

**Conference for Industry and Education
Collaboration**

Engineering Education: Past, Present and Future

**Palm Springs Hilton Resort
February 4-6, 2015**



CIEC 2015 Conference Management Team

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CIEC Acronym Guide - the Who's Who of CIEC

ASEE	American Society for Engineering Education
CEED	Cooperative and Experiential Education Division
CIEC	Conference for Industry and Education Collaboration
CIPD	College-Industry Partnerships Division
CMC	Corporate Member Council
CPD	Continuing Professional Development Division
ETC	Engineering Technology Council
ETD	Engineering Technology Division
ECETDHA	Electrical and Computer Engineering Technology Department Heads Association
ETLI	Engineering Technology Leadership Institute
IACEE	International Association of Continuing Engineering Education
JET	Journal of Engineering Technology
PIC	Professional Interest Council

Conference Sponsors

**Northrop Grumman Corporation
Cleveland State University
North Carolina State University
Sonic Foundry
Quanser
RoMan Manufacturing
Regional Center for Next Generation Manufacturing**

Conference Exhibitors

**CIEC 2016
Cleveland State University
College-Industry Partnerships Division
Florida Advanced Technology Education (FLATE)
IUPUI Facilities Management
Missouri University of Science & Technology
National Cybersecurity Institute at Excelsior College
National Center for Supply Chain Technology Education
North Carolina State University
Olafeson Project Management
Quanser
Regional Center for Next Generation Manufacturing
University of North Carolina at Charlotte
University of Wisconsin, Madison
Woodrow Wilson Foundation**

Registration

Registration will be held in the foyer of the Plaza Ballrooms on the first floor. The hours the registration desk will be open are as follows:

Tuesday, February 3	8:30 a.m. – 5:00 p.m.
Wednesday, February 4	7:30 a.m. – 5:00 p.m.
Thursday, February 5	7:30 a.m. – 12 Noon
Friday, February 6	8:00 – 10:00 a.m.

Additional tickets for meal events and for the companions tour may be purchased on site up prior to the event.

Palm Springs Hilton Resort

The hotel has a free shuttle from the Palm Springs airport. Go to the baggage area and use the shuttle phone to call the hotel at 760.320.6868. If

you prefer to use a taxi, the hotel address is 400 East Tahquitz Canyon Way and is approximately two blocks from the downtown area.

Most sessions will be held on the first and second floors of the hotel. The Horizon Ballroom is in another building south of the pool facilities where the plenary session and many of the meal events will be held. Oasis II, Whitewater Boardroom and the Palm Canyon Suites are on the second floor. The Tapestry Room and the Plaza Ballroom are on the first floor down the hall from the Registration desk. The Terrace Restaurant is also located close to the Registration area.

CIEC Conference Program

Pre-Conference Events

Monday, February 2

8:00-12:00 p.m. *CIEC Board Meeting*
Tapestry Room

Chair: Ron Madler, Embry-Riddle Aeronautical University, Prescott

12:15-1:00 p.m. *PIC V Meeting and Luncheon*
Whitewater Boardroom

Representatives from the College-Industry Partnerships, Continuing Professional Development and Cooperative and Experiential Divisions will meet to discuss events pertaining to the ASEE annual conference and other PIC V business.

Chair: Lea-Ann Morton, Missouri University of Science & Technology

1:15 – 4:15 p.m. *CEED Board Meeting*
Palm Canyon Suites A& B

Chair: Reginald McGregor, Rolls-Royce Corporation

4:30-5:30 p.m. *CIEC 2015 Conference Management Team*
Executive Boardroom

7:30-9:30 p.m. *CIEC 2015 General Conference Chair's Reception*
Tapestry Room (By Invitation Only)

Tuesday, February 3

6:30 a.m. – Noon *Luther Epting Golf Classic – Escena Golf Club*

The Luther Epting Golf Classic is a wonderful way to enjoy a California morning and participate in face-to-face networking opportunities with conference participants, companions and guests. A light breakfast will be served at 6:30 a.m. At 7:00 a.m. the Best-Ball Scramble Format will be held, a wonderful activity for both newcomers and experienced golfers. After a morning of great exercise and perhaps sharing of “golfing tales”, participants will have lunch at the golf club’s restaurant and celebrate their accomplishments. This event is co-sponsored by RoMan Manufacturing, Inc., Quanser, and Grand Valley State University. However, individuals must have preregistered and tickets are required to cover additional costs of the event. Cost: \$60 per person

Coordinator: Paul Plotkowski, Grand Valley State University

8:00 a.m. – 12 Noon CPD Division Board Meeting Palm Canyon Suites A & B

Chair: Paul Jewell, Iowa State University

12:15-12:45 p.m. EXPO and Poster Coordinators Meeting

1:00-4:00 p.m. CPD Workshop

CPD 203 *Managing Your Brand – How to Thrive in a Competitive Global Market* Plaza Ballroom D

Apple, Google, Coca-Cola, IBM, and Microsoft are not the world’s largest corporations, but they were the most recognizable global brands of 2013.

Your “Brand” is not just your logo. So, what is it? According to Jeff Bezos, “Your brand is what people say about you when you’re not in the room,” while Arkside Marketing, Inc. defines brand development as “the sum total of all your moving parts.”

Would you like to learn more about brand management to improve your brand? Do you have a recognizable brand? Does your brand deliver a clear and consistent message, connect to your target audience, and motivate your customers to purchase your products and services? Does it serve your strategic goals?

Attend this *fun and highly interactive workshop* where experts who are extremely successful in managing their Brand will provide in-depth information to help you understand how to maximize all of the “moving parts” of your organization to thrive in an increasingly competitive global marketplace.

By completing an extra assignment, you may also earn a badge for IACEE’s CEE Manager’s Certificate Program. Tickets Required: \$75

Moderator: Wayne Pferdehirt, University of Wisconsin-Madison

Workshop Facilitators:

Terri Gaffney – University of Idaho

Pat Hall – University of Tulsa

Panel:

Michele Jacobs – Senior Manager, Integrated Marketing at Western Union Digital Ventures

Paul Marca – Executive Director, Stanford Center for Professional Development

**5:30-6:30 p.m. *CIEC 101: Meet and Greet*
Tapestry Room**

All individuals who are attending CIEC for their first time or have not been able to attend in several years are invited to attend a Wine and Cheese reception sponsored by the CIEC Divisions. Board members and representatives from the CIEC 2015 Conference Management Team will provide an overview about CIEC, its divisions and acronyms and a general overview about the conference. Learn how you can get involved in future CIEC conferences.

