



# 2016

# VEEC

## VIETNAM ENGINEERING EDUCATION CONFERENCE

**Workforce Competitiveness: Partnerships Driving  
Human Capital Skills and Standards**

April 14-15, 2016 • HCMC University of Technology and Education

**CHUNG DAHM** Learning

**ASU** IRA A. FULTON SCHOOLS OF  
**engineering**  
ARIZONA STATE UNIVERSITY

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## Higher Engineering Education Alliance Program (HEEAP)

In collaboration with an expanding industry consortia, the Ira A. Fulton Schools of Engineering's Higher Engineering Education Alliance Program (HEEAP) is revolutionizing and modernizing the top engineering and technical vocational universities in Vietnam.

This modernization process includes developing experienced university leadership, constructing innovative and effective curriculum, and promoting university engagement.

HEEAP's founding partners in 2010 were the United States Agency for International Development (USAID) and the Intel Corporation. Since then, HEEAP has added partnerships with National Instruments, Pearson, Siemens Corporation, Cadence Inc., and Danaher Corporation (Fluke, Tektronix, Keithley companies).

Through faculty workshops, offered at Arizona State University and abroad, HEEAP is enhancing traditional theory-based engineering and technical vocational programs by advocating the addition of applied and hands-on instructional approaches. This fresh pedagogy aims to produce work-ready graduates who possess the applied and technical communication skills required to excel in multinational corporations.

HEEAP aims to create a generation of global-minded engineers that exhibit self-reliance, creativity, an awareness of social and cultural capital, an appreciation for lifelong learning, conflict-resolution and team-building skills, and a sound understanding of ethics, economics and business strategies.

