra
B2 Wilber

Repeated from DOUBLE SESSION 1 and 2: Thursday 9:00 a.m. - 11:15 a.m.

This tuition-free workshop demonstrates how to implement a successful engineering program, especially for CTE/STEM teachers and administrators. Discover how REC can move you beyond the "we have technology" stage to "we have a robotics program." Work with VEX, easyC, and REC to see how this proven program can prepare your students for robotics competitions.

SESSION 4 THU. 2:30 p.m. - 3:15 p.m.

LEGO™ Robotic Projects that Enhance Learning — **Scott Stagnitta**
253 Wilber

With LEGO™ MINDSTORMS, students experience a fun, exciting, and practical application of math, science, and technology. Solving the robotic challenges involves mechanical engineering, computer programming, problem solving, cooperative learning, and communication skills. Benefits of LEGO™ MINDSTORMS in middle school curricula include encouraging students to go into robotics-related fields, encouraging girls to consider engineering as a career option, and increasing enrollment in pre-engineering high school courses. Key projects that will be presented are Rube Goldberg, sumo wrestling robotics, maze-bot, and robotic bowling (featured on the TV show Bridge Street on Syracuse WSYR). LEGO™ Robotics enhance the classroom and make a huge impact on students. This presentation will also cover the following: New Lego EV3 Robotics, STEM Labs in Elementary School, and Haiku Learning Management System.

Park Hall Tour and Technology Program Update — **Dan Tryon, Mark Hardy, Richard Bush, Joseph Messmer**
Park Hall

Repeated in SESSION 5 : Thursday 3:45 p.m. - 4:30 p.m.
Repeated in SESSION 9 : Friday 2:00 p.m. - 2:45 p.m.

Park Hall is very close to completion. It is still an active construction site so hard hats are required on this guided tour. Meet near the conference registration desk to begin the tour. As we walk the new spaces we will update you on the new courses offered in the department. Each tour group will be limited to 10 people, but three groups will tour the building simultaneously.

Seven Great Middle School Activities — **Alex Sheldon**
163 Wilber

Those of us who teach technology know that student projects and activities need to satisfy many criteria. A good activity needs to be engaging, interdisciplinary, appropriate for all student abilities, inexpensive, and appropriate for the technology lab. Seven middle school activities will be presented that satisfy these criteria.

Technology Education in Common Core or Common Core in Technology Education — **Judith Belt, Michael Nehring**
B4 Wilber

This session that will provide an overview for assistance with incorporating Common Core Standards into the technology education hands-on, minds-on curriculum. Reading, writing, speech, mathematics all may be confusing and daunting in a program filled with existing requirements, but a conversation with others and suggested activities and assessments can lessen the stress.

VEX IQ Challenge - New Elementary/ Middle School Robotics Competition
Dan Larochelle
191 Wilber

The VEX IQ Challenge, presented by the Robotics Education & Competition Foundation, provides elementary and middle school students with exciting, open-ended robotics and research challenges that engage students and enhance science, technology, engineering, and mathematics (STEM) skills through hands-on, student-centered learning. The VEX IQ Challenge fosters student development of the teamwork, collaboration, critical thinking, project management, and communication skills required to prepare them to become the next generation of innovators and problem solvers in our global society. This session with review the new VEX IQ Design System. It will also outline how to start a VEX IQ Challenge team and the FREE resources available to both teachers and students.

DOUBLE SESSION 4&5

THU. 2:30 p.m. - 4:30 p.m.

REAL WORLD Renewable Energy Training Solutions!
Jeff Hapgood, Jennifer Henderson
192 Wilber

Progressive Educational Systems, a manufacturer of renewable energy training systems for wind, solar, hydrogen and bio diesel, has developed a certification training system that will help certify your students as level 1 installers in either small wind or solar PV. We have also completed similar systems for Solar Thermal, Grid-Tie, Smart Meter, and Geothermal training. Our GEM Touch monitoring system monitors these systems and Hot Spots the data to tablets or cell phones. Attend this session to learn why schools throughout the United States, Canada, and around the world are implementing renewable energy training solutions. Presented with Tech Ed Concepts, Inc., the Academic Representative for Progressive Educational Systems.

