



American Society for Engineering Education Industrial Engineering Division Newsletter

SPRING 2012

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This edition of the newsletter is devoted to the 2012 ASEE Annual Conference and Exposition to be held in San Antonio from June 10-13. As you will read, Lesley Strawderman has put together a diverse collection of seventeen papers in four sessions that will appeal to people teaching any topic in IE. If you haven't already registered for the conference, don't wait; registration fees go up on May 10. While you're registering for the conference, be certain to buy a ticket for the Tuesday dinner held jointly with the Engineering Economy, Engineering Management, and Systems Engineering Divisions. We'll see you in San Antonio!

MESSAGE FROM IED PRESIDENT

Hi! Hope you are in the midst of an exciting Spring semester! It is almost the end of my tenure as Division Chair. The last year has been quite productive for our division. Our last annual meeting in Vancouver, Canada, was well attended, but this year's meeting at San Antonio, TX, is set to break last year's record. We have made some changes in the selection of one award; the new IE Educator Outstanding Paper Award will henceforth be presented to a paper that appeared in the previous year's proceedings. The awards selection committee felt that this change in the schedule was needed because the value of a paper becomes more apparent after the research is presented at the conference. Also, some awards (Distinguished Service and the Lifetime Achievement Award) are not presented every year. But this year, we have the distinct pleasure of having selected Dr. Kim LaScola Needy, Professor and Chair of the Industrial Engineering Department at the University of Arkansas, for the Distinguished Service Award. Please join me in congratulating her for her outstanding service to this division over a time period spanning many years.

There are numerous individuals whom I wish to thank for helping me in this two-year journey that begins as Program Chair. I want to thank Dr. Lesley Strawderman at Mississippi State University for doing an outstanding job as the Program Chair this year. She is the incoming Division Chair for the coming year. I also want to thank Dr. Rick Olson at University of San Diego for doing a terrific job with our newsletter of which this is only the

second issue. Dr. Lawrence Whitman at Wichita State University has served as our [website](#) manager; please join me in thanking him for working in this capacity for the last several years! Finally, I want to thank all our senior members, Drs. Jane Fraser (Colorado State University-Pueblo), Terri Lynch-Caris (Kettering University), Lawrence Whitman (Wichita State University), and Kim LaScola Needy (University of Arkansas), for their free advice through the last couple of years that has been of enormous help.

I am looking forward to attending some really exciting sessions sponsored by our IE Division for San Antonio meeting. Our regular joint dinner (and awards ceremony) with the Engineering Economy and Engineering Management Divisions is scheduled for the Tuesday, as usual, and is a great opportunity to get to know members of other related closely divisions within ASEE. Also, please don't forget to attend our Division Mixer, which will be a new event in this year's annual meeting replacing the picnic. Many of us will personally be at the table for this event, and I am getting some special St. Louis candy for the occasion!

Best wishes,
Abhijit Gosavi
Division Chair - ASEE-IED

MARK YOUR CALENDAR

It's never too late to think ahead to future opportunities to submit your best pedagogic work to conferences featuring engineering education and industrial engineering. If you aren't able to attend an ASEE Annual Conference, you should consider presenting at the IERC or FIE conferences, or a regional ASEE conference. Plan ahead this summer so you aren't rushed as the deadlines approach.

CONFERENCES

5/19-5/23/2012	2012 IIE Annual Conference/ISERC Conference – Orlando, FL
6/10-6/13/2012	2012 ASEE Annual Conference – San Antonio, TX
10/3-10/6/2012	2012 IEEE Frontiers in Education Conference (FIE) – Seattle, WA
5/18-5/23/2014	2013 IIE Annual Conference/ISERC Conference – San Juan, PR
6/23-6/26/2013	2013 ASEE Annual Conference – Atlanta, GA
10/23-10/26/2013	2013 IEEE Frontiers in Education Conference (FIE) – Oklahoma City, OK

ABSTRACT DEADLINES

9/4-10/9/2012	2013 ASEE Conference Abstract Submission Period (Dates Approximate)
11/16/2012	2013 ISERC Abstract Deadline (Date Approximate)
1/31/2013	2013 Frontiers in Education Conference Abstract Submission Deadline

IED 2011 ANNUAL CONFERENCE TECHNICAL SESSIONS

Thanks to robust attendance at recent conferences, a strong portfolio of paper submissions, and the hard work of Program Chair Lesley Strawderman and her dedicated reviewers, the IED is the lead sponsor of **four** sessions at the 2012 Annual Conference. Seventeen papers will be presented in these sessions on topics ranging from study abroad, to biomimickry, to using games in the classroom. The papers and authors are identified below along with an abbreviated version of the original abstracts. Use this as a starting point to plan a conference program that will give you new ideas for your courses and suggestions that you can share with your colleagues. If you aren't able to attend the conference, be sure to look for these papers on the ASEE Proceedings web site.

