IACEE 2012 World Conference on Continuing Engineering Education.

Valencia, Spain. 17th to19th May 2012

Continuing Engineering Education: solutions for competitiveness, innovation and grand challenges. "New ideas for tired programs, new missions and services"

1. Welcome to XIII IACEE 2012 World Conference on Continuing Engineering Education.

On behalf of the organizer Committee, it is our pleasure welcome you to the Universitat Politecnica de Valencia and our city.

IACEE conference dates back to 1979 when took place the first IACEE World Conference in Mexico City, Mexico. However it was not refer as an IACEE conference until May 17, 1989 when the IACEE charter was signed during the opening session of the 4th World Conference on Continuing Engineering Education in Beijing, China and the IACEE was definitively founded.

Thanks to our members' knowledge and professionalism managing Continuing Engineering Education, our events have been established and are well-known in the entire international community receiving academics and industry participant from all over the world, what makes each event an enriching and successful experience.

The XII IACEE World Conference on Continuing Engineering Education takes place in a context where Lifelong Learning has been transformed significantly with rapid development in various delivery means as well as variations in demands from industries in many parts of the world. Global marketplace, the roles for and demands of industry to create/keep jobs is enormous. Therefor how can the continuing professional development of engineering impact these societal requests? How is industry and educational training providers responding?

How can we work together? In order to give answer to these and many other questions the central theme for 2012 IACEE World Conference is "Continuing Engineering Education: solutions for competitiveness, innovation and grand challenges. New ideas for tired programs, new missions and services".

The aim of this World Conference is to bring together researchers and professional engineers to share ideas and to present innovative lectures on the CEE Management, CEE & Instructional Design, and CEE & Global Market: Global Innovation and Economic Development and CEE & Linking Industry, Government and Universities. This conference is going to be a worldwide forum to use the 'power of the crowd' to find solutions and innovative ideas to face the grand challenges of CEE. And again…

Welcome to Spain, welcome to VALENCIA, welcome to the Universitat Politecnica de VALENCIA.
Happy 2012 World Conference.

2. XIII IACEE 2012 World Conference on Continuing Engineering Education

2.1 World Conference Chairmen

Patricio Montesinos	Nelson Baker
	
Universitat Politécnica de Valencia Lifelong Learning Center (Centro de Formación Permanente -CFP) Camino de Vera s/n CP 46022, Valencia Spain	International Association for Continuing Engineering Education (IACEE) c/o Georgia Institute of Technology Distance Learning & Professional Education Global Learning Center 84 Fifth Street NW Atlanta, GA 30308-1031 USA
Phone: +34 963 877 751	Phone: +1 404 385 3534
Fax: +34 963 877 759	Fax: +1 404 385 0544
Email: pmontesi@cfp.upv.es	Email: n.baker@iacee.org
Web: www.cfp.upv.es	Web: www.iacee.org

2.2. Scientific Committee

Dr. Nelson C. BAKER
President of IACEE
Vice Provost
Distance Learning & Professional Education
Georgia Institute of Technology
USA

Edward G. BORBELY
Director, Center for Professional Development
College of Engineering – Inter Pro
University of Michigan
USA

Susan M. BRAY
Executive Director
New Vistas
USA

Dr. Frank E. BURRIS
(Secretary General of IACEE)
USA

Dr. Andy DiPAOLO
Executive Director, Stanford Center for Professional Development and Senior Associate Dean, School of Engineering
Stanford University
USA

FENG Aihua
Vice President, Talent Development Institute
Baosteel Group Corporation
CHINA

Dr. Louk A. G. M. FENNIS
Ex-Director, Netherlands Institute for CEE
THE NETHERLANDS

Prof. Sergey S. GAVRIUSHIN
First Vice-Rector – Vice-Rector for Science
Bauman Moscow State Technical University
RUSSIA

Dr. Mervyn E. JONES
Distinguished Research Fellow
Imperial College London
UK

Dr. Linda KRUTE
(Vice President of IACEE)
Director of Distance Education
North Carolina State University
USA