Soft Circuits
Rebecca Mushtare
B7 Wilber

Soft circuits are working electronic circuits created with conductive paint/ink/thread/fabric in combination with other components like LEDs and batteries. Soft circuits can be used to create interesting accessories, interactive pop-up books and many other interesting objects without the mess or danger of solder. This workshop is hands-on and will offer the opportunity to explore these materials and a number of project ideas.
NOTE: *A materials fee of $8 will be collected from participants.*

SESSION 5 THU. 3:45 p.m. - 4:30 p.m.

Girls in Robotics — **Erin Miller, Kaitlyn Franz, Taylor Ray**
191 Wilber

Want to know how to get more girls involved in your robotics program? Attend this session to talk with two students who have excelled on their robotics team!

Park Hall Tour and Technology Program Update — **Dan Tryon, Mark Hardy, Richard Bush, Joseph Messmer**
Park Hall

Repeated from SESSION 4 : Thursday 2:30 p.m. - 3:15 p.m.
Repeated in SESSION 9 : Friday 2:00 p.m. - 2:45 p.m.

Park Hall is very close to completion. It is still an active construction site so hard hats are required on this guided tour. Meet near the conference registration desk to begin the tour. As we walk the new spaces we will update you on the new courses offered in the department. Each tour group will be limited to 10 people, but three groups will tour the building simultaneously.

Photographic Solutions to Measurement and Visualization — **Andrew Davidhazy**
B5 Wilber

The power of optics and photography to not only visualize but also to make measurements of several high speed and other "invisible" events will be demonstrated. The emphasis will be on principles and problem solving, using improvised techniques. We will be thinking as opposed to pushing buttons and using canned solutions.

Saving and Promoting Technology Education Jobs — **Sam Medema, Clark Greene**
253 Wilber

This session will present a public relations tool kit to educators to help better advocate for saving positions or better yet to build programs. Handouts will include a power point presentation and a brochure to help advocate in home districts.

THANKS TO OUR CANDIDATES!

Many of the conference activities and services are possible only because of the efforts of many students, especially the officers and members of the Oswego Technology Education Association. Their assistance with and support of the conference and the department are sincerely appreciated.

FRIDAY ITINERARY OCT. 25, 2013

REGISTRATION

7:30 a.m. Wilber Hall Lobby

HOSPITALITY AREA

7:30 a.m. - 11:00 a.m. Wilber Hall North Corridor

Enjoy the coffee and donuts.

Additional seating available in the new Richard S. Shineman Center

COMMERCIAL EXHIBITS

8:30 a.m. - 4:30 p.m.

Connector between Wilber Hall and Shineman Center

TECHNOLOGY INNOVATION SHOWCASE

9:00 a.m. - 10:30 a.m. Wilber Hall

Visit one of our newest additions to the conference on your way to see the commercial vendors.

LUNCH ON YOUR OWN

11:15 a.m. - 12:30 p.m.

$6 Lunch tickets are available for specified dining halls.
Must be purchased at the registration desk.

Exhibits will be open during the lunch break.
Please take the time to support the commercial exhibitors.

SHIP'S PROGRAM

12:30 p.m. Wilber Hall Lobby

You must be present to win a prize.

SESSIONS

SHOWCASE / SESSION 6 • 9:00 a.m. - 10:30 a.m.

SESSION 7 • 10:30 a.m. - 11:15 a.m.

SESSION 8 • 1:00 p.m. - 1:45 p.m.

SESSION 9 • 2:00 p.m. - 2:45 p.m.

SESSION 6 FRI. 9:00 a.m. - 10:30 a.m.

TECHNOLOGY INNOVATION SHOWCASE

Wilber 117 & 121 unless otherwise noted

The newest addition to the conference,
an exhibit of innovative practices in
technology or technology and engineering education.

Cedar Strip Canoe	Zach Owen 163 Wilber
Cheap Design: Chairs from Cardboard	Kyle Martindale, Marissa Specioso, Alicia Madonna, Francisco Ovalle, Chris Porten
Digital Photography That Excites	Bob Walters 163 Wilber
Eden NY Chopper Class	Stevan Jones, Matthew Saramak 163 Wilber
Electrical & Computer Engineering at Oswego	Rachid Manseur, Adrian Ieta, Marianne Hromalik, Mario Bkassiny
Forever Flowers Manufacturing Team	Omar Santiago, Alex Parsons
Introducing the 21st Century Energy and Transportation Program in the Department of Technology	Tom Kubicki 163 Wilber
Junior Solar Sprint(JSS) and the Veggie Powered Go-kart	David Buchner 163 Wilber
LEGO™ Robotic Projects that Enhance Learning	Scott Stagnitta
Near-Surface Imaging with Geophysics	Dave Valentino
OTEA - Future Leaders in Technology Education	Adam Nesbitt, Sara Brodbeck, Carson Case, and OTEA Members