Session W142: Technology and Equipment to Improve IE Instruction

Wed. June 13, 2012 7:00 AM to 8:30 AM

Grand Hyatt San Antonio, Bonham E

Assessing the Viability of Bench Top Versus Full Scale Industrial Lathes to Teach Fundamental Machining Concepts, Dr. Dave Yearwood (University of North Dakota) and Dr. Alex Johnson (University of North Dakota)

Abbreviated Abstract: Doing more with less has become the mantra of leaders at the national, regional, and local levels but how to accomplish this presents a dilemma for academicians at all levels. Manufacturing programs typically require large spaces in buildings, and are costly to operate and maintain. Two issues were examined in a recent study: 1. To ascertain the extent to which less costly bench-top metal lathes can be used as viable alternatives in provide students with an understanding about the design and creation of manufactured items and 2. Determine the levels of acceptance by faculty and industry about the use of smaller lathes as viable alternatives to their industrial size cousins.

This Videogame Is Just Like My Plant!, Dr. Leonardo Rivera (Universidad Icesi), Mr. Andrés López (Universidad Icesi), and Mr. Andrés Calderón (Universidad Icesi)

Abbreviated Abstract: This paper presents a learning experience that was developed using the commercial videogame *Rise of Nations* for a graduate course on Manufacturing and Operations Strategy. This paper explains the objectives of the use of the game in the class, the regulations and learning guides that were employed, the experiences the students lived, the main points the students take away from the use of the game and other experiences that take place in the class in addition to the delivery of contents and development of skills.

Impact of an Updated Robotics Laboratory in an Industrial Engineering Program, Dr. Richard A. Pitts Jr. (Morgan State University)

Abbreviated Abstract: An updated Industrial Robotics and Automated Manufacturing (IRAM) laboratory was developed. Utilizing this newly updated laboratory, students are now able to use modern equipment within a set of courses specifically designed around the facility. The integration of these courses with a hands-on laboratory approach into the IE undergraduate curriculum allows students to get a new and innovative type of training and preparation for the engineering workforce, and to strengthen it through increased awareness in learning how to use robotic-related software to model systems. The number of under-represented students who graduate with this new background has increased in the IE department at MSU. In addition, the readiness of these engineering students entering into graduate research programs and the engineering workforce has also increased.

Teaching Control Charts for Attributes using the Mouse Factory, Teaching Control Charts for Attributes using the Mouse Factory Dr. Douglas H Timmer (University of Texas, Pan American), Dr. Miguel Gonzalez (University of Texas-Pan American), Dr. Connie M Borrer (Arizona State University West), and Prof. Douglas C Montgomery (Arizona State University)

Abbreviated Abstract: This paper will present teaching control charts for attributes using the Mouse Factory - a set of web-based, active learning modules for teaching statistical quality control. This approach typically focuses on the knowledge and application domains of Bloom's Taxonomy. By using the Mouse Factory, students must select the most appropriate improvement project to undertake, design a sampling plan, implement a control chart and evaluate the effectiveness of the implement control chart. Assessment of student behavior and attitudes will be discussed and evaluated.

Session W242: Student Development and Assessment in IE Programs

Wed. June 13, 2012 8:45 AM to 10:15 AM

Grand Hyatt San Antonio, Bonham E

Raising the Level of Participation in Study Abroad by Industrial Engineering Undergraduate Students Dr. Kim LaScola Needy (University of Arkansas), Dr. Edward A. Pohl (University of Arkansas), and Mr. Eric Specking (University of Arkansas)

Abbreviated Abstract: This paper discusses the development of a survey administered to undergraduate Industrial Engineering at the University of Arkansas to determine why more students do not study abroad. The survey examines why students choose not to study abroad, funding levels needed to study abroad, and where students want to study abroad. Results from this survey indicate that students are highly interested in studying abroad, but that the primary reason that they do not engage in this experience is a shortage of finances. Strategies are discussed to raise the level of participation in study abroad by Industrial Engineering students.

Highly Relevant and Productive Collaborations between Industries and Universities Dr. Mahesh C Aggarwal (Gannon University) and Dr. Karinna M Vernaza (Gannon University)

Abbreviated Abstract: Gannon University has established programs in collaboration with local industry that have proven to achieve the following objectives: (1) establish an academia-industry collaborative graduate program and a Graduate Research Program, (2) demonstrate the effectiveness of programs as a strategy to build up a talent pool of engineering professionals, and (3) extend the pipeline for engineering professionals who enter existing leadership programs at local industries. This paper presents general models by which universities approach these and other types of collaborations. The paper describes the successful methods that have been employed by Gannon University and will explore other methods that can be implemented or adapted in different institutions.