### 2016 HEEAP Trainings in U.S. (subject to change)

#### HEEAP 2.0 Vocational Cohort

May 23–June 17, 2016

#### HEEAP 2.0 University Cohort

July 11–August 19, 2016



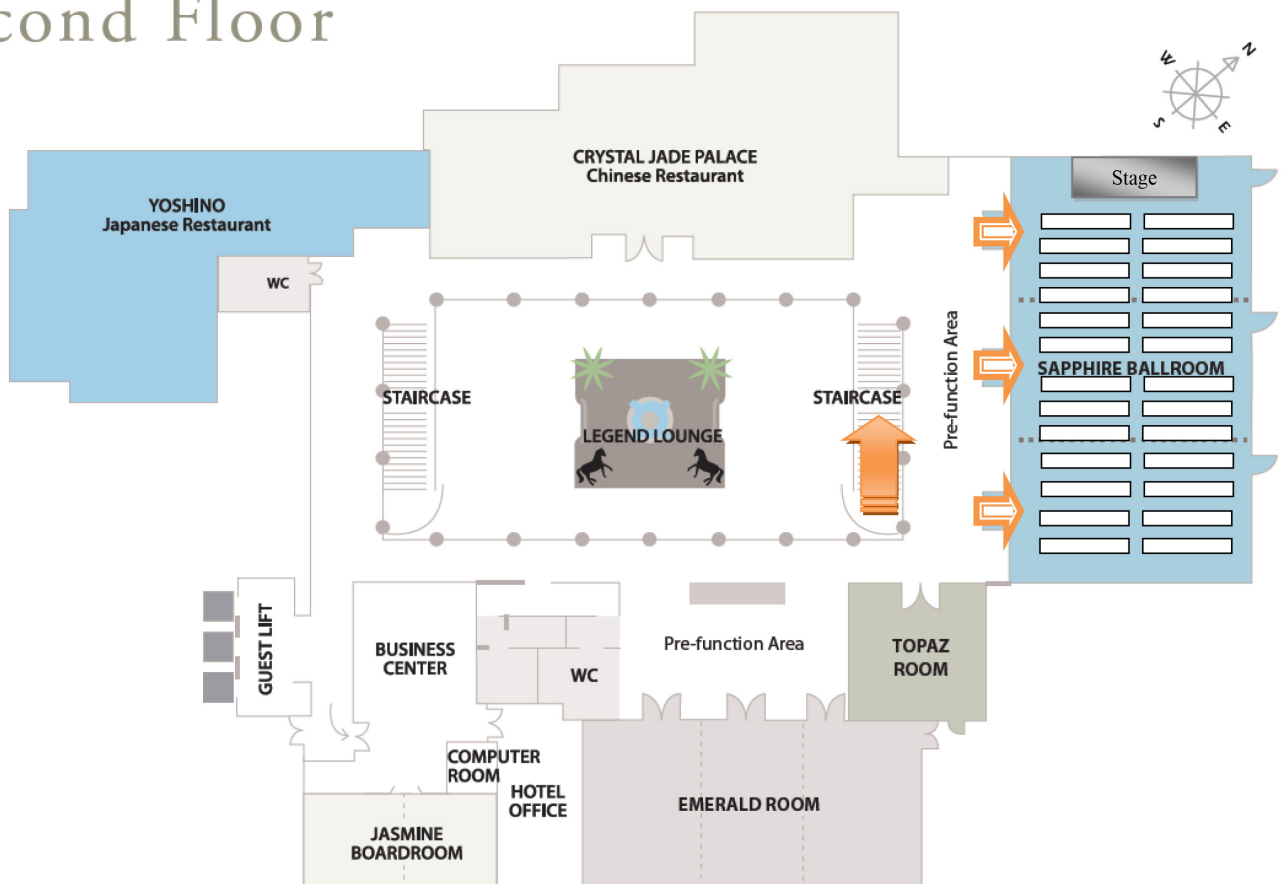
## Thursday April 14

7–8:15 a.m.	Registration and Check-in
8:30–10:45 a.m.	Morning Plenary Session
10:45–11:15 a.m.	Break
12–1:30 p.m.	Lunch (Atrium Cafe & Oggi Bar)
1:30–3 p.m.	Technical Session Breakouts
3–3:30 p.m.	Coffee and Tea Break
3:30–5 p.m.	Technical Session Breakouts
5:00 p.m.	End of the First Day

## Friday April 15

7:30–8:15 a.m.	Check-in and Coffee
8:30–12 p.m.	Morning Plenary Session
10:15–10:45 a.m.	Break
12–1:30 p.m.	Lunch (Atrium Cafe & Oggi Bar)
1:30–3 p.m.	Technical Session Breakouts
3–3:30 p.m.	Coffee and Tea Break
3:30 p.m.	End of Conference

## Second Floor



**Thursday, April 14  
Program (Sapphire Ballroom)**

**7 a.m.**

Registration and Check-in

**7–8:15 a.m.**

Coffee Reception (2nd floor lobby)

**Master of Ceremonies: Karl Theisen**

Managing Director, Vietnam, HEEAP

**8:30 a.m.**

Welcome Remarks

**Dr. Do Van Dung**

Rector, HCM University of Technology and Education

Dr. Do Van Dung has been the Rector of Ho Chi Minh City University of Technology and Education since 2013. He received his Bachelor's in Engineering and Master's of Engineering in Automotive Mechatronics from the Moscow State Technical University, Soviet Union in 1983 and 1985, respectively. In 1986, he joined as a Lecturer at Ho Chi Minh City University of Technology Education. During this time additionally he has charged as a Chief Executive Officer (CEO) at Automotive Company THANH PHAT, which in one of the main dealers for Mitsubishi. In 1995, he received Ph. D in Automobile Engineering from the Moscow State Automotive Academy, Russia. In 2000, additionally he received the Master degree in Educational Management at The University of Sydney (Australia). His research is related to the Automobile and its engine control systems, renewable energy (Biogas, LPG, CNG) for Internal Combustion Engines and Educational Management.