Photographic Solutions to Measurement and Visualization	Andrew Davidhazy
Questions and Answers about Student Teaching	Carol Taormina
SUNY Oswego Bike Share	Alexander Elkins
Team MINI: Building a Better, Stronger, Lighter Robotic Vehicle	Erica Querns, Andrew Wager, Alex Elkins
TEAM Titanium Rings	David Royce, Daniel Vinette, Nicholas Oetinger
Techniques for Recording and Analyzing Posture and Gesture as a Means of Inferring Students' Emotional States	Matt Doyle, Roger Taylor
VEX Robotics at Grand Island High School	Eric Cohoon, Adam Missert, Wyatt Mock
VEX Robotics Exhibition	Justin Montois, Dan Tryon 190 Wilber
Visualization of Ionic Wind Velocity Profiles in Asymmetric Electrode Configurations	Joseph Cesta, Gregory Donastor, Thomas Liguori
Woodchucks: Wooden Sunglasses	Dinah Miller, Adam Demay

STUDENT INVOLVEMENT

Oswego Technology Education Association members won the SUNY Oswego 2012-13 Outstanding Education Program for the community outreach program: STEM 4 Kids (K-3).

They attended both the eastern regional conference and ITEEA conference successfully competing in several events.

SESSION 7 FRI. 10:30 a.m. - 11:15 a.m.

3D STEM Engineering, by WHITEBOX LEARNING **Graham Baughman**
253 Wilber

Engage your students in the complete engineering design process. WHITEBOX LEARNING is a standards-based, web-based applied STEM learning system. Students can research, design, analyze, and simulate their designs, hundreds of times, before building their physical models. And, they can compete with fellow classmates around the world, from any browser. How cool is that?! Precise manufacturing templates (or STL Files) can be printed (outputted) in order to build the exact physical model. STEM Applications include: Dragster 2.0, Gliders 2.0, Structures 2.0, Rockets 2.0, Mousetrap Car 2.0, Green Car 2.0, and Prosthetics 2.0.

Advanced Manufacturing at Oswego: MasterCam to CIM **Richard Bush, Daniel Tryon**
191 Wilber

Repeated from SESSION 3: Thursday 1:15 p.m. - 2:00 p.m.

Manufacturing has changed and so have we! Learn how we addressed the problem of new equipment, new laboratories, new software, new processes, and new products! We will describe the new Computer Integrated Manufacturing course developed to teach our students about additive and subtractive manufacturing processes at Oswego. Nine different machine centers and CNC processes will be featured.

APPR and SLOs **Angela Perrotto**
B7 Wilber

This presentation will include an informative discussion of the Annual Professional Performance Review process and the development of Student Learning Objectives to access student educational growth in the technology classroom. Presented by Chair of Educational Administration at SUNY Oswego, who has consulted and presented on topics such as program evaluation, curriculum development, pedagogical strategies, differentiated instruction, formative and summative assessment, portfolio development, differentiated leadership, mentor programs, and embedding 21st century skills into programming and curriculum.

Engineering byDesign™ (EbD) **Kenneth Ford, Ed Hanlon**
A Standards-Based Model Program **B5 Wilber**

Repeated from SESSION 3: Thursday 1:15 p.m. - 2:00 p.m.

The International Technology and Engineering Educators Association's STEM Center for Teaching and Learning has developed the only standards-based national model for Grades K-12 that delivers technological literacy in a STEM context. The model, Engineering byDesign™, is built on the Common Core State Standards (High School / Middle School with NGSS coming soon), Standards for Technological Literacy (ITEEA), Principles and Standards for School Mathematics (NCTM), Project 2061, and Benchmarks for Science Literacy (AAAS). Additionally, the K-12 Program has been mapped to the National Academy of Engineering's Grand Challenges for Engineering.

Everyday GPS: Practical Applications **Mike Amante**
of Geolocation in Education **192 Wilber**

With the proliferation of personally owned smart phones in the hands of practically every student today, these devices can serve as powerful, simple GPS tools for teaching about geolocation in the classroom and beyond. This session provides simple, engaging examples that can be applied in virtually any STEM classroom, across all grade levels and subject areas. Apps, web tools, lesson ideas, and more will be shared and discussed.

