The LARGEST New England conference dedicated specifically to engineering education this year!

>> Plenary speeches addressing:
Social Entrepreneurship
Experiential & Service-Learning

>> Conference Tracks:
Paper & Abstract Presentations
Interactive Panels & Unconference
Student Posters & Presentations

>> Workshops about:
Engineering pedagogy
Career strategy & market trends
New technologies and methods

Accepting abstracts for presentations and posters until March 23rd!
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Presentation and Student Poster Submissions
Abstracts for conference presentations and poster submissions are being accepted until March 23rd via http://www.uml.edu/conferences/ASEE-2012/registration.aspx. Authors will be notified of abstract acceptance by March 30th.

Conference Registration
The conference registration site is now live at http://asee2012northeast.eventbrite.com. Early registration is available until April 20th.

1 ADVANCE PROGRAM
Who Attends

Anyone involved with engineering education will benefit from attending ASEE Conference. The single largest regular conference devoted to engineering education in New England, the ASEE NE section conference provides forums and sessions for faculty, engineers, managers, and students to meet, discuss emerging trends in engineering, and advance the profession of engineering.

Top 5 Reasons to Attend This ASEE Conference

1. **Broaden Your Understanding of the Engineering Education** – Attend sessions different modalities of engineering education, and sharing unfiltered views from students, industry, and faculty. This is the place to gain exposure to developments and people in a leading area of engineering!

2. **Network** – Meet with fascinating, informed and creative colleagues from around the world to share insights from a broad range of disciplines and industries within engineering education.

3. **Visit With Keynote Speakers and Sponsors** – Gururaj ‘Desh’ Deshpande, PhD, PEng, the Founder and Chairman of Sycamore Networks, Inc. will be providing a keynote on Social Entrepreneurship while Prof. John Duffy will speak about best practices in Service-Learning.

4. **Try out the Unconference** – A participant-driven meeting where “there is no agenda until .. the attendees make one up.”

5. **Build New Skills** – The ASEE Conference is providing several high quality workshops in critical areas of engineering education including ABET program assessment, NSF Performamatics, Problem Based Learning, Cloud-Based Computing, Learning through Service, and others!
Preliminary Schedule at A Glance

The program schedule listed below is for planning purposes only and is subject to change pending review and availability. See Session Descriptions in final program for times and listings.

### Friday

<table>
<thead>
<tr>
<th>Time</th>
<th>Concord 1</th>
<th>Concord 2</th>
<th>Concord 3</th>
<th>Junior Ballroom</th>
<th>Hamilton 2</th>
<th>Hamilton 3</th>
<th>Lower Locks 1</th>
<th>Lower Locks 2</th>
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</thead>
<tbody>
<tr>
<td>8am</td>
<td>Registration Opens in Hotel Lobby – Perpetual Coffee in Lower Locks Lobby</td>
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<tr>
<td>9:30-10:50</td>
<td></td>
<td></td>
<td></td>
<td>Open for Setup</td>
<td>Student Papers I</td>
<td>Student Papers II</td>
<td>Forum on Innovation and Entrepreneurship</td>
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<tr>
<td>11:00-12:20</td>
<td></td>
<td>Problem Based Learning Workshop</td>
<td>Data Clouds Workshop</td>
<td>Student Posters I</td>
<td>Student Papers II</td>
<td>Student Papers IV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30-1:20</td>
<td>Lunch &amp; Poster Presentations in Junior Ballroom</td>
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<tr>
<td>1:30-2:50</td>
<td></td>
<td>Student Posters II</td>
<td>Student Papers V</td>
<td>Student Papers VI</td>
<td>Panel: Best Practices</td>
<td>Panel: Education Trends</td>
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<tr>
<td>3:00-4:50</td>
<td>Planning Meeting</td>
<td>Autodesk Workshop</td>
<td>Employer Panel</td>
<td>Network Shop</td>
<td>Network Shop</td>
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<td></td>
<td></td>
<td>Social Hour &amp; Student Awards in Main Ballroom Lobby</td>
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<td></td>
<td>Conference Banquet in Pawtucket/Middlesex Ballrooms</td>
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<td></td>
<td></td>
<td>Keynote &amp; Awards</td>
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<td>8</td>
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<td></td>
<td>Social Hour &amp; Adjourn</td>
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</tbody>
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### Saturday

<table>
<thead>
<tr>
<th>Time</th>
<th>Concord 1</th>
<th>Concord 2</th>
<th>Concord 3</th>
<th>Middlesex</th>
<th>Merrimack</th>
<th>Pawtucket 1</th>
<th>Pawtucket 2</th>
<th>Pawtucket 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30am</td>
<td>Registration Opens in Concord Lobby – Perpetual Continental Breakfast in Concord Lobby</td>
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<tr>
<td>8:00-8:50</td>
<td>Keynote: Prof. John Duffy on Service Learning in Middlesex Ballroom</td>
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<tr>
<td>2:00</td>
<td>Adjourn – Buses depart for tours</td>
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Keynotes

Friday, April 27 – Gururaj 'Desh' Deshpande
The Keynote Speaker at the Conference Banquet on Friday, April 27th, will be Gururaj 'Desh' Deshpande, PhD, PEng, the Founder and Chairman of Sycamore Networks.