Assessment of TQM in the 21st Century Dr. Mysore Narayanan (Miami University)

Abbreviated Abstract: Total Quality Management is an idea that is based on existing philosophies and techniques. Total quality management is an approach in which all the company's people are involved in constantly improving the quality of products, services, and business processes. Total quality management is a tool that can help a company achieve total customer satisfaction through better quality products. Although the idea of total quality management is new, the basic principles have been used for centuries. This paper explores the possibilities of incorporating these principles *judiciously* in to the classroom activities. In this presentation, the author discusses how to assess the benefits of TQM in a classroom environment. He also provides an example and discusses the results and the implications.

Assessment of Student Performances in Operations Research Class Delivered by an Innovative Approach Mr. Yaseen Mahmud (Morgan State University) and Dr. Masud Salimian (Morgan State University)

No Abstract available.

Biomimicry Innovation as a Tool for Design Dr. Terri M. Lynch-Caris (Kettering University), Dr. Jonathan Weaver (University of Detroit Mercy), and Dr. Darrell K. Kleinke (University of Detroit Mercy)

Abbreviated Abstract: A modified form of Problem-Based Learning (PBL) was employed to apply the ideas of innovation and biomimicry to ergonomics problems. This Biomimicry Innovation Tool (BIT) begins with a focus on nature's laws as a starting point to design and allows students to uncover evidence that will enable the useful application of the laws of nature to solve a technical ergonomics design problem. The BIT blends aspects of problem based learning, innovation, biomimicry, and ergonomics into a single student experience. Using a step-by-step approach, students formed an idea that evolved into a solution. A grading rubric allowed the professor to fairly and objectively evaluate the final presentations.

Session W542: Innovations in the IE Curriculum

Wed. June 13, 2012 2:15 PM to 3:45 PM

Grand Hyatt San Antonio, Bonham E

A Review of Capstone Course Designs Used in Industrial Engineering Programs

Dr. Denise H Bauer (University of Idaho, Moscow), Dr. Jessica L. Heier Stamm (Kansas State University), and Dr. Lesley Strawderman (Mississippi State University)

Abbreviated Abstract: In capstone courses, seniors are able to use the knowledge gained throughout their studies to analyze a design problem. The capstone course is critical in ensuring that students have the requisite knowledge and can integrate it effectively before embarking into the field as engineering professionals. The course also serves as an important benchmarking tool for engineering programs to ensure they are meeting program outcomes. The design experience students complete have the potential to influence their career trajectory, satisfaction with the academic program, and self-efficacy. The challenge then becomes determining the best capstone model to maximize this potential. A comprehensive understanding of various capstone course models will help determine if there is one best model or if it may depend on characteristics of the program such as geographic location, student body size, and faculty size.

Systems engineering education in the US: textbooks and programs

Dr. Jane M. Fraser (Colorado State University-Pueblo) and Dr. Abhijit Gosavi (Missouri University of Science & Technology)

Abbreviated Abstract: This paper examines the topics covered in textbooks in systems engineering and the topics taught in MS in Systems Engineering programs in the US and elsewhere. We take a fresh look at the textbooks on systems engineering and the similarities and differences in the topics covered in them. We investigate in particular answers to the following questions. How many of books that provide an overview of systems engineering cover these topics? We will also present an analysis of how these topics are related to the overall philosophy of systems engineering. We also analyze the content of Master's degree programs in systems engineering, primarily in the US, that offer degrees with the word —systems in the title. We use these findings to support conclusions about the nature of systems engineering education and to make recommendations to industrial engineering programs about the appropriate education in this area for industrial engineering students at the undergraduate and graduate levels.

A Multi-Disciplinary and Multi-Institutional Approach to Prepare Industrial Engineers to Respond to Future Energy Challenges

Dr. Heidi A. Taboada (University of Texas at El Paso) and Dr. Jose F. Espiritu (University of Texas, El Paso)

Abbreviated Abstract: This paper introduces the BGREEN (BuildinG a Regional Energy and Educational Network) project and shows how industrial engineers at the different participating institutions will benefit. BGREEN is a multi-disciplinary project that promotes collaboration among different universities, colleges, departments and a federal agency, the United States Department of Agriculture. It has been found that multi-disciplinary approaches to research and education are essential to understanding and resolving complex environmental and social issues. Through BGREEN, students will experience that most real problems are not defined within a single domain but they cross disciplines. This paper highlights the education component of BGREEN and shows how industrial engineering departments can broaden and strengthen their research areas through the type of multi-disciplinary research performed under this project. The paper also shows how the BGREEN model can be easily replicated at other institutions.