Inexpensive Vinyl Cutter Projects **Gregory Bailey**
that Engage Middle Schoolers **352 Wilber**

The focus of this presentation will be on an affordable, easy-to-use vinyl cutter to engage middle school students, grade 5-8. The vinyl cutter is currently used to teach a sandblast glass etching unit, screen printing, foam name cutting, and vinyl signs. The simple-to-use, free software is a must have item. Learn how to turn a black and white bmp image into a vector that the cutter can use.

LUNCH ON YOUR OWN

FRI. 11:15 p.m. - 12:30 p.m.

Lunch tickets can be purchased at the conference registration desk for Lakeside and Cooper Dining Centers. The Campus Center also offers a variety of lunch options. **See map on page 8.**

Commercial Exhibits: open until 12:15 p.m.
Ship's Program drawings: 12:30 p.m.

SESSION 8 FRI. 1:00 p.m. - 1:45 p.m.

Behind the Scenes Tour of the New Shineman Center — **Allen Bradberry, Shineman Center**

Repeated from SESSION 1: Thursday 9:00 a.m. - 9:45 a.m.

The Richard S. Shineman Center for Science, Engineering and Innovation stands as an environmentally friendly tribute to its own name, brimming with sustainable innovations that educate as they conserve—from the highly visible twin LED touch screens monitoring the building's energy pulse in the main entry way to the nearly invisible largest geothermal-well installation in the state. Join the Project Coordinator of SUNY Oswego Facilities and Design for an in-depth look at this state-of-the-art complex, which is built to achieve LEED Gold certification.

NOTE: *The tour is limited to 24 participants and starts outside the Shineman Center entrance within the Wilber-Shineman Center connector.*

Everything You Need To Know About FIRST Robotics and VEX Robotics — **Matthew Starke, 191 Wilber**

Repeated from SESSION 1: Thursday 9:00 a.m. - 9:45 a.m.

Starting and continuing a robotics team can be a daunting task. Many technology education minded schools have discussed the idea of having a robotics team be part of their departments. In New York State, the two most popular programs seem to be FIRST Robotics and VEX Robotics. But, which is the best fit for your program? Attend this session to hear advice from 12 years of being involved with various robotics clubs. Discussion with questions and answers are encouraged.

Materials Technology at SUNY Oswego - New Materials and Skills — **Mark Hardy, 253 Wilber**

The Department of Technology at SUNY Oswego has added a new course, *Introduction to Materials Technology*. This presentation will share the new engineering technologies-based approach to materials including wood, ceramics, glass, polymer, metal, and engineered materials. Learn what students are experiencing in this introductory class.

Using Arduino Microcontrollers in the Classroom — **Matthew Slauson, B2 Wilber**

This presentation will demonstrate examples of Arduino micro-controller projects used in high school engineering and technology classes. It will include both hardware and software projects. The examples shown will demonstrate how these inexpensive micro-controllers can be used to create robots, science experiments, and fun electronic solutions for student design projects.

DOUBLE SESSION 8&9

FRI. 1:00 p.m. - 2:45 p.m.

STEM-to-STEAM: the synergetic art of making connections — **Joseph Clinton, 163 Wilber**

Repeated from DOUBLE SESSION 1 and 2: Thursday 9:00 a.m. - 11:15 a.m.

Integrating science, technology, engineering, and mathematics is the core to the STEM approach of the new philosophical view for developing educational curriculum. A comprehensive anticipatory design science method for applying the synergetic ART of making the connections is needed for STEM to become STEAM. A brief description will be given on the comprehensive anticipatory design science method and how it could be applied to make connections among all disciplines. The discussion will be followed by hands-on model making to demonstrate interconnections and varying points of view among the disciplines exemplified in STEM.

Training for the Oswego Nor'easter VEX Competition — **Daniel Tryon, Justin Montois, Dan Larochelle, 190 Wilber**

Oswego will host a VEX robotics tournament, the Oswego Nor'easter (www.oswegonoreaster.org), on November 16. This double session is primarily to train volunteers who will help run the Nor'easter, but anyone interested in learning about VEX competitions is welcome. A few VEX robotic teams will be here, and the official "Toss-Up" game will be set up for use. Dan Larochelle, the North-East Regional Support Manager for the Robotics Education & Competition (REC) Foundation, will be available for questions.