Hosts: CIEC Board and 2015 Conference Management Team

7:00 p.m. Plenary Speakers Dinner
Horizon Ballroom I (By Invitation Only)

Wednesday, February 4, 2015 CIEC 2015 Conference Begins

7:00 – 8:45 a.m. *All Conference Continental Breakfast*
Pool Area or Lobby of Horizon

Enjoy a beautiful California morning with a continental breakfast by the pool area. Renew your acquaintance with CIEC colleagues and meet first time attendees. If the weather is cool, the breakfast will move to the lower level of the Horizon Ballroom.

7:45-8:45 a.m. *Companions Breakfast and Informational Meeting*
Tapestry Room

All registered companions are invited to a breakfast meeting. Mary Jo Ginther, Director of Tourism, will talk about their history of Palm Springs and outstanding places to visit in the area. Information about the optional tours will be presented. Cost of the breakfast is included in the companion's registration.

9:00-10:30 a.m. *CIEC Plenary Session*
Horizon Ballroom

Engineering Education: Past, Present and Future— A Socratic Dialogue

A distinguished panel of representatives from industry and academia will discuss issues related to the conference theme and how past and present experiences might lead to new paths in engineering and engineering technology curricular, professional development programs, coop and internship experiences, and academic-industry partnerships. There will be time for the audience to reflect upon the thoughts presented during the panel discussion and question or comment upon the issues discussed. Representatives have been selected to represent the four divisions of CIEC. Come and join us and see if you agree with the panelist on how engineering education has changed and what direction we might need to go in the future.

Moderator: Ed Borbely, University of Michigan, Ann Arbor

Panelist:

Howard Appelman, The Boeing Company
Nelson Baker, Georgia Institute of Technology
Andy DiPaolo, Stanford University
Julie Furst-Bowe, Southern Illinois University, Edwardsville
Walter Buchanan, Texas A & M University
Patricia Fox, Indiana University Purdue University Indianapolis
John Gilligan, North Carolina State University
Annette M. Karlsson, Cleveland State University
Ron Madler, Embry-Riddle Aeronautical University
John Mastrototaro, Medtronic
Reginald McGregor, Rolls-Royce
Yannis C. Yortsos, University of Southern California

10:30 –10:50 a.m. Coffee Break

Horizon Ballroom Foyer

11:00 – 12:30 p.m. CIEC Division Sessions

CEED 312 *Looking Forward and Learning from the Past*

Plaza Ballroom D

The Cooperative and Experiential Education Division (CEED) has been a very active division of the Conference for Industry and Education Collaboration. This panel discussion will highlight the history of CED and will provide an overview of the development of the organization and its original constituents including employer engagement. The panel will discuss how far CEED has changed including advancements made along with current challenges. This session will conclude with prospecting the future, how we plan to last another 40 years and what CEED needs to do to remain a strong division while continuing to provide resources to train students and assist employers with recruiting prepared quality students.

Moderator: Gayle Elliott, University of Cincinnati

Presenters:

Ilka Balk, University of Kentucky

Sandra English, Cleveland State University

Susan Matney, North Carolina State University

Craig Gunn, Michigan State University

CIP 313 *Where have we been and where are we headed: Past, Present and Future Reflections as a Division*

Plaza Ballroom C

The College-Industry Partnerships Division, first known as the Relations with Industry (RWI), was formed after World War II to help develop a closer relationship between the industrial members and the educational institutions of ASEE. The RWI title was changed to College-Industry Partnership in February 1990. This session will provide you with a better understanding of the development and achievements of the division since its beginning and will provide a format of discussion on where it should be going in the future to serve its mission and the needs of the membership.

Moderator: Linda Krute, North Carolina State University

Presenters:

Lucy Morse, University of Central Florida

Jack Selter, University of Central Florida

CPD 314 *Continuing Professional Development – Past, Present and Future*
Tapestry Room

A look at the history, present CPD programs and future reflections about continuing professional development will be discussed in this session.

Moderator: Meghan Balding, University of Southern California

The Past: A timeline and past milestones of Continuing Professional Development
Soma Chakrabarti, University of Delaware

The Present: Iowa State Engineering-LAS Online Learning and Open SUNY
Thomas Brumm, Iowa State University
Kim Scalzo, State University of New York

The Future: A Panel with three visionaries who will state how they see the future of Continuing Professional Development.

Nelson Baker, Georgia Institute of Technology
Edward Borbely, University of Michigan
Paul Marca, Stanford University

ETD 315 *The History of Engineering Technology and Engineering Education as It Has Developed in the United States*
Palm Canyon Suites A and B

This session addresses different aspects of the development of the field of engineering technology and engineering education in the United States. First, the session examines the development of engineering technology under the auspices of the “Committee of Twenty One,” a group that took these programs through to the predecessor of what is now ABET accreditation just after World War II. Next, it examines the influence of the Grinter Report on engineering technology, using manufacturing engineering technology as an example. The third presenter explores the evolution of a proprietary school into an integrated collegiate unit, housing both engineering and engineering technology, as well as the history of this college in the context of the engineering/engineering divide at the national level. The next presenters look at whether engineering and engineering technology can exist at the same institution; engineering, education, and computers, past, present and future; and, finally, an overview of engineering education in America from its inception to the present, starting with the time period prior to the Morrill Act of 1862 and ending with the most recent STEM movement in K-12. The final topic is an explanation of the development of the ET listserv over the past 20 years and how it helped unify professionals in the field.

Moderator: Walt Buchanan, Texas A&M University

Presentations and Presenters:

Engineering Technology -- A Discipline or a Stepping Stone: What or Where Now?
Lawrence J. Wolf, Oregon Institute of Technology

The Influence of the Grinter Report on Engineering Technology and the Emergence of Manufacturing Engineering Technology
Rod L. Flanigan and Dale S. Porter, University of Nebraska at Kearney

Goodbye to All That

Amos St. Germain, Wentworth Institute of Technology.

Evolution of American Engineering Education

Marjaneh Issapour, Farmingdale State College and Keith Sheppard, Stony Brook University

Using Computer Speech Recognition to Enhance Second Language Learning: A Case Study

Don Ploger, Florida Atlantic University

The Development of the Engineering Technology Listserv over Its First Twenty Years

Walt Buchanan, Texas A&M University

12:45 – 1:45 p.m. Industry Day Luncheon

Horizon Ballroom

Join your colleagues for a special luncheon designed to honor the award winners from the Corporate Member Council and the CIEC sponsors. Cost of the luncheon is included in your conference registration.