Prof. Leizer LERNER
Professor of Civil Engineering
BRAZIL

Dr. Colin C. F. LEUNG
Professor of Civil Engineering
Department of Civil Engineering
SINGAPORE

Kirsti MIETTINEN
Director, Professional Development
Aalto University
FINLAND

Patricio MONTESINOS
Head of Service,
Centro Formación Permanente/ Lifelong Learning Centre
Universitat Politècnica de València
SPAIN

Dr. Philip R. O'LEARY
Professor and Department Chair
Dept. of Engineering Professional Development
University of Wisconsin-Madison
USA

Catherine POLITO
Executive Director
Center for Lifelong Engineering Education
University of Texas at Austin
USA

Kim A. SCALZO
(Vice President, Products & Services and First Vice President of IACEE)
Director,
SUNY Center for Professional Development
State University of New York
USA

Katriina SCHREY-NIEMENMAA
Senior Lecturer
Helsinki Metropolia University of Applied Sciences
FINLAND

Dr. Alfredo A. V. SOEIRO
Professor of Civil Engineering
University of Porto, Faculty of Engineering
PORTUGAL

Dr. Wim VAN PETEGEM
(Vice President, Organizational Sustainability of IACEE)
Director, KU Leuven – AVNet
BELGIUM

ZHANG Guoqing
(Interim Vice President, Communication & Member Engagement)
Vice President
China Association for Continuing Engineering Education MBL.
CHINA

3. Conference Hosts

3.1 IACEE

The International Association for Continuing Engineering Education (IACEE) is an international, non-profit and non-governmental organization. The aim of IACEE is to support and enhance lifelong technical education and training and advanced engineering education world-wide, including the special needs of the developing countries.

The association´s objectives are pursued by:

- Promoting international technology transfer through a better understanding of the continuing education process.
- Improving the quality of education and training of engineers and technicians, and of technical information through international cooperation.
- Developing and strengthening cooperation between education and industry.
- Promoting the establishment of centers for continuing education.
- Supporting the equality of women in engineering.
- Promoting and conducting research and development.
- Initiating international and regional meetings/conferences, and providing technical assistance in conducting them.

To REGISTER

http://mms.iacee.org/members/newmem/registration.php?orgcode=IACE

5.7. Conference Themes

The major issues/topics to be discussed at WCCEE 2012 include:

1. CEE Management: Leading the way on Return of Education metrics

- Marketing strategies: what works, what doesn't?
- Developing and Marketing Short courses
- Demand Analysis: needs and future needs
- Quality Road Maps: Evaluating programs and organizations
- Strategies for engaging faculty: incentives, training programs, etc.
- Internal marketing: informing and influencing university colleagues
- Successful business and financial models of continuing education organizations
- Best practices of student and alumni support services
- Engaging the newest generation of engineers in CEE – what do they want?

2. CEE & Instructional Design

- Production for distributed – synchronous space
- Learning in a web 2.0 world: new technologies and pedagogical approaches
- Learning and delivery technology applications
- Engineering Pedagogy versus CEE Andragogy
- Open courseware
- Experiences Evaluation: how effective is blended vs. F2F?

3. CEE & Global Market: Global Innovation and Economic Development

- Internationalization & Global Competition
- Global Markets: opportunities and delivery approaches
- Building and sustaining partnerships with other universities and the private sector
- Managing the brand
- Program design and pricing models
- Supporting a new sociology of work – global teams
- How to do more training with industry
- Networking and partnership
- Ensuring Humanization and Connection in Virtual Environments

4. CEE & Linking Industry, Government and Universities

- Engaging the newest generation of engineers in CEE – what they want?
- Good practices of Industry ad-hoc services
- Managing the brand
- Supporting a new sociology of work – global teams
- Good practices of student and alumni support services

5.8. Keynotes

Markku Markkula is a member of the EU Committee of the Regions, CoR. Within CoR he is the Chairman of the EPP/CoR Task Force "Europe 2020", as well as a member of Commission for Education, Youth, Culture and Research EDUC, and Commission for Economic and Social Policy ECOS. His role also includes being the rapporteur on the Digital Agenda for Europe and the rapporteur on the role of regions in achieving the targets of the Europe 2020 strategy.