HOST A STUDENT TEACHER

Stop in 175 Wilber Hall in the Field Placement Office and speak to Carol Taormina, Assistant Field Placement Coordinator for Technology Education.

SESSION 9 FRI. 2:00 p.m. - 2:45 p.m.

Behind the Scenes: Developing Presentations for a Digital Planetarium

Scott Roby
Planetarium,
2nd Floor, Shineman Center

Repeated from SESSION 2: Thursday 10:30 a.m. - 11:15 a.m.

After briefly discussing the hardware of the new planetarium at SUNY Oswego, we focus on the techniques and software used to create live presentations and short animations for this digital planetarium. Topics include: design and implementation of short animations using the ATM4 scripting software; using the Starry Night Dome and ATM4 scripting programs for interactive live presentations; and, the design and editing of text, slides, audio, and videos used in shows and classrooms.

NOTE: *Demonstration is limited to the first 35 participants.*

Common Core, Connections, and Other Things

Judith Belt
352 Wilber

"Realize that everything connects to everything else" ~ Leonardo da Vinci.

How are Socrates, da Vinci, Johann Pestalozzi, Edward Austin Sheldon, Buckminster Fuller, Janine Benyus, and Theodor Seuss Geisel connected? How are the Common Core Learning Standards and the Next Generation Science Standards connected to STEM (Science, Technology, Engineering, Math), to these individuals, and to students in our education system? This presentation will attempt to answer these questions, feature the activities that use NATURE to bring Common Core and STEM education into classrooms, and improve learning outcomes. A work in progress, always remembering: "Nature is trying very hard to make us succeed . . . " ~ Buckminster Fuller.

WHO

will keep your program thriving when you retire?

Send students who are interested in providing a unique educational experience through technology education to an institution that prepares technology educators. In the SUNY system that would be SUNY Oswego and SUNY Buffalo.

Park Hall Tour and Technology Program Update

Dan Tryon, Mark Hardy, Richard Bush, Joseph Messmer
Park Hall

Repeated from SESSION 4 & 5

Park Hall is very close to completion. It is still an active construction site so hard hats are required on this guided tour. Meet near the conference registration desk to begin the tour. As we walk the new spaces we will update you on the new courses offered in the department. Each tour group will be limited to 10 people, but three groups will tour the building simultaneously.

Techniques for Recording and Analyzing Posture and Gesture as a Means of Inferring Students' Emotional States

Matt Doyle, Roger Taylor
121 Wilber

Posture and gesture can infer an individual's emotional state. In this session, we will discuss our ongoing research using the Kinect motion sensing input device to record the skeletal data of students who are engaged in algebraic reasoning tasks. We will also demonstrate effective data visualization techniques that we have been using to analyze and interpret this type of complex spatio-temporal data.

Where do we go from here?
Teaching sustainability in our classrooms and beyond

James Juczak
B5 Wilber

As the seams of western culture seem to unravel around us—energy, climate change, social norms, water, economy— taking a rational approach to logical changes that will lead to permanent positive changes in the way we live is sustainable technology. Technology teachers have the greatest chance of passing this message onto students. Jim will outline and ask questions on how best to approach this topic. Following this presentation will be a discussion and brainstorming session to help develop the outline for a Sustainable Technology Training Site in Adams Center, NY.

PRESENTERS

AB

Mike Amante
Gregory Bailey
Graham Baughman
Judith Belt
Rick Bettencourt
Mario Bkassiny
Allen Bradberry
Sara Brodbeck
David Buchner
Richard Bush

C

Tyler Carman
Carson Case
Sarah Cerroni
Joseph Cesta
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William Depaolo
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Chuck Goodwin
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Marianne Hromalik

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James Juczak
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Chris Porten
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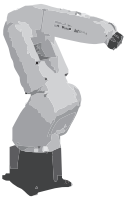

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Erica Querns
Joseph Lorefice

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Their presence and contributions help make our conference possible.
We thank then for their services, interest, and financial support.

We encourage all our conferees to patronize them.

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is held on the last Thursday and Friday of October each year with attendance of 350 – 450 from New York and other states. The program includes approximately fifty quality presentations and the participation of 20 – 25 supportive commercial exhibitors.

This year's theme is **STEM Engagement.**

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www.fallconference.com

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