Moderators:

Dan Sayer, Wiley, Corporate Member Council

Linda Krute, NC State University, CIEC 2015 Chair

2:00 – 3:30 p.m. Division Sessions

CEED 322 *Overcoming the Barriers to Co-op*

Plaza Ballroom D

Cooperative Education enables students to integrate classroom theory into practice in an employment position related to their major field of study. Co-op is an extension of the classroom in theoretical practice. Typically, students get academic credit and earn as they learn. Sounds great – so what is the problem? As there are many co-op programs that are not mandatory and would like to employ the traditional concepts of a mandatory co-op program, there are challenges. This panel will cover aspects of how a non-mandatory co-op program has had success with developing a robust self-sustaining program. In addition, discussion of exploration of studying students' attitudes toward optional co-op programs will be addressed. Also, this panel will cover how experiential learning thrives through internship opportunities while sharing information on providing employers to external funding for internships and developing inter-departmental work groups to enhance employer engagement.

Moderator: Erin Minta, Florida Institute of Technology

Presenters:

John Bau, University of Connecticut

Ana Wieman, University of Washington

Matthew Jensen, Florida Institute of Technology

CIP 323 *CMC/CIP Roundtable: Building a Bigger Tent for the Future*
Plaza Ballroom C

How can corporations and educational institutions work better together to expedite the adoption of best practices in research, co-op and internships, preparing a diverse community of graduates and educating in-service engineers? Representatives from the Corporate Member Council will share a work-in-progress presentation of CMC's strategic review and lead an open discussion to gain feedback on that process from all CIEC attendees. CIP, CPD, CEED and ETD participants are invited to share lessons learned, best practices, challenges, and success stories as we look into the future for building stronger industry/academia partnerships.

Moderator: Ron Madler, Embry-Riddle Aeronautical University

Presenters:
Diane Matt, WEPAN
Dan Sayre, John Wiley, Inc.

CPD 324: *Engaging Industry in the Post-Recession World*
Tapestry Room

The Great Recession left its indelible mark across the world of business and its effects did not ignore university-industry engagement activity. It's common to hear that during tough economic times training budgets are the first to go, but how exactly does this change the way engineering schools design and deliver training to industry organizations.

Highlighting pre and post-recession corporate demands, identifying how best to approach and manage design/delivery of programs, finding balance between what engineering schools do best and what companies actually need; this session presents both anecdotal understanding and industry survey results to catalyst intelligent dialog around today's business of selling corporate and professional programs.

Moderator: Zachary Gredlics, University of Kansas
Presenter: Karl Theisen, Arizona State University

ETD 325 *Nuts and Bolts of Engineering Technology Division*
Palm Canyon Suites A & B

Designed specifically for ETD newcomers (but useful for all), this session will concentrate on the resources available to ETD members including members of the ETD leadership, funding and publishing opportunities, the ETD List serve, and information on the ETD Strategic Plan. Opportunities for getting involved will be explained. A special introduction of the ETD Mini Grant Winners will also be presented.

Moderator: Keith Johnson, East Tennessee State University

Presenters:
Walt Buchanan, Texas A&M University
Marilyn Dyrud, Oregon Institute of Technology

Keith Johnson, East Tennessee State University
Ken Rennels, Indiana University Purdue University Indianapolis

CIEC Companions Tour of the Palm Springs Art Museum

Companions and guests are invited to go on a walk to the Art Museum located a few blocks from the hotel. Museum entrance fee is \$12.50 per person and \$10.50 for seniors over 62. Meet Robert Krute in the hotel lobby if you are interested in joining the museum group.

3:30 – 4:00 p.m. EXPO and Coffee Break

Plaza Ballroom A & B

Visit the CIEC exhibitors during the coffee break session to learn more about their products and services.

EXPO Chairs: Edna Grover-Bisker, Missouri University of Science and Technology
David Schmueser, Altair Corporation

4:00-5:30 p.m. Division Sessions

CEED 332 *Future Trends – Systems Thinking for Co-ops and Internships*

Plaza Ballroom D

This interactive session will provide ideas of the 21st century continuous improvement (CI) and systems thinking combined with some recent research on workforce development and the millennial generation. This session will discuss strategies for successful co-ops and internships from the perspective of students, industry and universities. In particular, review of the Baldrige framework and Lean Six Sigma practice for improving co-op and internship experiences will be examined. After the session, you will be able to take back to your organizations CI tools and quality systems thinking to improve your co-op and internship programs.

Moderator: Edna (Eddie) Grover-Bisker, Missouri University of Science & Technology

Presenters:

Cindy Veenstra, Veenstra and Associates

Julie Furst-Bowe, Southern Illinois University Edwardsville

Reginald McGregor, Rolls Royce

Woodrow Whitlow, Cleveland State University

CIP 333 *What Industry Wants and Needs*

Plaza Ballroom C

In every partnership there are at least two or more parties involved who bring with them certain goals or perceived needs. Communication is one of the extremely important components in developing a working relationship for the partnership to succeed. Does academia really understand the motivation and needs of their industry partners? This session will focus on issues related to industry and how universities can better understand what industry needs or is looking for in the establishment of partnerships with academia.

Moderator: Letha Hammon, DuPont
Panelists:
Charles Baukal, John Zink Institute
Maria (Lolo) Penedo, Northrop Grumman
David Schmueser, Altair Engineering, Inc.

CPD 334 *Partnerships that Perform—It Takes More than Good Intentions*
Tapestry Room

The future of engineering education is being transformed through the emergence of new opportunities for partnerships made possible in an inter-connected world. One of the great promises of distributed learning is the opportunity for partnerships between diverse organizations that can produce superior outcomes. However, partnerships often fall short of their promise and end in disappointment. The presenters published a model for effective partnering over 10 years ago and have used it successfully with corporate and university groups. In this session we present our model and share our experiences in applying it. An interactive component calls upon participants to apply aspects of the model to their own programs and partnerships.

Moderator: Jeffrey Goss, Arizona State University

Presenters:
Sue Bray, New Vistas
Kim Scalzo, State University of New York

ETD 335 *Collaborations that Strengthen Engineering and Engineering Technology Programs*
Canyon Suites A & B

This session explores the ways in which an academic program can collaborate with industry partners, government entities or agencies, and other academic programs (both at the home institution and at other institutions of higher learning). These collaborations can be established at the local, state, national, or international levels and are designed to add value to all parties involved in the collaborations. The primary goals of the collaborations are to: 1) enhance student learning, 2) increase engagement between involved parties, and 3) increase research in engineering and engineering technology. Papers in this session describe various collaborations, as well as the strengths, weaknesses, and opportunities that are associated with each partnership.