Dr. Deshpande is also Chairman of Sparta Group LLC, A123 Systems (AONE), Tejas Networks and HiveFire. Prior to co-founding Sycamore Networks, Dr. Deshpande was founder and chairman of Cascade Communications Corp. Dr. Deshpande serves as a life-member of the MIT Corporation, and his generous donations have made possible MIT's Deshpande Center for Technological Innovation. He is also widely respected for his contributions to education and the greater community including establishing Deshpande Center for Social Entrepreneurship in India, the Merrimack Valley Sandbox in Lowell/Lawrence Massachusetts and the Pond-Deshpande Center at the University of New Brunswick in Canada.

Dr. Deshpande holds a B.Tech. in Electrical Engineering from the Indian Institute of Technology - Madras, an M.E. from the University of New Brunswick in Canada, and Ph.D from Queens University in Canada.

Saturday, April 28 – John Duffy
The Keynote Speaker at the Breakfast Session on Saturday, April 28th, will be Professor John Duffy. John is a Professor in the Mechanical Engineering Department, the Coordinator for the Solar Engineering Graduate Program, and the Director of the Center for Sustainable Energy at the University of Massachusetts Lowell. He has integrated service-learning into nine of his own engineering courses at the undergraduate and graduate level with local and international projects. Prof. Duffy has lead the effort to integrate service-learning into the entire curriculum of the college of engineering at UML and has worked with 35 faculty members in engineering and other disciplines to incorporate service-learning into more than 55 courses, partnered with many local community agencies. He also coordinates the Village Empowerment project which has had over 120 students design and install over 80 systems for communication, lighting, vaccine refrigeration, public health, and water supply and purification in remote areas of the Peruvian Andes.
Conference Venue
The UMass Lowell Inn & Conference Center (ICC) is Lowell’s only full service hotel featuring lodging, dining, and meeting & event space with a capacity of 750 attendees. Lodging at the Inn & Conference Center features 32 fully renovated, inn-style guestrooms with private patios overlooking the canals, as well as guestrooms offering two double beds or a single king-size bed. All of the ICC rooms feature in-suite amenities like cable TV, complimentary high speed internet, hair dryers, irons and ironing boards, as well as the use of our newly renovated fitness center. The ASEE conference rate for hotel lodging is $99, per night, plus taxes. Use group code ASEE to reserve online now at: https://booking.ihotelier.com/istay/istay.jsp?groupID=730480&hotelID=73933.

Parking
Parking is at the Lower Locks Parking Garage, 90 Warren Court, Lowell, MA 01852. The GPS coordinates for this location are (42.642625,-71.306065).

Event Rooms
REGISTER ONLINE AT www.uml.edu/conferences/ASEE-2012
Session Descriptions

See Awards Description on page 8 for award eligibility and selection processes.

Abstract Sessions
Abstract sessions include presentations made by professionals who have provided an appropriate one or two page extended abstract without submission of a peer-reviewed paper. All presentations in these abstract-only sessions will be eligible for the Conference’s Best Presentation Award.

Paper Sessions
Presentations made by professionals who have published a paper through the Conference’s peer-review process. All presentations in the regular peer-reviewed paper sessions are eligible for both the Conference’s Best Paper and Best Presentation Awards.

Student Paper Sessions
Presentations made by undergraduate and graduate students who have published a paper through the Conference’s peer-review process. All presented papers are eligible for the Conference’s Best Student Paper Award.

Student Poster Sessions
Presentations made by undergraduate and graduate students who have provided an appropriate one or two page extended abstract and printed poster. All poster presentations are eligible for the Conference’s Best Poster Award.

Panel Sessions
An interactive session in which panelists first offer a five minute position statement on a specific theme, after which audience participation is facilitated. Strong moderators are chosen to develop panels with opposing points of view and pose challenging and/or polarizing questions. Panel moderators are eligible for the Conference’s Best Presentation Award.