**8:40 a.m.**

Distinguished Opening Comments

**Honorable Dr. Pham Vu Luan**

Minister, Ministry of Education and Training

Prof. Dr. Pham Vu Luan is originally from Hanoi. He is a member of the Party Central Committee of the XIth session of the Communist Party of



Vietnam and a Congress delegate of the XIIIth session. He received his Ph.D at Kiev University of Economics and Commerce, Soviet Union in 1987. He then returned to Vietnam to serve as a lecturer, then Chairman of Department of Economics and Commerce by the Vice Dean, Vietnam University of Commerce. In 1998 he became the Vice Rector, then Deputy Leader of Communist Party of the university and later Rector of the university. In 2004 he was voted to be Deputy Minister and then Permanent Deputy Minister of Ministry of Education and Training by the Communist Party Steering Commission members of the Ministry. In 2010 he became the Minister and Leader of Communist Party Steering Commission of the Ministry Education and Training.

**Honorable Mr. Ted Osius**

United States Ambassador to Vietnam

A career member of the Senior Foreign Service, Class of Minister-Counselor, Ted Osius presented his credentials to President Sang on December 16, 2014, becoming the sixth U.S. ambassador to the Socialist Republic of Vietnam. Prior to his confirmation as ambassador, Mr. Osius was Associate Professor at the National War College and Senior Fellow at the Center for Strategic and International Studies. He served as Deputy Chief of Mission at the U.S. Embassy in Jakarta, Indonesia, and Political Minister-Counselor at the U.S. Embassy in New Delhi, India. Mr. Osius also served as Deputy Director of the Office of Korean Affairs at the State Department, Regional Environment Officer for Southeast Asia and the Pacific, and Senior Advisor on International Affairs at the Office of the Vice President. Early in his career, Mr. Osius helped open the U.S. Consulate General in Ho Chi Minh City and was one of the first U.S. diplomats at the U.S. Embassy in Hanoi. He also served in the United Nations, the Holy See and the Philippines. Prior to joining the Foreign Service, Mr. Osius worked in the Office of U.S. Senator Albert Gore, Jr., and as a Presidential Intern at the U.S. Embassy in Cairo, Egypt. He earned a Bachelor's degree from Harvard College and a Master's degree from Johns Hopkins' School of Advanced International Studies.



**9–9:45 a.m.**

Social Responsibility by Industry to increase access to Higher Education: The ASU- Starbucks Partnership

**Ms. Sara Kelly**

Vice President, Partner Resources (HR) for Asia Pacific, Starbucks Corporation

Sara Kelly is vice president of Starbucks Partner (Human) Resources



for its Asia Pacific market within the China Asia Pacific Region. In partnership with Starbucks leadership Sara is responsible for delivering an innovative partner experience, which inspires partners to deliver their best. She prepares leaders to develop partners consistent with Starbucks company values. Sara has 14 years of experience as a Starbucks leader. Previously, she served as vice president of Partner Resources supporting Starbucks Global Channel Development business. The business unit is comprised of Starbucks Consumer Packaged Goods (CPG) portfolio and Branded Solutions, which includes licensed stores and food service. In this role Sara led the strategy to connect people around the world where they live, work and play to enjoy the Starbucks experience. A native of Southern California, after a great Starbucks journey in the United States, Sara and her family moved to Hong Kong in July 2015. Sara, her husband and two small children are enjoying calling Asia home. Her passion is people--her family, her friends, and her partners. Sara holds a B.A. in Business Administration (minor in Human Resources) from California Polytechnic University of San Luis Obispo in California.

**9:45–10:45 a.m.**  
**Workforce Competitiveness: Ideas and Advocacy for Improving STEM Graduates in Vietnam**

**Moderator: Jeffrey Goss**  
 Director, HEEAP  
 Vice Provost, Arizona State University

**Distinguished Panelists**

**Mr. Javier Perez Bordallo**

**Director of the Industrial Engineering Department, Intel Products Vietnam**

Mr. Javier Perez Bordallo is currently the Director of the Industrial Engineering Department of Intel Products Vietnam. He has a Bachelor's Degree in Industrial and Systems Engineering from the Instituto Tecnológico de Monterrey (Monterrey, Mexico). Javier has been working in Intel Products Vietnam for the last 8 years and has led different projects and departments during the startup of Intel Products Vietnam.