Integrating Project Management, Lean-Six Sigma, and Assessment in an Industrial Engineering Capstone Course

Dr. Ana Vila-Parrish (North Carolina State University) and Dr. Dianne Raubenheimer (Meredith College)

Abbreviated Abstract: The ability to effectively manage large, complex projects is a skill required of most engineers. Industry sponsored capstone project experiences require students to communicate, deconstruct a large project into pieces, and manage risk and uncertainty. In this paper, we discuss a pilot study that evaluates how a structured framework of project management, affects the problem solving process throughout the project life cycle. Specifically we develop an approach that integrates project management methods and tools with Lean-Six

Sigma methods. An additional objective of this research is to develop a better understanding of the unique aspects of the engineering problem solving process. We assessed the student's problem solving strategies, products, and design process reflections using Wolcott's "Steps for Better Thinking" rubric.

Session W642: Improving IE Course Content

Wed. June 13, 2012 4:00 PM to 5:30 PM

Grand Hyatt San Antonio, Bonham E

Redesigning a Lean Simulation Game for More Flexibility and Higher Efficiency

Dr. Hung-da Wan (University of Texas, San Antonio), Miss Yi-Ching Liao (The University of Texas at San Antonio), and Dr. Glenn Kuriger (University of Texas at San Antonio)

Abbreviated Abstract: As more companies and organizations embrace Lean, effective training and educational programs are in high demand, both in industry and academic programs. In this paper, an existing lean simulation game designed for office operations is investigated for improvement. Using Six Sigma's DMADV methodology, several problems and limitations of the game have been identified and categorized into Flexibility, Efficiency, Effectiveness, and Cost issues. Through cause and effect analysis and several experiments, a revision of the simulation game is proposed with a higher level of modularity and improved standardization and visual aids. The redesigned game is able to accommodate a wider range of number of participants, and it can be set up and implemented with less effort.

An Exercise for Improving the Modeling Abilities of Students in an Operations Research Course

Dr. Leonardo Bedoya-Valencia (Colorado State University - Pueblo) and Prof. Nebojsa I Jaksic (Colorado State University - Pueblo)

Abbreviated Abstract: An exercise for improving skills of Operations Research (OR) students in formulating optimization problems is developed and implemented. The pilot experiment, as described by Chelst and Edwards (2005), is called the Lego® furniture. In this experiment, a furniture company has two types of resources available: small and large pieces; and produces two types of products: tables and chairs. Industrial Engineering students at the bachelor and master level were given the Lego® furniture problem to formulate as an optimization problem defined by the decision variables, the objective function, and a set of constraints. The exercise is intended to produce formulation-of-the-problem attitude among the students. The results presented in this work show an improvement in student modeling abilities as well as high student satisfaction with the described experiment. Both master and bachelor level students showed an improvement in their modeling abilities.

Sustainable Industrial Engineering Modules

Prof. Victoria C. P. Chen (The University of Texas at Arlington), Dr. K.J. Rogers (UT-Arlington), Mrs. Andrea M Graham (UT-Arlington), John F Dickson (UT-Arlington), Prof. Stephen Mattingly (UT-Arlington), Dr. Melanie L. Sattler (UT-Arlington), and Dr. Yvette Pearson Weatherton (UT-Arlington)

Abbreviated Abstract: *Engineering Sustainable Engineers*, a program sponsored by National Science Foundation, was designed to improve undergraduate student knowledge of and competency in addressing sustainability issues in engineering design and problem solving. The program involves collaboration among faculty in Civil, Industrial, and Mechanical Engineering at the University of Texas at Arlington. One of the key program elements is development and implementation of 12 sustainability modules for implementation in 17 undergraduate engineering courses. Six of these modules were implemented in Industrial Engineering Courses. Each module includes objectives, PowerPoint lecture slides, discussion questions, homework problems, and assessment questions. This paper will provide more information about the specific topics covered in each module, module implementation, and assessment results.

A Metric-Based, Hands-On Quality and Productivity Improvement Simulation Involving Lean and Sigma Concepts For First-Year Engineering Lab Students

Dr. Yosef S. Allam (Embry-Riddle Aeronautical Univ., Daytona Beach), Dr. Scott Sink (Ohio State University), Mr. Joseph M. Cerrato (Ohio State University), and Dr. John A Merrill (Ohio State University)

Abbreviated Abstract: A new hands-on quality and productivity lab involving lean and six sigma concepts for first-year engineering students was created. The quality and productivity lab is approached in three phases. First, students are presented introductory material in the regular (non-lab) class period. At the start of the lab period, the second phase of the quality and productivity hands-on lab, students immediately assume their roles in one of two competing value-adding organizations or as the organizations' customers. The mock organizations produce a real product with six variants. Students are then left on their own to cooperatively deliberate, problem solve, and reorganize their production systems to achieve profitability using the terms, concepts, and analytical approaches they have gleaned. In the third phase of the quality and productivity lab, students complete a team technical writing assignment to report the results of the lab and discuss further improvements.