Unconference
A participant-driven meeting where (according to Foo and Bar Camp) "there is no agenda until .. the attendees make one up." To provide an initial focus, Unconference areas are defined according to discipline. At a minimum, the Unconference is a place to meet fellow participants and engage in discussion over coffee.

Workshops
An experience led by knowledgeable facilitators that encourages attendees to participate actively in order to gain actual practical experience in solving befuddling work related problems. Due to preparation and space limitations, workshop participants must register. See Workshop Descriptions beginning on page 9 for further information.
Awards Descriptions
The ASEE North East Section Conference Planning Committee is proud to offer the following awards with the generous support of our Sponsors.

Best Conference Paper
A $500 award made to the best peer-reviewed conference paper. The review criteria considered include originality, significance, technical quality, relevance, presentation, and overall impact. All papers rated by a jury of peers as good and/or honors are considered in a second round review by members of the North East Section Board. The best conference paper award will be presented at the Conference Banquet on April 27; the second and third place papers will be recognized at the Conference with Certificates.

Best Student Paper
A $500 award made to the best peer-reviewed conference paper authored by a student. The review criteria and process are identical to those of the Best Conference Paper. The best conference paper award will be presented at the Social Hour on April 27; the second and third place papers will be recognized at the Conference with Certificates.

Best Student Poster Presentation
A $500 award made to the best poster presentation. Competition placement will be based on a comparison of comments from at least four judges. As a result, the judges will spend time talking to the presenters, asking questions and listening to their descriptions of their project and contributions. The judges will be aware that the projects being presented may not have been completed at the time of competition. Accordingly, physical demonstrations will not be a component of judging.

The selection of the winning presentations will be based on:
- Clarity of poster and oral presentations
- Overall responses to the judges’ questions
- Completeness of work

The best student poster presentation award will be presented at the Social Hour on April 27; the second and third place papers will be recognized at the Conference with Certificates.

Best Conference Presentation
A $500 award made to the best conference presentation as determined by voting of the Conference attendees. Each conference attendee will receive two custom voting stickers for placement on the posted session listings (located near the registration table). The stickers are marked to identify and preclude conflicts of interest. The presentation or panel with the most votes wins the award. The best conference presentation award will be known at the close of the conference, with award and certificates sent by certified mail the week of April 30th.
Workshop Descriptions

**ABET Program Assessment Workshop – Thursday, April 26, 2012**

*Kathy Faggiani and James Warnock*

Develop your program assessment skills with this one-day workshop. Participants will broaden their understanding of the continuous quality improvement of student learning through the design of assessment processes, development of measurable learning outcomes, and application of data collection methods. These workshops will benefit faculty members participating in the development of assessment processes to support their efforts in the continuous improvement of student learning in any academic discipline; attendees are eligible for 7 professional development hours (PDHs). Workshops are facilitated by highly experienced faculty with wide-ranging experience in assessment and evaluation.

The cost of the Program Assessment Workshop is $395 and includes lunch and all materials. If you are attending an ABET event from outside of the United States and need documentation, ABET can provide you a [letter to assist with your visa application](mailto:letter-to-assist-with-your-visa-application).

**Workshop Outcomes:**

- Articulate your own program’s context
- Evaluate program educational objectives
- Develop performance indicators for student outcomes
- Identify appropriate assessment methods
- Develop components of a rubric
- Characterize efficient and effective assessment processes
- Critique approaches to reporting data

**Workshop Facilitators:**

Kathy S. Faggiani, Ph.D., MBA, is an ABET Senior IDEAL Scholar, Professor and Director of Continuing Studies and Outreach at the Milwaukee School of Engineering. Kathy holds a doctorate in Information Systems from the University of Colorado at Boulder and an MBA from the University of Wisconsin-Milwaukee. She is a member of ASEE, IEEE, and the ACM. Over the past 20 years, Kathy has assumed a variety of learning outcome and program assessment roles at the course, department, college, and university levels. She has also developed and delivered internal assessment training for faculty and departments and assisted in designing and implementing continuous improvement processes.

James Warnock, Ph.D., is an ABET Senior IDEAL Scholar and ABET's first Adjunct Educational Research and Assessment Director. He received his Ph.D. in chemical engineering from the University of Birmingham, UK. Currently, Warnock is an Associate Professor in the Department of Agricultural and Biological Engineering at Mississippi State University and serves as the Assessment and Accreditation Coordinator in the James W. Bagley College of Engineering. In this latter role, James has responsibility for coordinating the assessment activities of 10 engineering programs within eight departments.
NSF Performamatics Workshop on Interdisciplinary Teaching

Jesse M. Heines and Gena R. Greher of UMass Lowell

The UMass Lowell Depts. of Music and Computer Science are pleased to offer an interdisciplinary workshop on Computational Thinking through Computing and Music. This workshop is an outgrowth of our NSF-funded Performamatics project, an effort to foster Computational Thinking through Computing and Music. A major article on this work was featured in the December 2011 issue of IEEE Computer (www.computer.org/csdl/mags/co/2011/12/mco2011120025-abs.html), and further information on our project is available at www.performamatics.org.