Moderators:
Patricia Fox and Charles McIntyre, Indiana University Purdue University Indianapolis

Presentations and Presenters:

Groundbreaking Collaboration between Consumer Retailer Walmart, University Research, and Existing Manufacturing and Revolutionary Additive Manufacturing Firms
Doug Acheson, Indiana University-Purdue University Indianapolis

Building Information Modeling/Vertical Digital Construction: Teaching Strategies and Preparing Students for the Workforce
Sofia Vidalis and Joseph Cecere, Penn State University, Harrisburg

The Design and Implementation of an Advanced Analytics Laboratory Supporting Industry Partnerships

Emory Zimmers and Charalambos Marangos, Lehigh University, Zephyros, Inc.

Industry Collaboration for Training Workforce

Masoud Fathizadeh, Purdue University Calumet

Establishing and Managing Business-University Research Partnerships

Regena L. Scott and Edie K. Schmidt, Purdue University

Developing a “High Impact” Industry Advisory Board

Charles McIntyre and Patricia Fox, Indiana University Purdue University Indianapolis

4:00 – 6:00 p.m. ETD 345 Board Meeting

Whitewater Boardroom

Chair: Keith Johnson

East Tennessee State University

5:45-6:30 p.m. CIEC Walk/Run in Downtown Palm Springs

Meet in the hotel lobby at 5:45 p.m. for a walk around downtown Palm Springs.

Coordinator: Helene Demont, University of Wisconsin, Madison

7:00 p.m. CIEC 40th Anniversary Gala Banquet

Horizon Ballroom

Join conference participants as we celebrate the 40th anniversary of CIEC. The cost of the dinner is included in the CIEC registration fee. Individual tickets may be purchased for guests at the event who are not registered for the companion’s program. Dress is semi-formal.

Thursday, February 5, 2015

7:00-8:15 a.m. Division Breakfasts and Business Sessions

Meet your colleagues for breakfast and a brief business meeting at one of the following division breakfasts. First time attendees are welcome to attend the breakfast of the division they are interested in gathering more information or joining.

CEED 412 Business Meeting Breakfast

Horizon Ballroom I

Chair: Reginald McGregor, Rolls-Royce

CIP 413 Business Meeting Breakfast
Oasis III

All CIP and CMC members are encouraged to attend this breakfast meeting as the division elects new officers and board members. The Board Chair will provide an overview of the division's 2013-14 activities.

Chair: Ron Madler, Embry-Riddle Aeronautical University

CPD 414 Business Meeting and Breakfast
Tapestry A

All CPD members and new attendees are invited to attend. New officers will be elected and introduced.

Chair: Paul Jewell, Iowa State University

ETD 415 Engineering Technology Division Breakfast
Horizon Ballroom II

All ETD members are encouraged to attend this breakfast meeting of the division. Come get involved!

Chair: Keith Johnson, East Tennessee State University

ETD 425 Engineering Technology Leadership Institute
Oasis II

The Engineering Technology Leadership Institute (ETLI) Board and any interested members will meet to discuss the next ETLI meeting scheduled for Friday, October 9, 2015, in Crystal City, VA.

CIEC 411 7:30-8:30 a.m. Companions Breakfast Meeting

Companions can enjoy breakfast together in the Terrace Restaurant. Tickets will be provided as part of the registration fee.

CIEC 421 9:00-11:00 a.m. Palm Springs Windmill Companion Tour

When driving into the beautiful Coachella valley, one of the most striking sites you will see is the vast array of wind turbines that sprout from the desert floor. The words "wind turbine" have evolved into what the locals call windmills. The tour guide will provide interesting background on the subject of windmills, or wind turbines. Participants will get an introduction to the weather and geology of the area, learn why windmills were built in California, and why the wind blows the way it does in the mountain pass. Information about the windmills themselves, how big they are, how they work and unique features of the different designs and models will be discussed. The last stop of the tour will be a power plant where you will learn about the economics and politics of wind energy in California, the US, and around the world. This tour is approximately two hours long, and the bus will return to the hotel around 11 a.m. All who are registered for the tour will meet in the hotel lobby at 8:45 a.m. Tickets must be purchased at least one day in advance. Tickets required: \$40

8:30-10:00 a.m. Division Sessions

CEED 422 Preparing Students for Co-op: Successful Co-ops, First Co-ops and Success in Full-Time Job Searching and Beyond

Plaza Ballroom D

This session will provide interactive marketing, promotional and engagement strategies—ingredients that have increased the appetite of 1st year students to the smorgasbord of career exploration. The session will also look at resources and activities used in the classroom to understand Mindset, Mindfulness and Motivation in order to better prepare students for their co-op. Incorporation of the Biggs “Structure of the Observed Learning Outcome (SOLO) Taxonomy” will also be discussed.

Moderator: Robin Hammond, Arizona State University

Presenters:

Jan Vanselow, Northeastern University

Erin Yokay-Basso, Northeastern University

Kyle Liechty, Michigan State University

Bernadette Friedrich, Michigan State University

CIP 423 Innovative Partnerships to Provide Students with Skills Industry Needs

Plaza Ballroom C

Moderator: Lori Glover, MIT

Session A: The Engineering Ambassador Network

The Engineering Ambassador Network is a nationwide collaboration of Engineering Ambassador Programs that provide opportunities for undergraduate students to become exceptional leaders and advance their communications skills. This session will highlight how universities within the Engineering Ambassadors are partnering with industry through program sponsorship, internships, and networking events to grow the engineering pipeline and offer a unique professional skill set to engineering students.

Presenters: Christine Haas, Engineering Ambassadors Network
Kimberly Harrison, The Boeing Company

Session B: A Unique Industry-Education Collaboration

Embry-Riddle Aeronautical University and Gulfstream Aircraft Company created a unique partnership to design and deliver an exclusive master’s degree program, the Multidisciplinary Master of Science in Engineering (MMSE), for the company’s engineering and technical staff. The program which was launched in 2009 was designed to address the company’s competency gaps, provide professional growth opportunity, loyalty, and talent retention. This session will present an overview of this partnership and share data on student success, enrollment trends, program delivery modes, and the impact on enhancing and strengthening the university-company collaborations.