**Mr. Bruce Newton**  
 General Director, e-Silicon Corporation

Bruce Newton is a senior Business and HR professional who has held lead roles in a number of global organizations and successfully



completed major international projects in over 30 countries. He now holds the post of General Director/Senior Human Resources Director, APAC with eSilicon Corporation, a US owned and leading independent provider of Semiconductor Design and Manufacturing Solutions with its Vietnam offices being located in Ho Chi Minh City and Danang. Bruce commenced his career in Sydney and was posted on international HR assignment to Hanoi in 1994, later moving to Singapore in 1999 to take up a Regional Director role and then relocating back to HCMC in 2009. During his career, Bruce has worked in a range of industries covering telecommunications, logistics, information technology, education/university, professional services sector as well as holding Board of Director roles in a number of companies. Bruce's 20 years of experience working with both government, university and private sectors in Vietnam has given him the opportunity to be an active player in the continuing transformation of the technology and education sectors during this period. Bruce holds a Bachelor of Business Degree from the University of Technology Sydney, Certificates in Training and Organization Design and also a Master of Business Administration Degree from the University of Southern Queensland, Australia.

**Ms. Vu Lan Anh**  
 Education and Workforce Leader, The World Bank Group

**Mr. Vo Quang-Hue**

**Managing Director Robert Bosch Vietnam Co. Ltd.**

Vo Quang-Hue has held the post of Managing Director of Bosch Vietnam Co., Ltd. since 2008. He is a member of the Member's Council of Robert Bosch Engineering and Business Solutions Vietnam Co., Ltd. and also a member of the Board of German Business Association in Vietnam. Vo serves as the Executive Committee Member of the European Chamber of Commerce in Vietnam. Vo began his professional career with the BMW Group in 1980. During his more than 24 years with the world-renowned automobile company, he amassed a wide range of experience in several functions. Vo was also based out of Egypt for six years as Representative for the BMW Group before returning to his home country to establish and develop Bosch in Vietnam since August 2006. Vo majored in Automobile Engineering in Koeln and Mechanical Engineering in Aachen, Germany.



**Mr. Le Van Hai**  
 Chief Representative and Market Access Manager, Rockwell Automation Southeast Asia, Vietnam.

Le Van Hai is the Chief Representative and Market Access Manager of



Rockwell Automation in Southeast Asia in Vietnam. As a part of the Chief Rep Office of Rockwell Automation in Vietnam, Hai leads the establishment and development of Rockwell Automation in the country. His key role includes developing and maintaining the business relationships of Rockwell Automation with its partners, Distributors and System Integrators. He has developed new initiatives and successful collaborations in University Partnership Programs focused on modernization and transformation of teaching and learning in technical programs with Hanoi University of Science and Technology and HCMC University of Technology and Education. Hai has a lot of experience in Industrial Automation from his previous positions as Project Engineer, Project Manager, Field Business Lead and Market Access Lead. He graduated from Hanoi University of Science and Technology, majored in Automatic Control.

**Mr. Nguyen Ba Quynh**

**Director Public Sector Lead, Microsoft Vietnam**

Before joining Microsoft, Nguyen Ba Quynh was senior vice president, head of the Global Change Delivery division (GCD) at HSBC Asia & South Pacific (ASP), based in Vietnam. Before HSBC, Quynh already had more than 20 years' experience in sales management, services management in IT industry and a good track record in Multi-National Corporations like IBM, where he worked from 2001 – 2014. While at IBM he held various roles, including as the General Manager of the Software Group, the Deputy Country General Manager, and the Country Manager of IBM Global Services for Indochina Territory. Similarly, he worked at Hewlett Packard from 2009-2012 as the Country General Manager of Imaging & Printing Group. He also spent 3 years at Schneider Electric as the General Director of APC. Quynh has been the public IT speaker at various government & public technological and economic events, including CEO World Forum Vietnam, Vietnam Economic Forum, IDG E-government workshop, Vietnam Banking Conference, and Nhip Cau Dau Tu Investment Forum, to name a few. Quynh received his Master's Degree in Computer Engineering & Telecommunication Management at Franco-Polish School of New Information & Communication Technologies in Poland. He also holds an MBA Degree from University of Hawaii, Schidler College of International Business, USA.