The workshop is designed to be attended by interdisciplinary pairs of professors and teachers. Its purpose is to share our techniques and materials and to provide an environment in which other pairs of professors can work together to develop interdisciplinary relationships and materials of their own to use in courses at their “home” institutions. One of the pair should be from a science or engineering department and the other from a music or other arts department. The examples and activities we show from our own work will be music-based, but the workshop is really about interdisciplinary teaching in general at least as much as it is about the specific type of interdisciplinary teaching we do in our Sound Thinking course (soundthinking.uml.edu). Perhaps there is an English or Art professor who would be interested in working with you. You and your partner certainly need not be musicians.

During the workshop you will explore our work and develop assignments and materials targeted to your own courses at your own institutions. Other participants will try out and review materials that you develop, and you will likewise try out and review theirs. Sample activities include:

1. Creating compositions from digitized sounds,
2. Flowcharting songs,
3. Sequencing sounds algorithmically,
4. Coding songs as lists in such a way that they can be easily transposed, and
5. Prototyping physical interfaces for music making.

Workshop Learning Goals:

1. To explore possibilities for engaging, interdisciplinary activities within existing courses
2. To forge partnerships with professors interested in developing new interdisciplinary courses
3. To gain ideas for incorporating the engaging poser of music into technical courses

Workshop Take-aways:

1. Examples of music activities in technical courses
2. Ideas for adding interdisciplinary activities into one’s own courses
3. Knowledge of administrative roadblocks and strategies to overcome them
4. Awareness of new possibilities and applications to enliven courses that may have become stale
Problem Based Learning
William (Bill) Lucas of MIT

This two hour workshop will provide attendees with a basic understanding of the self-efficacy concept, provide a survey of its growing use in engineering education, present some tested measures of Design, Teamwork and other scales that are in active use, and provide an introduction to how participants can easily create their own scales for assessment. Time at the close of the workshop will be reserved for a detailed discussion of how interested participants might use self-efficacy in the coming year to demonstrate the effectiveness of courses and activities at their own universities and colleges.

An overview of the self-efficacy concept will present the basic theory of first what causes increased self-efficacy, explaining why it is particularly useful when assessing courses with experiential content, such as project-based learning or engineering problem solving. Then it will review the importance of self-efficacy as a predictor of subsequent student selection and persistence in engineering disciplines. Then there will be a presentation of the 11-point scales used in self-efficacy studies, and why it is important. Examples will be drawn from the Journal of Engineering Education demonstrating its growing use in our literature. Several examples will be distributed to workshop participants to exercise their understanding of best practice, and to understanding of compromises that might make required for some subjects.

Examples of self-efficacy scales in use at MIT and elsewhere will then be distributed to discuss how the scale items were selected, and the results of their use. While other instruments will be available, the discussion will concentrate on self-efficacy for engineering design and for working effectively in teams. Material will be available for measuring self-efficacy for entrepreneurship and innovation should that be requested. The last structured part of the workshop will describe the process of preparing one or more sets of self-efficacy scales for insertion in a questionnaire, and discuss the importance of inter-leaving scale items and maximum item length. Any remaining time will be spent answering questions and providing information about prior art in using self-efficacy for other subject areas of interest.

Workshop Learning Goals:
• To understand the theory of self-efficacy, its causes and effects, and when it is most useful in the assessment of engineering education
• To learn about the content and use of scales that have used successfully in engineering courses
• To acquaint attendees with ways to use simple industry practices to help with curriculum refresh efforts

Workshop Take-aways:
• A set of articles and associated scales on self-efficacy and engineering education (please bring a flash drive that can be loaded, or files can be sent later on request)

Professors teaching courses in these subjects may be interested in the workshop
• Anyone interested in assessing engineering education courses that involve some form of task performance or problem-solving,
Data, Storage, & Clouds

Mark Conway of NetApp Inc.

This interactive workshop will provide attendees with an understanding of some of the key shifts and trends in today’s enterprise computing. The implications of issues such as the “data explosion”, back-up and disaster recovery requirements, unstructured data, Big Data and storage-in-the-cloud services, and how they are driving the importance of storage in enterprise computing will be discussed. More importantly are the implications for today’s CS curricula and why faculty may want to consider adding storage related topics to their courses to better reflect today’s cloud-centric, storage-intensive, computing environments. There are a new set of technologies being adopted by industry – from virtualization & private clouds, to storage compression and de-duplication; with this rapid shift in the IT landscape, students need to be familiar with a new storage-infused vocabulary and set of skills.