Presenter: Maj D. Mirmirani, Embry-Riddle Aeronautical University

CPD 424 *You want to teach what from where?*

Tapestry Room B

An adjunct professor is contracted to teach an undergraduate class to students at a remote location close to his place of employment. At the last minute, it is decided to simultaneously offer the class to students on campus 65 miles away via distance technology (on a budget). We will chronicle the trials and tribulations of supporting a technology challenged instructor from a distance and the various delivery platforms attempted. We will be focusing on the decisions to use certain platforms including their strengths, weaknesses, student experience, and dependability. We will conclude with a discussion of the eventual winning solution and how the number of requests like this is increasing.

Moderator: Tamra Swann, Mississippi State University

Presenter: Marty Ronning, University of Maryland

ETD 435 *Engineering Technology National Forum (ETNF)*

Palm Canyon Suites A & B

The ETNF is an action arm of the ASEE Engineering Technology Council, providing “a continuity of effort in taking internal and anecdotal discussions to a higher level to investigate them factually, turning high-level issues into action items for national impact,” *Journal of Engineering Technology*, Fall 2012. The ET National Forum also works closely with the ETLI National Leaders Conference in developing the conference program currently held in Washington, DC each fall.

This CIEC session will report on activities and seek interaction from the attendees on current activities as well as potential future activities that could impact Engineering Technology nationally. Ongoing activities include:

- Federal Office of Personnel Management (OPM) GS-800 description rewrite to be more inclusive of the Engineering Technology
- NAE NSF sponsored study: *THE STATUS, ROLE, AND NEEDS OF ENGINEERING TECHNOLOGY EDUCATION IN THE UNITED STATES*
- ET Marketing Strategies

Moderator: Bob Herrick, Purdue University

Presenters: Ken Burbank, Purdue University

Jeff Ray, Western Carolina University

Ron Land, Penn State University

Pat Fox, Indiana University Purdue University Indianapolis

10:15–10:45 a.m. EXPO

Plaza A and B Ballrooms

The EXPO will be open to all conference participants and will remain open all day so that you can visit the vendors and learn more about their products or programs.

11:00-12:30 p.m. Division Sessions

CEED 432 *Experiential Learning Pathways for Junior and Senior STEM Students: A Model for Incorporating Undergraduate Research, Internships, and Entrepreneurship Experiences*

Plaza Ballroom D

STEM (Science Technology, Engineering, Mathematics) students with no or limited exposure to professionals in the field may make career decisions based on distorted perceptions that lack socialization to the profession. This session will discuss the evolution of a unique experimental learning program in a large engineering and computer science college. This model differs from traditional experiential learning programs in four ways: (1) partnerships with other on-campus colleges and units to incorporate undergraduate research, internship and entrepreneurship pathways under one program; (2) a co-hort-based approach to create learning communities; (3) recruitment of internships for rising juniors and community college transfers who lack the discipline-specific knowledge of seniors ; and (4) sponsored funding to support the program and provide financial support to the students.

Moderator: Thomas Demmon, Grand Valley State University

Presenters:

Lisa Massi, University of Central Florida

Jackie Herold, University of Central Florida

CIP 433 *Successful Partnerships between Academia and Industry*

Plaza Ballroom C

Successful partnerships between academia and industry are built upon the cooperation and clear communications among all parties which have agreed to work together to undertake a specific task or provide a specific service or purpose. Examples of such partnerships between academia and industry and among academic institutions will be shared in this session.

Moderator: Beth Bryant, Georgia Institute of Technology

Panelists:

James Sember, Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC),
University of Wisconsin, Madison

Nick Nagel, Triumph Aerospace

John Gilligan, Power America: The Next Generation Power Electronics National
Manufacturing Innovation Institute, North Carolina State University

Diran Apelian, Metal Processing Institute, Worcester Polytechnic Institute

CPD 434 *International Partnerships in Continuing Engineering Education: Best Practices and Considerations for Future Global Expansion*

Tapestry Room

Continuing engineering education has transformed from a localized service to a global industry. International expansion continues to be a necessity for professional development programs in the future, but this expansion is not always easily obtainable. Partner

universities, professional organizations and corporations around the world can assist by providing experts who are familiar with educational, business and cultural expectations in the destination country.

This presentation will share best practices and lessons learned, including business practices, legal considerations, cultural expectations and learning differences encountered while developing international partnerships in professional engineering education.

Moderator: Octavio Heredia, Arizona State University

Presenters:

Zachary Gredlics, University of Kansas

Soma Chakrabarti, University of Delaware

ETD 445 *More Women and Girls in STEM: How To* Palm Canyon Suites A & B

Learn proven recruitment and retention practices and strategies so you can see more female students succeed in your STEM classes within the next year. Donna Milgram—Executive Director of the National Institute for Women in Trades, Technology and Science—will share proven practices and strategies that resulted in real increases in female enrollment and in female and male completion rates in STEM programs around the country. Participants will walk away with recruitment and retention strategies they can implement in their schools right away. This will be an interactive session with a worksheet you can bring back to your home institution.

Moderator: Helen McNally, Purdue University

Presenter: Donna Milgram, Executive Director, Institute for Women in Trades, Technology & Science (IWITTS)

12:45-2:00 p.m. CIEC Awards Luncheon Horizon Ballroom

CIEC 2014 award winners and CEED's student of the year and employer of the year will be honored. Luncheon tickets are included in the registration fee. Continue your dialogue with conference participants as we honor these winners.

Hosts: Ron Madler, CIEC Board Chair

Mark Schuver and Mitch Springer, Purdue University, CIEC 2016 Conference Chairs

Ken Rennels, IUPUI, CIEC 2014 General Conference Chair

Linda Krute, NC State University, CIEC 2015 General Conference Chair

CIEC 431 1:30-4:00 p.m. *Companions Indian Canyon Tour*

The Cahuilla Indians are natives to the Palm Spring area. This tour will take you to the Andreas Canyon, the second largest palm oasis in North America, where you will participate

in a 30 minute nature walk. Information will be presented on the plants, animals, native lore, and earthquake information of the area. The next stop will be the Palm Canyon, home to over 3,000 native palms. Souvenirs and snacks can be purchased at the trading post. Learn how the native people thrived on the desert floor for hundreds of years. Your guide will identify some of the plants the Cahulia people used for food and medicine. Learn where the water comes from in the hottest and driest desert in North America and watch for the amazing desert animals risking discovery to steal a drink from a stream. The tour lasts approximately 2.5 hours and the bus will return to the hotel by 4:00 p.m. Tickets are required and must be purchased at least one day in advance: \$50 Meet in Hotel Lobby at 1:15 p.m.