SPECIAL CONFERENCE EVENTS FOR IED MEMBERS

These special events offer opportunities to meet with members of the division away from the technical sessions so you can talk about your ideas in less formal settings. Come to these events to meet old friends, meet new colleagues and share your impressions of the conference. These events are spread out throughout the week, so everyone can attend at least one of these events. Of course, we hope to see you at all three!

ASEE Division Mixer

Sunday, June 10, 4:30pm – 6:00pm

Henry B. Gonzalez Convention Center, Ballroom C

The *Division Mixer* is a new event providing a networking opportunity that encourages conference attendees to meet with members of the ASEE divisions in an informal setting with light refreshments. Officers from the IE Division will be staffing a table where they will be distributing session “bookmarks” that summarize all of the IED sessions and activities. Please come by and say hello, learn about the division and tell us how we can make membership more valuable to you!

Joint Dinner with EMD, IED, EED, SED (Ticketed Event)

Tuesday, June 12, 7:00pm-9:00pm

Rio Rio Cantina

This annual dinner is held along with the *Engineering Management, Engineering Economy, and Systems Engineering* divisions. This year we will enjoy California Tex-Mex cuisine along with the company of members of all four divisions. Awards from all four divisions are presented at the dinner, so be sure to attend and share in the success of your colleagues and friends. It's a perfect way to wind down from the first days of the conference and charge your batteries for the IED sessions on Wednesday. This ticketed event costs \$55 with advanced registration and \$65 dollars on-site. Register now and apply the savings to margaritas.

Industrial Engineering Division Business Meeting

Wednesday, June 13, 12:30pm-2:00pm

Henry B. Gonzalez Convention Center , 006B

The annual business meeting of the IED always takes place on Wednesday afternoon. Division officers will be there, but it isn't just for officers. The IED sessions at the 2013 ASEE Conference will be influenced by the ideas you bring to this meeting, so plan on attending this session and helping to make the division even more effective. Oh, yes-- the lunch is free.

ENGINEERING ECONOMY DIVISION SESSIONS

Many IED members are also active in the Engineering Economy Division. The EED is the primary sponsor of these sessions, most of which the IED also co-sponsors. This summary of the papers presented in each session will help you to decide where you want to be on Monday.

Session M130: Instructional Design in Engineering Economics

Mon. June 11, 2012 7:00 AM to 8:30 AM

Henry B. Gonzalez Convention Center, 204B

1. ***Integrating Innovative Pedagogies into Engineering Economics Courses*** Dr. Naveen Seth and Prof. Donald P. O'Keefe
2. ***"Life Cycle Sustainability Economics" Module*** Dr. K.J. Rogers, Dr. Melanie L. Sattler, Mrs. Andrea M Graham, and Prof. Stephen Mattingly
3. ***Quo Vadis, Engineering Economics*** Dr. John H. Ristroph

M430: Engineering Economy Bus Mtg

Mon. June 11, 2012 12:30 PM to 2:00 PM

Henry B. Gonzalez Convention Center , 006A

Session M530: Integrating Research into the Engineering Economics Classroom

Mon. June 11, 2012 2:15 PM to 3:45 PM

Grand Hyatt San Antonio, Bonham E

1. ***Hybrid Delivery of Engineering Economy to Large Classes*** Kellie Grasman, Dr. Suzanna, and Sean Michael Schmidt
2. ***Does the use of Clickers Increase Conceptual Understanding in the Engineering Economy Classroom?*** Dr. Karen M. Bursic
3. ***Measuring the Effect of On-Line Homework Procedures on Student Exam Performance*** Alison M. Knight, Dr. Gillian M. Nicholls, and Dr. Paul J Componation

Session M630: Methods, Cases and Directions

Mon. June 11, 2012 4:30 PM to 6:00 PM

Grand Hyatt San Antonio, Presidio A

1. ***When to Start Collecting Social Security: Designing a Case Study*** Dr. Ted Eschenbach P.E, Dr. Neal A., and Miss Yiran Zhang
2. ***Incorporating and Assessing Risk Analysis in Undergraduate Engineering Economy Courses*** Dr. Joseph C. Hartman
3. ***A nanotechnology module within the current course in engineering economy*** Dr. Bidhan C Roy, Dr. Osama M. Jadaan, and Mitchell Dean Cornelius
4. ***Instructor's Perspectives of Transforming a Traditional Engineering Economics Course into a Fully Online Delivery*** Ms. Pil-Won On and Dr. Luis Occena

ENGINEERING MANAGEMENT DIVISION SESSIONS

Many IED members are also active in the Engineering Management Division. The EMD is the primary sponsor of these sessions, most of which the IED also co-sponsors. These sessions all take place on Tuesday.