**10:45–11:15 a.m.**

Coffee Break (2nd floor lobby)

**11:15 a.m.–12:00 p.m.**

Why is AUN-QA and ABET Accreditation important for Science and Technology Development in Vietnam?

**Moderator: Dr. Nguyen Cuong Charles**

**Dean School of Engineering, The Catholic University of America, USA**

**Distinguished Panelists**

**Dr. Tran Anh Tuan**

**Deputy Director General of Higher Education Management, Ministry of Education and Training**

Dr. Tran Anh Tuan is the Deputy Director General for Department of Higher Education, Ministry of Education and Training. Previously, he had been the Vice Dean for Faculty of Geography at Hanoi University of Science, Vietnam National University. Dr. Tuan obtained his Ph.D. in Human Geography from Kansai University, Japan in 2006 and holds a Master of Science degree in Geography from Hanoi University of Science, Vietnam National University. He has led quite a few sustainable development projects nationwide and published a lot of books and papers on the strategic development of geography in Vietnam.



**Dr. Dao Khanh Du**

**Rector, Cao Thang Technical College**

Dr. Dao Khanh Du is the 17th Rector of Cao Thang Technical College. Previously, he had been a Mechanical lecturer, head of Mechanical Department, head of Academic Affairs, and Vice Rector of CTTC. His major research interests are Mechanical Manufacturing Engineering and his expertise is in building Vocational Academic Programs. He is consistent with the CTTC's sustainable development goals, he has also devoted special attention to positive innovation to ensure CTTC offers a quality education.



**Dr. Vu Dinh Thanh**

**Rector, Ho Chi Minh City University of Technology**

Dr. Vu Dinh Thanh is a Professor of Electrical Engineering at Ho Chi Minh City University of Technology (HCMUT), Vietnam. He received his Bachelor's of Science in 1982 from HCMUT, his Master's of Science in 1990 and his Ph.D. in 1993 in Electrical Engineering from Institut National Polytechnique de Grenoble (INPG), France. His research centers on microwave engineering (electromagnetic modeling, array antennas, smart antenna) and on digital signal processing in MIMO systems, in cognitive telecommunications. He served as



Dean of Department of Electrical Engineering from 2002 to 2007 and since 2007, he has been being the Rector of the HCMUT.

### Dr. Ha Thanh Toan

#### Rector, Can Tho University

Assoc. Prof. Dr. Ha Thanh Toan has served as the Rector of Can Tho University, Vietnam since March 2012. Prior to becoming Rector, Dr. Ha Thanh Toan was Director of the Biotechnology Research and Development Institute, Can Tho University. His interested research fields are post-harvest technology of rice and tropical fruits – reduce post-harvest losses, improve process quality, application of biotechnology in food processing, application of new technology in food processing to improve Vietnamese traditional foods, and new model of higher education management in Vietnam.



### Dr. Huynh Quyet Thang

#### Vice President, Hanoi University of Science and Technology

Assoc. Prof. Huynh Quyet Thang serves as the Vice President for Communications and External Relations in Hanoi University of Science and Technology. Since 1998 he has been a faculty member at the School of Information and Communication Technology. He has over 20 year experiences in the ICT sector in Vietnam and has participated in numerous training projects. He has published over 80 scientific articles and 4 textbooks. He received a Bachelor's Degree and Phd. Degree in 1990 and 1996 respectively, in the Republic of Bulgaria.