2:00-3:30 p.m. Division Sessions

CEED 442 Preparing Students for Success in Full-time Job Searching and Beyond

Plaza Ballroom D

As a part of a graduation requirement, Northeastern University's College of Engineering students must take a course entitled "Professional Issues in Engineering." The Mechanical & Industrial Engineering co-op department developed this course curriculum which covers topics such as reflection and career planning, portfolios, ethics, and lifelong learning. This session will share curriculum overview and dive more deeply into the topics of engineering leadership development and human resources perspectives on student success in the job search derived through collaboration with our industry partners.

Moderator: Vickie Kuntz, University of Toledo

Presenters:

Kerri Beiswenger, Northeastern University

Alison Nogueira, Northeastern University

CIP 443 Future of Engineering Education: An IEEE Report

Plaza Ballroom C

Technological, economic, and social changes will reshape undergraduate engineering education, but there is little consensus on its future. To gather more information about how members of the engineering education community think about the current state and future directions of engineering education, the IEEE Curriculum and Pedagogy Committee (CPC) conducted a global survey. People in four categories were surveyed: individuals who (a) teach undergraduate students, (b) administer a degree program (i.e., Department Chairs and Heads), (c) serve as a top-level administrator over all engineering degree programs (i.e., Deans), and (d) individuals who work professionally in engineering, were invited to respond to the survey. With 2176 responses on a wide range of issues, the CPC believes that survey results can inform conversations about the future of engineering education. For this presentation, the CPC will focus on responses from industry practitioners on the importance of a wide range of skills for engineering graduates as well as strengths of current engineering graduates with respect to these skills. In addition, the CPC will present an analysis of data from all respondents on initiatives to:

- (1) Ensure that entry-level engineers are prepared,
- (2) Facilitate exchanges between industry/government practitioners and students, and
- (3) Facilitate collaborative activities between academia and industry.

Results will illuminate strengths and opportunities to improve engineering graduates as well as potential directions to enact these improvements.

Moderator: Linda Thurman, University of North Carolina, Charlotte

Presenter: Susan Lord, University of San Diego

CPD 444 *Best Practices in Faculty Compensation to Incentivize Distance Learning Participation*

Tapestry Room

In higher education, courses and curriculum are purportedly the intellectual property of the academic departments who provide faculty to teach or the faculty themselves. This directly implies there needs to exist some level of financial incentive for the home department of those faculty, as well as direct incentive to the faculty who are involved in teaching. After all expenses are accounted for, then, what model for faculty incentive is most applicable and will provide maximum incentive to participate in professional studies? This paper focuses on the impact of numerous employed faculty compensation models across multiple institutions of higher education.

A survey of these many institutions of higher learning, regarding their compensation strategy for adjunct faculty, was collected and compiled. This presentation will share the results of this cross-institution study and encourage input from attendees on their experience with these and other methods/practices.

Moderator: Rita Burrell, Mississippi State University

Presenters:

Tom Brumm, Iowa State University

Mitchell Springer, Purdue University

Mark Schuver, Purdue University

ETD 455 *The Dean's Panel*

Palm Canyon Suites A & B

Engineering Technology Deans from three different types of university settings will discuss the budget processes and challenges faced today. In addition, future predictions and how we may solve some of the challenges we all face will be discussed. The panel will start with a few brief opening comments for background and then this session will be mostly Q&A. Come and take advantage of a great opportunity to better understand the realities of the budgeting process and variety each institution faces from a Dean's perspective.

Moderator: Ken Burbank, Purdue University

Presenters:

Verna Fitzsimmons, Kansas State University

Steve Cobb, Murray State University

James Friendway, Michigan Technological University

3:45-5:15 p.m. Poster Presentations and EXPO

Plaza Foyer

Visit the exhibits for the last time, enjoy refreshments with your CIEC colleagues, and meet the CIEC Poster Presenters and ETD Mini Grant Winners.

Poster Presenters:

Growing Globally through a Diverse Supply Chain Student Body Population
Shirl Donaldson and Edie K. Schmidt, Purdue University

Methodology for Educating Future Aviation Technologists on ASTM Turbine Fuel Standard Specifications
Gozdem Kilaz, Ronald F. Bender, and Ronald Sterkenburg, Purdue University

Shweta Chopra, Kim Deranek, and Chad Laux. Purdue University
Small and Medium Enterprise (SME) Can Benefit from Students Final Project and Enhancing Student Learning Experience in Lean Manufacturing: A Case Study.

Creating the Comfort Zone for Diversity and Inclusion
Rebecca G. Book, Pittsburg State University

Industry-Education Partners Prepare the Next Generation Manufacturing Workforce
Diane Dostie and Karen Birch, CT College of Technology, Next Generation Regional Manufacturing Center

Waters Course through Time
Edward T. Davis, Queensborough Community College

Capstone Marketplace: A DOD Project
Michael DeLorme, Stevens Institute of Technology

ETD Mini Grant Winners:

Design of Simulation-Based Laboratories for Teaching Wireless Network Technologies
Te-Shu Chou, Phil Lunsford, and Keith Thomson, East Carolina State University

Enhancing Programming Skills of Engineering and Technology Students Using an Object-Oriented Multidimensional Desktop Virtual Reality (dVR) Framework
Magesh Chandramouli and Justin Heffron, Purdue University Calumet.

Cost Effective Training in Cyber Security
Jane LeClair, National Cybersecurity Institute at Excelsior College

5:30-7:00 p.m. CIP and ETD Hospitality Event

Presidential Suite 342

Before going out to dinner, take time to visit colleagues and new acquaintances in the hospitality suite. All CIEC participants and companions are invited to attend

the joint event sponsored by the College-Industry Partnership and Engineering Technology Divisions. Exhibitors and sponsors are welcomed.

5:00-6:30 p.m. CPD and IACEE Hospitality Event
Presidential Suite 322

Please join the **Continuing Professional Development Division** and **International Association for Continuing Engineering Education** for a joint wine and cheese hospitality event. Attendees can network and mingle with members from both CPD and IACEE.

5:00-6:30 p.m. CEED Awards Reception
Suite 164

Join CEED as they recognize the Award Winners for the Student of the Year.

7:00 p.m. – Bedtime Downtown Palm Springs Village Fest

Downtown Palm Springs opens up on Thursday evenings for its weekly street Village Fest or street fair. Palm Springs Canyon road will be closed to vehicles between Baristo and Amado where more than 100 arts, crafts, and food vendors set up their booths up and down the street. A lot of the shops and restaurants will be open so you can get souvenirs for your family. The Palm Springs Art Museum will also be open and there is no admission fee for the evening. Get some exercise, see how many Hollywood stars you remember identified on the sidewalks, and enjoy the evening event.