Mr. Markkula is a former member of the Finnish Parliament (1995-2003) with the membership roles in the Committee for Education, Science and Culture and the Committee for the Future. As an MP his international role included the Presidency of EPTA Council, European Parliamentary Technology Assessment Network.

He works within Aalto University as the Advisor to Aalto Presidents, focusing on issues of European strategic development. Aalto University, being the forerunner of the European university reform, is the new foundation-based university built through the merger of: Helsinki University of Technology, Helsinki School of Economics, and University of Art and Design Helsinki. In Finland his role has included memberships in the boards of several companies and other organizations, among others Tekes, the Finnish Funding Agency for Innovation and Technology. He has also served Finnish society as the Chairman of the Espoo City Council (1990-1992, 2010) and the Espoo City Planning Board (2004-2012), as well as the Chairman of the boards of the Finnish Association of Graduate Engineers TEK (1993-2005) and the Finnish Information Society Development Centre TIEKE (2000-2011).

His previous assignment comprised heading Lifelong Learning Institute Dipoli of Helsinki University of Technology (TKK) as Director. His global experience includes working as the part-time Secretary General of the International Association for Continuing Engineering Education IACEE 1989-2001. As a tribute to his achievements Markku Markkula was in 2008 elected to the International Adult and Continuing Education Hall of Fame.

Dr. Andy DiPaolo is the founding Executive Director of the Stanford Center for Professional Development (SCPD) and Senior Associate Dean in the School of Engineering at Stanford University. He is responsible for leading one of the largest university continuing education organizations and distance education networks in the U.S. delivering graduate and non-credit programs to technical professionals, managers and executives worldwide. Using a variety of distance education and e-learning technologies the SCPD delivers a portfolio of over 450 live and asynchronous courses annually in support of career growth and corporate competitiveness.

Under DiPaolo's leadership, the SCPD was created to meet the lifelong education needs of engineers, scientists, technical professionals and managers. In 1995 he developed award-winning Stanford Online, the first university system designed to deliver video-streamed academic courses on the internet and then led Stanford's efforts to create the first ever university program to offer a complete graduate engineering degree online. In 2005, SCPD's online certificate program on advanced project management received the Association for Continuing Higher

Education's premier award as the "Most Outstanding Professional Education Program in the U.S." DiPaolo's current focus is on the development of Stanford's distance education activities in China and India.

Prior to assuming his Stanford University position in 1988, DiPaolo was the Director of Media Services at Boston University. Before that he was an Associate Professor of Educational Technology at the University of Toledo. He has also held the position of Media Program Training Manager at Indiana University where he received his doctoral degree in instructional systems technology.

DiPaolo has extensive experience in distance education and e-learning, especially in applications related to economic growth, innovation and lifelong learning, He has a long history as an advisor to public and private sector groups in North America, Europe and the Pacific Rim on the strategic use of technology to address education and training needs and in the development of new models for distributed learning.

5.9. IACEE Awards

Currently IACEE gives two awards that are made during are the cycle of the World Conferences on Continuing Engineering Education. These are the **Glen Martin award** and the **Biedenbach award**.

THE GLEN MARTIN AWARD FOR CORPORATE LEADERSHIP IN CONTINUING ENGINEERING EDUCATION

Objectives:

- To honour the memory of Glen L. Martin, a founding corporate member of IACEE Council, whose tireless efforts to promote corporate involvement in engineering education spanned his career.
- To honour a company at each World Conference on Continuing Engineering Education whose support for continuing engineering education demonstrates world class leadership and whose continuing engineering education practices and programs serve as models for companies throughout the world.
- To promote continuing engineering education worldwide by honouring exemplary practitioner companies.

THE BIEDENBACH AWARD FOR INDIVIDUAL LEADERSHIP IN CONTINUING ENGINEERING EDUCATION

Objectives:

- To honour the memory of Jo Biedenbach, a founding member of IACEE Council, whose demonstrated tireless efforts to promote corporate involvement in engineering education spanned his career.
- To honour an individual at each World Conference on Continuing Engineering Education, who by example has demonstrated individual world class leadership in developing continuing engineering education and whose continuing engineering education practices and programs serve as models for companies throughout the world.
- Promote continuing engineering education worldwide by honouring exemplary practitioner individuals.