Session T134: Assessment and Accreditation in Engineering Management

Tue. June 12, 2012 7:00 AM to 8:30 AM

Grand Hyatt San Antonio, Presidio A

1. **Education Approach in Japan for Management and Engineering of Systems** Prof. David S. Cochran and Prof. Makoto Kawada
2. **Engineering management within an undergraduate Bachelor of Engineering (honours) programme** Dr. Maxwell Reid
3. **Integrating Student Projects Through the Use of Simulation Tools Across Logistics Engineering Curriculum** Dr. Pawel Pawlewski and Dr. Zbigniew J Pasek
4. **Undergraduate Curricula in ABET-EAC Engineering Management Programs: With an International Touch** Dr. Amy K. Zander

Session T234: Pedagogical Advancements in Engineering Management

Tue. June 12, 2012 8:45 AM to 10:15 AM

Grand Hyatt San Antonio, Presidio A

1. **Proposing a Framework for Restructuring an Introductory Engineering Management Course for Undergraduates** Dr. Kathryn D. Abel and Dr. Anirban Ganguly
2. **Teaching Creative Thinking Using Problem-Based Learning** Prof. Ralph Ocon
3. **Assessment of Discovery Approach** Dr. Mysore Narayanan
4. **Application of Case Studies to Engineering Management and Systems Engineering Education** Dr. S. Jimmy Gandhi, Dr. Brian Sauser, Dr. Brian Emery White, Dr. Alex Gorod, and Prof. Vernon Ireland

Session T534A: EMD Business Meeting

Tue. June 12, 2012 2:15 PM to 3:45 PM

Henry B. Gonzalez Convention Center , 007C

Session T634: Engineering Management Applications

Tue. June 12, 2012 4:00 PM to 5:30 PM

Grand Hyatt San Antonio, Bonham E

1. **An Engineering Management Investigation of Human Capital Needs** Dr. Craig G Downing
2. **Analysis and Development of a Model for the Causes of Cost and Time Overruns in Engineering Projects** Dr. Syed Athar Masood P.E.
3. **The Importance of Understanding Systemic Risk in Engineering Management Education** Dr. S. Jimmy Gandhi and Dr. Alex Gorod
4. **Embedding Leadership Topics in the Engineering Curriculum** Dr. Gene Dixon

SYSTEMS ENGINEERING DIVISION SESSIONS

The SED is the primary sponsor sessions scattered throughout the conference. These sessions offer something for everyone interested in systems engineering education at the undergraduate, or graduate level.

Session M465: PMI/INCOSE Panel–The Project Management and Systems Engineering Education Imperative

Mon. June 11, 2012 12:30 PM to 2:00 PM

Grand Hyatt San Antonio, Bonham D

Moderated by: Dr. Pradeep K. Khosla and Dr. Rafic Bachnak P.E.

Panelists: Pat Hale, Dr. Peter L. Jackson, Michael Pennotti, Prof. Brian E Gilchrist

Session M565: Capstone Design Projects and Courses

Mon. June 11, 2012 2:15 PM to 3:45 PM

Grand Hyatt San Antonio, Presidio A

1. **Implementation of a Multi-Disciplinary Systems Engineering Capstone Design Course at Three Puerto Rican Universities** Dr. Michele, Dr. John K. Gershenson, Prof. Amilcar Alejandro Rincon-Charris, Dr. Carlos A. Alvarado, and Dr. Jose A Rojas
2. **Introducing Systems Engineering Concepts in a Senior Capstone Design Course** Dr. Michael W. Prairie and Prof. Ronald Lessard Using a Systems Engineering Approach for Students to Design & Build Laboratory Equipment Dr. Tim L Brower
3. **A Systems Engineering Capstone Course That Makes A Difference** Dr. Benito Flores

Session T265: Systems Engineering Curriculum and Programs

Tue. June 12, 2012 8:45 AM to 10:15 AM

Grand Hyatt San Antonio, Bonham E

1. **A Review of Non-Tenure-Track Full Time Faculty at Systems Centric Systems Engineering (SCSE) Programs** Kahina Lasfer and Dr. Arthur Pyster
2. **Introducing Engineering Systems to First- and Second-Year Students through Project-Based Learning** Ms. Regina Ruby Clewlow, Dr. Afreen Siddiqi, and Prof. Joseph M. Sussman
3. **Defining the Core Body of Knowledge (CorBoK) for a Graduate Program in Systems Engineering: A Work in Progress** Dr. Alice F Squires, Dr. Timothy L.J. Ferris, Dr. Joseph J Ekstrom, Ms. Mary D. VanLeer, and Mr. Garry Roedler
4. **Systems Engineering Classes can be Fun – What Faculty can do to keep Students Engaged?** Dr. Adeel Khalid