Friday, February 6

7:30- 8:45 a.m. Division Breakfasts and Planning Meetings

CEED 512 *CEED Breakfast*
Plaza Ballroom B

Join CEED colleagues for a morning cup of coffee and breakfast.

CIP 513 *CIP/CMC Planning Breakfast*
Plaza Ballroom A

Join the CIP Board Members, CMC representatives and CIP members as they look towards the future in the planning of CIEC 2016 sessions and activities.

Moderator: Ranji Vaidyanathan, Oklahoma State University, 2016 CIP CIEC Program Chair

CPD 514 *Special Interest Group (SIG) Breakfast*
Tapestry Room

Join the CPD breakfast discussion that sets the framework for workshops and sessions for the 2016 CIEC Program for the Continuing Professional Development Division. Meet in your designated Special Interest Group, which include: Administration, Faculty, International, Industry and Delivery -- and share ideas for workshops and sessions that you would like to either present or attend at the 2016 CIEC!

Moderator: Mark Schuver, Purdue University

Presenter: Terri Gaffney, University of Idaho, 2016 CIEC CPDD Program Chair

ETD 515 *ETD Business Meeting and Breakfast*

Palm Canyon Suite A

Join the ETD leadership as they discuss pertinent division information as well as upcoming events and activities. All ETD members are encouraged to attend.

9:00 – 10:30 a.m. Division Sessions

CEED 522 *Re-establishing a Talent Pipeline in a Post-Recession Economy*

Plaza Ballroom D

The recession of 2008/2009 caused many companies to lay off engineers and engineering cops as “survival” was a typical short-term business goal. The initial phases of the recovery resulted in very cautious hiring of both students and graduates, but now that we are in a sustained growth economy the demand for technical talent has soared. How have employers re-connected with their “talent-suppliers” to obtain the engineering capacity for the present and the future? This session will address how both the University of Cincinnati and Grand Valley State University are working with companies to reconnect and collaborate with them to obtain the talent they need.

Moderator: Edna Grover-Bisker, Missouri University of Science and Technology

Presenters:

Thomas Demmon, Grand Valley State University

Jill Flood, University of Cincinnati

CIP 523 *Potpourri of New Initiatives in Engineering Education Programs*

Plaza Ballroom C

Session A: EnCorps STEM Teacher Program for Professions and Military Veterans

EnCorps’ mission is to recruit, transition and support experienced professionals and military veterans in the STEM fields as teachers and tutors. Find out what inspires the participating professionals to help young people become future explorers, engineers and scientists.

Moderator: Charles Baukal, John Zink Institute

Presenter:

Katherine Wilcox, EnCorps

Session B: Disruptive Technologies = New opportunities for Academic/Industry Partnerships

We have all heard about MOOCs- traditionally semester long undergraduate level classes, delivered online for free, and accessed all over the world. But what if you took the technology platform, created professional level content, shortened the offering to just about 1 month, and added custom features companies would need? This session will discuss how MIT used the EdX platform to offer “Tackling the Challenges of Big Data” to a professional audience world-wide and added new win/win opportunities for academic/industry partnerships in the process.

Presenter: Lori Glover, Massachusetts Institute of Technology

CPD 524 *Serendipity in Entrepreneurship: Engineering Your Own Breaks* Tapestry Room

“Serendipity” may evoke the image of “dumb luck,” but serendipity in entrepreneurship is a combination of one’s prior knowledge, a purposeful search, and a chance event. The speakers will share how their programs have grown through serendipitous discovery: outlining categories of serendipitous incidents and giving examples of the application of the knowledge and the search activity that lead to success when a seemingly “chance event” occurred. They will also share how individuals and organizations can improve their opportunities for serendipitous growth. Throughout the presentation, feedback and examples will be elicited from the audience.

Moderator:

Presenters:

Kevin Curry, University of Kansas Continuing Education

Jeffrey Blessing, Milwaukee School of Engineering

Joe Levens, Pittsburg State University

ETD 525 *Future of Engineering Technology Education - Graduate Programs* Palm Canyon Suite B

Beginning in the 1950s and 1960s, post-secondary institutions in the United States and Canada began offering degrees in Engineering Technology. These programs focus on applied application of engineering science principles. Depending on the institution, 2-year Associate of Science and/or 4-year Bachelor of Science degrees were offered. In general, an Engineering Technologist student receives a broad range of applied science and applied mathematics education as well as the fundamentals and application of engineering principles in the student’s area of focus. Today, many institutions offer graduate degrees at the master’s and/or doctorate level. While many programs remain applied in nature, other programs include applied research components. This session will explore the future direction of graduate education programs in Engineering Technology in terms of philosophy along with curriculum design, assessment and accreditation.

Moderator: Ken Rennels, Indiana University Purdue University Indianapolis

Presentations and Presenters:

The Ghost of Technology Future
Andy Jackson, East Carolina University

Engineering Management: The Future of Engineering Technology
Saeed D. Foroudastan and Dianna J. Prince, Middle Tennessee State University

Using Graduate Teaching Assistant to Build a Self-Sustaining Graduate Program
George Yang, Missouri Western State University

Enhancing Graduate Research through Collaborative Research: Case of Global Innovations for Smart Grids
N. Athula Kulatunga, Purdue University

Online Graduate Education in Engineering Technology: Lessons Learned
Ken Rennels, Indiana University Purdue University Indianapolis.

11:00-12:30 p.m. Final Conference Division Sessions

CEED 532 CEED Planning Session for 2016

Plaza Ballroom D

Join CEED members as they plan for the next CIEC conference to be held in Austin, Texas. Bring your ideas and help plan your division's sessions and activities.

Moderators: Sandra English, CEED Program Chair for CIEC 2016
Gayle Elliott, CEED Chair

CIP 533 CIP Board Meeting

Oasis III

Letha Hammon, 2015 CIP Chair, will lead a discussion among continuing and newly elected board members about CIP projects and initiatives for 2015. All CIP members are also invited to attend.

CPD 534 Engineering Education: Past, Present and Future

Tapestry Room

Session A: *"The [Students] They Are a Changin..."*

With greatest respect for Bob Dylan's 1964 song "...the [students] they are a changin..." ProSTAR has experienced first-hand, the transitioning of professional working adult learners from one generational cohort to another, and now, to yet the youngest of generational cohorts... the Millennials.

Drawing from sixteen years of student data, this report will focus on who these cohort learners are and how they compare to previous cohort groups of comparable age. The information presented will focus on generational cohort differences that impact, or have the potential to impact the offering of Master of Science degrees and other fee-based continuing educational opportunities.