Day	Time	18/ 05/	
18 **May**	13:30 - 15:00	LUNCH	
	15:15 - 16:45	GENERAL Mervyn Jones, Nelson Baker, President, Plenary	
Day	Time	19/ 05/	
19 **May**	9:00 - 10:00		
		PARALEL	
		Chairman: Plenary	
		ID	
	10:00 - 10:20	47	
	10:20 - 10:40	173	
	10:40 - 11:00	197	
	12:30 - 12:50	COFFEE BREAK	
	12:50 - 13:10	210	
	13:10 - 13:30	229	
	12:10 - 12:30		
	12:30 - 13:30	CLOSSING	
	15:00 - 18:00	IACEE	
	18:00	ADJOURN	

2012

MEMBERSHIP MEETING
Chair, Nominating Committee
International Association of Continuing Engineering Education
room

2012

Choices and Challenges: Meeting the Education Needs of the Global Engineering Workforce
Expert Panel Discussion
Nelson Baker, International Association of Continuing Engineering Education
Zhang Guoqing, China Association for Continuing Engineering Education
Wim Van Petegem, European Society for Engineering Education
Moderator: Andy DiPaolo, Stanford University
Plenary room

SESSIONS

Edward G. BORBELY
room

Speaker	Title
Kirsti Miettinen Aalto University	Surviving Change Implication of University reform on CE
Carl Vieth University of Wisconsin-Madison	Implementing ISO Management System Standards: The University Role
Clara Piloto MIT - Massachusetts Institute of Technology	Delivering Open Enrollment Programs Globally MIT Experience: Lessons Learned
Nelson Baker Georgia Institute of Technology	Need for a Global Accord for the Postgraduate Learning of Engineers
Patricio Montesinos Universitat Politecnica de Valencia	2.0 Business models for Blended LLL. The REUNITIC project.

CEREMONY

COUNCIL MEETING

Parallel Sessions
Fryday 18th May - Room 2.10

Paper ID: 156
Study and Design of the Distance Education System for Continuing Engineering Education
Speaker: Qingyue Xu
Institution: Beijing Union University, PRC
Friday 18th May 12:10 – 12:30
Author: Qingyuan Xu

Remarkable achievements have been made in China after decades of development on ContinuingEngineering Education (CEE). Now, about 40 million engineers have improved themselves through CEEthereby adding invaluable technology to Chinese society each year. Notably, the traditional face-to-face education mode has been unable to meet the increasing educational demands of engineers. However, with the help of computer and modern network technology, it has become possible to develop large-scale training through distance education focused on trainees. This construction of a distance teaching system has beena pre-eminent task. This paper examines and illustratesthe educational demands, and proposes a solution based on the distance teaching system network for engineers. The study methods include literature analysis, comparative analysis and empirical analysis combined with the industrial standards and models overseas.

The construction of the paper includes five parts below:

First, the analysis on current situation and the demands of distance education in China; particular emphasis on the existing problems of continuing education and its characteristics different from other industries.

Second, the illustration of the principles and specifics of the plan for distance education system.

Third, the functional framework on five points called 'Teaching, Learning, Management, Examination, Evaluation'. The formation of these are taken as a complete management closed-loop that continues improving and ensuring the reality of teaching service, management level and quality.

Fourth, the clarity of effectiveness from relevant roles like students, teachers, managers. From the aspects of teaching and service, the students are the core. From the aspects of managements, the core is to continue improving training quality.

Finally, the specific illustration for design and the implementation process on network topological structure, database design, security assurance and management.

The paper proposes two innovations. One is called model 'TCTLTR' with meaning of 'Two Core', 'Two Lines', 'Three Roles' for CEE. Another is the reality of the construction of system platform, which was applied to HN province, through Java+SQLServer.