### Dr. Kyle Squires

#### Dean, Ira A. Fulton Schools of Engineering, Arizona State University

Dr. Squires serves as the Dean for the Ira A. Fulton Schools of Engineering at Arizona State University. Previously, he served as director for the School for Engineering of Matter, Transport and Energy (SEMTE), one of the six Ira A. Fulton Schools of Engineering. As SEMTE director, he oversaw degree and research programs in aerospace engineering, chemical engineering, materials science and engineering, mechanical engineering and the professional science master's program in solar energy engineering and commercialization. Enrollment in SEMTE programs was over 3,500 students in 2014-2015. Squires is a professor of mechanical and aerospace engineering. Prior to joining ASU in 1997, Squires was on the faculty of the mechanical engineering department at the University of Vermont. Previously he was a postdoctoral research associate



at the Center for Turbulence Research at Stanford University. He has held numerous visiting appointments in the U.S., Japan and Europe and was elected a Fellow of the American Physical Society in 2008. Squires holds a B.S. in mechanical engineering from Washington State University and M.S. and Ph.D. degrees in mechanical engineering from Stanford University.

12–1:30 p.m.

Lunch (Atrium Cafe & Oggi Bar - Ground floor)

1:30–3 p.m.

Afternoon Concurrent Technical Track 01

### Session 01: Active Learning: Examples and Practices #1 (Emerald Room 1)

*Dewi Sari Dewi Dian (Widya Mandala Catholic University)*

*Thran Thi My Dung (Can Tho University)*

Implementation of Flexible and Active Learning Methods

*Dr. Pham Trung Kien (HCMC University of Technology)*

Apply Active Learning Method from HEEAP Training in HCMUT – Case Study at Project on Mechanical Engineering Course

### Session 02: Accreditation from a Program/ Institution Level Perspective (Sapphire Room 1)

*Dr. Nguyen Huu Phuc (Ho Chi Minh University of Technology - HCMUT, Electrical- Electronics Engineering)*

Developing an Effective Workforce through Curricular Innovation: Lessons Learnt from Advanced Program Implementation at HCMUT

*Dr. Marcus David Ingle (Portland State University)*

*Dr. Huan Van Dang (Portland State University)*

Higher Education Institution Policy Innovation in Vietnam: A Practical Leadership Framework and Toolkit for Co-Producing Reform

*Dr. Vo Minh Tri (Cantho University)*

Building IAB for a Program Reveals More Challenges as Institution Located in Agricultural Area

### Session 03: Maker Spaces, FabLabs and Supporting PBL Activities (Sapphire Room 2)

*Pham Dang Khoa (National Instruments)*

Accelerate Student Innovation in Maker Spaces with Tools of Discovery

*Dr. Nguyen Vu Quynh (Lac Hong University)*

A Redesigned Curricula to Develop Winning Student Inventions and International Competition Wins

*Dr. Rita Tahir Lopa (Hasanuddin University)*

Labo-Based Education (LBE) to Foster Students Through Research Works Based in a Laboratory

### **Session 04: Promoting Collaboration and Cooperation Between Industry and Universities (Sapphire Room 3)**

*Tran Thanh Huong (HCMC University of Technology and Education)*

Experience in University- Industry Cooperation in Education and Facility Sponsorship

*Dr. Nguyen Van Cuong (Cantho University)*

Industry-Academic Collaboration - Key to Improve Quality of Mechanical Engineering Graduates

*Bruce Newton (E-Silicon Corporation)*

Having the Right High Tech Industry and Academic Partnership

### **Session 05: Developing Professional Skills in Students - "Soft Skills" and More (Emerald Room 2)**

*Dang Thi Thuong (Danang University of Technology)*

*Bui Thi Hoang Uyen (Danang University of Technology)*

*Dr. Nguyen Dinh Son (Danang University of Technology)*

Soft skills in students at Danang University of Technology: Survey and Solutions

*Do Thi My Trang (HCMC University of Technology and Education)*

*Do Manh Cuong (HCMC University of Technology and Education)*

The Correlation Between Student's Self-learning Skills and Learning Results- at HCMUTE