Session B: *Quality vs Quantity: Running the Academy as a Business*

Everyone should agree quality programs are the cornerstone of a quality education and the attendant ranking of an institution. Our differences reside in perspective couched in the perception of necessity to run an academic unit as a business.

ProSTAR has produced scholarship on the insufficiency of GPA and GRE as determinants of entry into graduate programs for professional working adult learners. This paper will dig deeper into the cultural perspective of the burning platform, and the implications for historical thresholds for adult learner entry. The paper will examine the underlying premise of what has been termed “a call to action”.

Moderator: Erin Tanaka, University of Southern California

Presenters:

Mitch Springer, Purdue University

Mark Schuver, Purdue University

ETD 535 *Potpourri of Creative Ideas*

Palm Canyon Suite B

Creative ideas and inspiring papers which did not quite fit the programs sessions are included in this session. Contributions span from ethics in corporate America to engineering education in K-12. Experiences and sustainability ideas for Senior Capstone and Internship programs will be presented as well as an innovative teaching tool for power management.

Moderator: Mike Strange, California Maritime Academy

Presentations and Presenters:

Engineering Ethics and Corporate America: The Case of Ford Motor Company

Marilyn A. Dyrud, Oregon Institute of Technology

An Integrated Experience for Elementary Engineering Education

Richard Gilbert, University of South Florida and Marilyn Barger, Florida Advanced Technological Education Center of Excellence.

Creativity Assessment of Senior Design Projects Using an Engineering Expert Panel

Abi Aghayere, Drexel University

Viability of an Engineering Technology Internship Program at a Rural Institution

Austin C. Cheney, Eastern Illinois University

Design and Development of a Teaching Tool for Lithium-ion Battery Management System

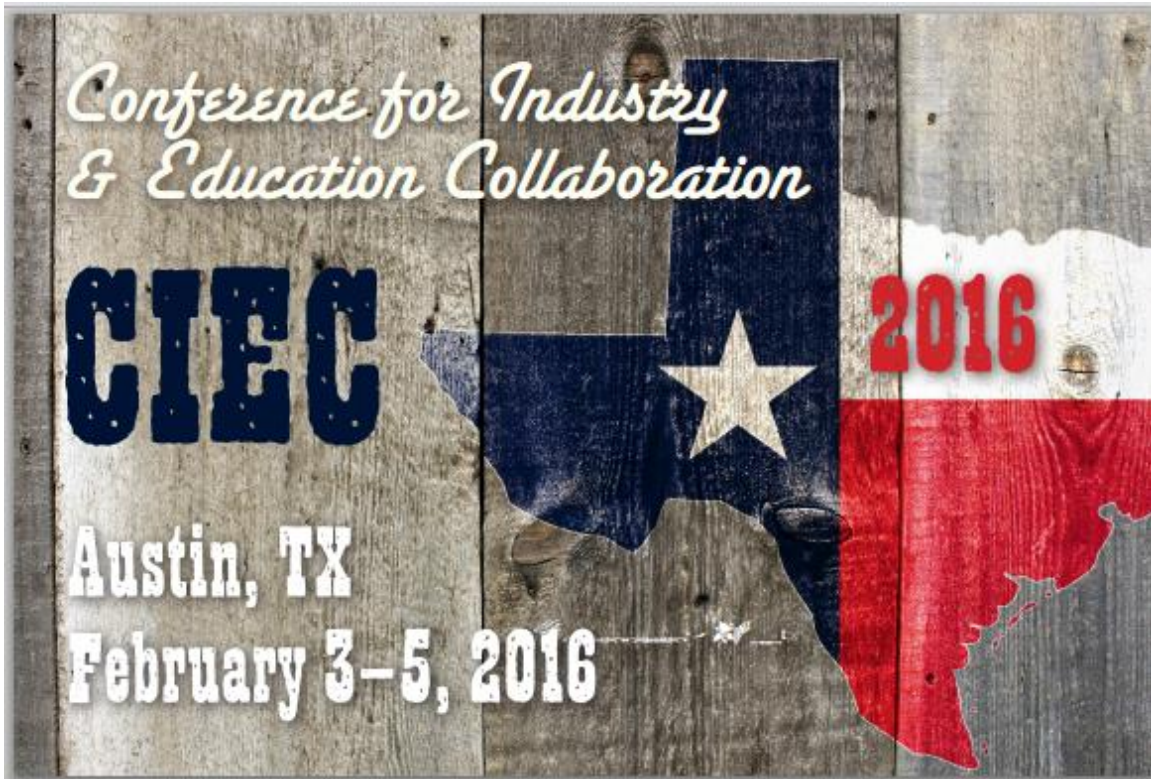
Y. Gene Liao and David T. Fu, Wayne State University

Cradle to Cradle Sustainability Concept for Technology Education Senior Capstone Projects University

George E. Comber and Kerry N. Tobin, Weber State University

12:45 p.m. CIEC 2015 Conference Concludes

Please join us for the 2016 Conference in Austin, Texas



For more information about how you can participate, contact Mark Schuver, General Conference Chair, at mschuver@purdue.edu or 765.496.2094

Post Conference Activities – Friday, February 6

**1:00-5:00 p.m. CPD 544 – IACEE Executive Committee Meeting
Executive Boardroom**

The following ETD meetings will be held in Oasis III on the third floor of the hotel.

1:30-3:00 p.m. ETD 545 – ECETDHA Board Meeting

3:00-4:30 p.m. ETD 555 – ETC Board Meeting

4:30-6:00 p.m. ETD 565 - JET Meeting

Saturday, February 7

8:00 a.m. – 3:00 p.m. *IACEE Executive Committee Meeting*
Executive Boardroom

8:00 a.m. – 5:00 p.m. *ETD Workshop: Fundamentals of Program Assessment (ABET)*

Ticket Required: \$175 for CIEC Registered Participants
Palm Canyon Suites A & B

Participants will broaden their understanding of the continuous improvement of student learning through the design of assessment processes, development of measurable student outcomes, and application of data collection and data reporting methods. Workshops are facilitated by highly experienced faculty with wide-ranging experience in assessment and evaluation. This workshop focuses primarily on ABET Criterion 2: Program Educational Objectives, Criterion 3: Student Outcomes and Criterion 4: Continuous Improvement. This workshop is interactive and those attending will work in small groups applying the concepts learned throughout the day. Participants will receive a workshop booklet containing all slides and reference materials. Registration Required

Presenter: Elaine Cooney, Indiana University Purdue University Indianapolis