NetApp, one of the leading storage and data management solution providers, has developed an Academic Alliances Program to partner with faculty members who are interested in infusing storage content into their course. Examples of storage “teaching modules” will be highlighted and shared with attendees. Other teaching resources – such as web-based training courses and a virtual simulator will be reviewed.

The session will include a syllabus review and discussion where faculty will work to identify areas in existing courses where a storage segment will fit.

Workshop Learning Goals:
- To familiarize participants with some of the major trends in IT and enterprise computing
- To spur a discussion regarding the implications for CS courses and education
- To acquaint attendees with industry resources to help with curriculum refresh efforts

Workshop Take-aways:
- Access to commercial web-based training resources
- Specific opportunities for professional development
- Pre-packed “teaching modules” to facilitate introducing more storage content
- A community of colleagues interested in sharing ideas and teaching resources

Professors teaching courses in these subjects may be interested in the workshop
- Distributed Computing
- Computer / Data Networks
- Introduction to Computer Systems
- Enterprise Storage
- Information Systems Security
- Cloud Computing
- Operating Systems
Learning Through Service
*Chris Swan of Tufts University*

During the summer of 2012, a series of workshops are scheduled about Learning Through Service (LTS) – a term used for various educational efforts that engage communities; whether the effort is curricular or extracurricular, or the community is local or global. These workshops will provide an exciting opportunity to learn about LTS from experienced practitioners, to meet others with the same mission, and to take practical, constructive steps in developing or refining your own LTS effort. The goal of these workshops will be to send attendees back to their home institutions equipped to put their vision of LTS into practice. The workshops are part of the Engineering Faculty Engagement in Learning Through Service (EFELTS) project funded by the NSF, with grants 1023022, 1022927, 1022883, 1022738, and 1022831.

This 2.5 hour workshop mirrors this upcoming series by engaging participants interested in designing, managing and assessing LTS initiatives in their own schools of engineering. The workshop will be highly interactive and practical in nature.

**Workshop Learning Goals:**
- To understand the essential principles of LTS and how it serves as the umbrella for numerous types of service
- To look at numerous examples of how LTS has been implemented, and review best practices in design, management and assessment of LTS
- To discuss common issues and implications for LTS in engineering and technology curricula

**Workshop Take-aways:**
- Aid in the development of a plan that includes design, management and assessment strategies and that makes sense for the participant, based on their interests and institution
- Knowledge, confidence, and competence to begin or expand efforts at their institution
- Strengthening of connections to other members of the workshop and a connection to the larger community of engineering LTS practitioners

**Workshops in Development**
- Strategic Career Development: Two parallel sessions provide students the opportunity to 1) interact with engineering and human resource professionals about early career strategies, and 2) learn about beginning and intermediate usage of LinkedIn and other networking sites.
- CAD/CAE/CAM: A 2.5 hour workshop about advanced computer aided design, engineering, and manufacturing.
Social and Area Events

Banquet
The conference banquet will be held on the evening of April 27th at the UMass Lowell Inn & Conference Center. The evening will begin with a social hour at 5pm and recognition of the student best paper and poster awards. The conference banquet will begin at 6pm and complete by 9pm. Attendees can select plated entrees including Herb & Parmesan Crusted Breast of Chicken, Roasted New England Cod & Lobster Ravioli, and Vegetarian Indian Cuisine.

Reserved Tours
Lowell is an historic city and has many attractions that may be of significant interest to engineering educators and their spouses:

- Lowell National Historic Park: Views of Lowell Trolley Tour - 2:30pm, Friday & Saturday, Free
- Lowell National Historic Park: Working the Water Canal Boat Tour - 11:00am, Saturday, $8.00
- UMass Lowell Spring Carnival - 10-5pm, Friday
- UMass Lowell Engineering Tour – departing 2:00pm, Saturday, Free

Other Area Attractions
The greater Lowell area has several other attractions that are distinctive to the area and do not require reservations:

- American Textile History Museum
- Boston & Maine Railroad Historical Society
- Brush with History Art Gallery and Studios
- Lowell Historical Society
- Lowell Spinners
- Merrimack Repertory Theater
- National Streetcar Museum at Lowell
- New England Quilt Museum
- Pollard Memorial Library
- Revolving Museum
- Tsongas Center at UMass Lowell
- Whistler House and Museum

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