Paper ID: 51
Study on the Trends of the Universities' Online Continuing Engineering Education.
Speaker: CHEN JUN
Thursday 17th May 12:30 - 12:50
Authors: Steven Goh, Nelson Baker

From the status quo of the online continuing engineering education of Chinese university, we analyze its patterns, learning characteristics and development trends to figure out three main problems: unbalance of the supply vs. demand, quantity vs. quality, theories vs. practices. As the solution, our sustainable development strategies, integrated design strategies and resource sharing strategies are proposed..

Paper ID: 106
Designing and Building an International Collaborative Educational Program for Japanese and Chinese University Students
Speaker: Shin-ya Nishimura
Institution: Department of Architecture, Niigata University
Friday 18th May 12:50 – 13:10
Authors: Shin-ya Nishimura, Nan Wu, Noriko Sakurai, Satoshi Boda, Tsutomu Kobayashi.

In 2010, Niigata University Japan succeeded in expanding our educational program internationally by collaborating with the Dalian Institute of Technology, China. In our ongoing practical program, students, local inhabitants and professionals

Plenary Session
Saturday 19th May - Plenary Room

It's a very robust curriculum, with half the time spent on simulations," says Murman, the founding director of EdNet and former LAI co-director. "They had never seen anything like it. They were used to business conferences with lectures and case studies. The MIT style of active learning worked very well there.

A day-long simulation required participants to produce airplanes using an MIT-designed LEGO kit. In groups of six, they began with basic materials and a goal — to complete airplanes and make a profit — and they had to deal with supply chain issues, quality checks, timed assembly sessions, paperwork, benchmarking and calculating profitability.

Besides the value to the participants, the short program broadened EdNet, since the Catholic University of Chile is now a member and will begin incorporating lean curriculum into their teaching. The curriculum, a popular offering on MIT OpenCourseWare for years, was itself updated and offered both in English and Spanish, thanks to the Chilean faculty's efforts. This bilingual version will soon be available on OpenCourseWare.

Another outgrowth of the Professional Education short program may be a new research relationship between Chile and MIT faculty. Debbie Nightingale, a Professor of the Practice of Aeronautics and Astronautics and Engineering Systems who also teaches with Professional Education, is pursuing a grant to collaborate with Chilean faculty on extending lean practices to the health care industry.

MIT Professional Education's growing presence in the world, with recent short programs in Japan, India, Singapore, the Netherlands and Mexico, supports MIT's mission to serve a global community. Pant, the program's executive director, summarizes the Professional Education experience this way: "By developing strong local partners and offering educational programs in other countries, the MIT brand can touch many more people than just those who are able to come to Cambridge. Furthermore, faculty is exposed firsthand to emerging markets and their issues, and that knowledge is incorporated into teaching for undergraduate and graduate students here. Professional Education is an arm of MIT reaching out in the world to achieve win-win outcomes for all stakeholders it serves.

Paper ID: 210
Need for a Global Accord for the Postgraduate Learning of Engineers.
Speaker: Nelson Baker
Institution: Distance Learning & Professional Education, Georgia Institute of Technology
Saturday 19th 11:30 – 11:50
Authors: Steven Goh, Nelson Baker

This paper argues the case for the establishment of a global accord for the postgraduate learning journey of engineers in a globalized and complex world. The establishment of agreements covering educational qualifications in engineering and competence standards for practicing engineers such as the Washington Accord in 1989 and APEC Engineer agreement in 1999 have resulted in increased engineering mobility and improved global standards, especially as related to entry level engineering curricular requirements. However, one could suggest that the capability to perform provided by these competencies agreements do not ensure the professional development of engineers are complementary and adequate for them to perform in an increasing complex, globalized and constantly changing engineering world. New scientific and engineering discovery are pushing the boundary of engineering applications, particularly in complex systems and interdisciplinary engineered solutions. Recent engineering disasters and mistakes are exemplary to illustrate this tenet that a global accord is required for engineers to not just improve their appreciation and understanding of complex systems and contexts within their respective disciplinary knowledge, but also should require one to be competent in the new knowledge of the global world.

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