Session T665: Systems Engineering Division Business Meeting

Tue. June 12, 2012 4:00 PM to 5:30 PM

Henry B. Gonzalez Convention Center , 006A

Session W465: Systems Engineering Education and K-12

Wed. June 13, 2012 12:30 PM to 2:00 PM

Grand Hyatt San Antonio, Bowie B

1. **Got Risk? The Role of Risk Analysis in High School Education** Ms. Eva Andrijic
2. **System Engineering Competency: The Missing Course in Engineering Education** Mr. Charles S. Wasson
3. **Development of a Virtual Teaching Assistant System Applying Agile Methodology** Dr. Pablo Biswas, Dr. Runchang Lin, Mr. Ramesh Hanumanthgari, and Miss Sri Bala Vojjala
4. **Systems Engineering Education through Participation in Engineering Competitions** Dr. Fernando Garcia Gonzalez
5. **ECE/SYS Integration: A Strategy for Evaluating Graduates from a Multi-year Curriculum focused on Technology Systems Integration** Prof. Reid Bailey, Prof. Joanne Bechta Dugan, Ms. Alexandra Emelina Coso, and Matthew E McFarland

IED AWARD CRITERIA

The division offers four awards to recognize excellent papers presented at the ASEE Annual Conference and acknowledge outstanding service on behalf of the division. Please be aware of the paper awards as you review submissions for the Annual Conference, and note the qualifications for the Outstanding Service and Lifetime Achievement award so that you can nominate your well-qualified colleagues.

Best Paper Award

The purpose of this award is to encourage and recognize industrial engineering educators for the preparation and presentation of outstanding papers at sessions sponsored by the IE Division during the ASEE Annual Conference. The award consists of a plaque of recognition for first place, and a letter of recognition for second.

Qualifications and Eligibility Requirements: To be eligible, papers should be presented at sessions sponsored by the IE Division and be accepted for publication in the conference proceedings. Selection among individual or team nominees will be primarily based upon the quality of the written paper and its relevance to IE education.

Nominations: Announcement of the award competition will be included in the call for papers for the IE Division. Papers eligible for this award must be peer reviewed and recommendations for consideration be submitted by reviewers or review coordinator (Program Chair). Special Nomination Instructions: The Award Selection Committee will select an award winner and a runner-up. The award winner will be automatically nominated for competition for PIC I Best Paper Award. In the event that the IE Division nominee shall receive the PIC I Award, the runner-up would be selected for the IE Best Paper Award.

New Industrial Engineering Educator Outstanding Paper Award

The purpose of the award is to encourage and recognize new industrial engineering educators for the preparation and presentation of outstanding papers at sessions sponsored by the IE Division during the ASEE Annual Conference. The recipient will be awarded \$250 per author up to \$500 per paper. Senior faculty are eligible for the award as co-authors, but not for the monetary award. The award also includes a plaque of recognition.

Qualifications and Eligibility Requirements: Papers should be submitted and presented by tenure-track faculty or faculty having less than seven years of full-time teaching experience. The paper should be presented at a session organized by the IE Division, and be accepted for publication in the conference proceedings. Selection among individual or team nominees will be primarily based upon the quality of the written paper and its relevance to IE education.

Nominations: Announcement of the award will be included in the call for papers for the IE Division. Questions regarding eligibility will be sent to any author whose abstract is accepted for presentation during the ASEE conference. Papers eligible for this award must be peer reviewed and recommendations for consideration be submitted by reviewers or review coordinator (Program Chair).

Distinguished Service Award

This award recognizes exemplary service to the Industrial Engineering Division and is presented to a member of the division who has provided significant service to the division. The award consists of an engraved plaque and can be received only once by any individual.

Award Criteria: While service as an officer in the division will be a common trait of recipients of this award, it is not routinely awarded to outgoing officers. Selection for this award will be based on:

- Current and continuing active membership in the Industrial Engineering Division. Exemplars of this would include (1) presenting papers at the annual conference, (2) attendance at the annual business meeting, and (3) participation in the annual banquet at the annual conference.
- Exemplary service to the Industrial Engineering Division over an extended period of time. Service to the

division, both before and after service as an officer in the division, is required. Exemplars would be (1) service elsewhere in ASEE as a representative of the division, and/or (2) service to the division directly or indirectly.

Lifetime Achievement Award

This award recognizes an outstanding industrial engineering educator in recognition of the educator's contributions to the profession. The award, which recognizes lifetime achievement in industrial engineering education, is presented annually to an individual who has made significant contributions over an extended period of time to the discipline and the division, and who exemplifies the highest standards of the professorate in industrial engineering. The award consists of a suitably engraved plaque presented at the annual Joint IE/EMD/EED Division Dinner. The award can be received only once by any individual.

Award Criteria:

Current or past membership in the industrial engineering professorate, which is defined for this award as teaching in a university program that offers one or more degrees in industrial engineering.

- Exemplary service to the industrial engineering discipline. Exemplars would be (1) service as a chair, head, or program director of a major industrial engineering program; (2) service as editor, associate editor, reviewer of a peer-reviewed publication in the discipline; or (3) a national reputation for promoting the academic discipline of industrial engineering.
- Exemplary service to the Industrial Engineering Division of ASEE. Exemplars would be (1) service in a leadership role in ASEE or the Division, (2) active support of Division programs and initiatives, (3) service to the professorate in industrial engineering, and/or (4) service to the students in industrial engineering programs.
- A national reputation in industrial engineering through service to the practice of industrial engineering. Exemplars of this would be (1) membership and office in a relevant industrial engineering professional organization, (2) a publication record promoting industrial engineering practice, or (3) other service to industrial engineering practitioners.

HOW CAN YOU HELP THE IED?

As is the case with every Division in ASEE, the success of the IED depends on the participation of its members. We are hoping you can help us to achieve these goals in specific ways. If you'd like to help, or have ideas on how the IED can help you, talk to one of the officers at the *Division Mixer* at the conference or one of the technical sessions in San Antonio, or send a message to an officer. Contact information is at the end of the newsletter.

- Make certain you renew your IED membership.
The Division's goal is to increase IED membership to at least 260 members by the 2012 Conference. As you renew your ASEE membership this year, make certain that you check the box for the IED. The nominal dues provide the money needed to appropriately recognize the award recipients, but even more importantly, your membership in the IED sends a signal to ASEE that the Division is important and deserving of continuing to receive four technical paper sessions at the conference.
- Make a special effort to encourage your colleagues to join ASEE, and the IED.
- Submit a paper to the Annual Conference
High quality submissions means high quality sessions, and a more valuable conference for everyone. Plan on submitting a paper to the next ASEE conference.
- Volunteer to review abstracts and papers submitted to the IED.
Everyone appreciates a thorough review of the papers they submit. Those reviews have to start somewhere. By offering a few hours of your time, you'll help to improve the quality of the IED program even if you aren't able to attend the conference.
- Identify a deserving recipient for IED awards.
Outstanding papers don't receive the recognition they deserve unless the reviewers are aware of the awards, and then identify the best papers for the awards. When reviewing papers, keep an eye out for outstanding work. At the same time, review the criteria for the Distinguished Service and Lifetime Achievement awards. If you can identify deserving colleagues, please tell the Division leadership.
- Attend IED sessions at the Annual Conference, and rate the sessions.

Among the factors that ASEE uses when allocating technical sessions are the attendance at the session and the evaluations of the quality of the sessions. By attending the sessions you will ensure the IED's place at future conferences; and you'll become a better IE educator.

- Represent IE at Regional ASEE Conferences
Regional conferences often offer forum for your work that is close to home and may be more convenient for you than the National Conference. Keep your eyes out for the Call for Papers from your local section and submit paper there. This may also prove to be an opportunity to find a future collaborator.
- Share your ideas with the board.
We're always looking for new ideas that can make the IED more valuable for the members. Your ideas are as good as anyone else's. Please share them with the board. If you don't know how to contact us, keep reading.

NEWSLETTER SUBMISSIONS WELCOME!

The most valuable newsletters are the ones that contain actual news submitted by the members. If you have something that you'd like to share with the IED, please forward the details to me at r_olson@sandiego.edu.

Anything that might be of interest to the members is welcome including:

- Calls for Papers for conferences related to engineering education including ASEE regional conferences
- Reminders of deadline submissions to agencies funding educational research
- Announcements of members receiving teaching awards or other related accolades
- Announcement of papers related to IE education

This is your newsletter, please help to make it valuable. Thanks for your help—

Rick Olson
IED Newsletter Editor

IED BOARD MEMBER CONTACT INFORMATION

Division Chair:	Abhijit Gosavi (gosavia@mst.edu) (573)341-4624
Program Chair:	Lesley Strawderman (strawderman@ise.msstate.edu) (662) 325-7214
Program Chair-Elect:	Rick Olson (r_olson@sandiego.edu) (619) 260-6853
Secretary/Treasurer:	Heidi Taboada (hataboada@utep.edu) (915) 747-5734
Awards/Past Division Chair:	Lawrence Whitman (larry.whitman@wichita.edu) (316) 978-5907
Directors:	Jane Fraser (Jane.Fraser@colostate-pueblo.edu) (719) 549-2036 Jessica Matson (matson@tntech.edu) (931) 372-3260 Kim LaScola Needy (kneedy@uark.edu) (479) 575-6029 Terri Lynch-Caris (tlynch@kettering.edu) (810) 762-9859
Newsletter Editor:	Rick Olson
Webmaster:	Lawrence Whitman

The ASEE IED web site is at: http://ied.asee.org/ASEE_IED/Welcome.html