*Dang Thi Dieu Hien (HCMC University of Technology and Education)*

Factors Relating Students' Planned Activities of some Universities in Ho Chi Minh City

### **Session 06: Campus Technology Resources (Emerald Room 3)**

*Dr. Nguyen Minh Phu (Ho Chi Minh University of Technology)*

*Hoang Thi Nam Huong (Ho Chi Minh University of Technology)*

Using EES Software in Technical Teaching and Learning Activities

*Dr. Truong Dinh Nhon (HCMC University of Technology and Education)*

Professional Development Training and In-company Training of UTE - Rockwell Automation Lab

*Hieu Hoang (Oracle)*

Higher Education Solutions Overview

**3–3:30 p.m**

Coffee Break (2nd floor lobby)

**3:30–5 p.m.**

**Afternoon Concurrent Technical Track 02**

### **Session 07: Active Learning: Examples and Practices #2 (Emerald Room 1)**

*Nguyen Minh Luan (Cantho University)*

*Tran Thi My Dung (Cantho University)*

*Tran Thi Tham (Cantho University)*

Active Learning and Teaching Methods in Large Classes

*Dr. Le Lam Son (Ho Chi Minh University of Technology)*

*Truong Thi Thai Minh (Ho Chi Minh University of Technology)*

*Le Dinh Thuan (Ho Chi Minh University of Technology)*

Coupling In-class Exercises with Lab Assignments to Boost Students' Teamwork in Teaching SE: a Case from HCMC UT.

### **Session 08: Tools, Methods and Processes to Support Accreditation (Emerald Room 2)**

*Nguyen Thi Le Thuy (Cantho University)*

*Tran Thi Tham (Cantho University)*

*Vo Tran Thi Bich Chau (Cantho University)*

Application of QFD for Curriculum Development Process: Collecting and Determining Stakeholders' Requirements

*Nguyen Quoc Van (Cao Thang Technical College)*

Process of Continuous Improvement at Cao Thang Technical College

*Dr. Nguyen Chi Ngon (Cantho University)*

Human Resources Development – a Core Factor in Quality Assurance

*Chan Phakkdey (National Technical Training Institute)*

Factors Affecting TVET quality: A Case of Two Public TVET Institutions in Cambodia



**Session 09: Innovative Centers for Education (Sapphire Room 1)**

*Dr. Michael Braun (Vietnamese German University)*  
*Thomas Guidat (Vietnamese German University)*  
*Dr. Carsten Reise (Vietnamese German University)*  
 Practice-oriented Teaching as a Path to Couple Practical Engineering Education to Sustainable Growth Opportunities in Vietnam  
*Dr. Nguyen Ba Hai (HCMC University of Technology and Education)*  
 A New Model of School of Innovation & Entrepreneurship at HCMUTE  
*Lyza Anna Sancho Felipe (RMIT University Vietnam)*  
*Dr. Alex Stojcevski (Other)*  
*Pham Chi Thanh (RMIT University Vietnam)*  
*Dr. Edouard Amouroux (RMIT University Vietnam)*  
 Interdisciplinary Collaborative Learning in the Centre of Technology at RMIT University Vietnam

**Session 10: Examples of Industry-University Partnerships (Sapphire Room 2)**

*Jean-Louis Biaggi (University of Science and Technology of Hanoi)*  
*Jerome Retif (Dassault Systèmes Academy France)*  
*Nguyen Ngoc Van Thanh (University of Science and Technology of Hanoi)*  
 Engineers for Virtual Product Development  
*John Joseph Mitchell (Arizona State University)*  
 Public Private Partnerships to address the Terawatt Challenge  
*Dr. Michael Braun (Vietnamese-German University)*  
*Peter Wunsch (Deutsche Gesellschaft für Internationale Zusammenarbeit)*  
 Integrated Engineering Education; Cooperation between Education & Industry for Competitive Workforce – experiences from Germany

**Session 11: Language and Global Studies/ Research (Sapphire Room 3)**

*Dr. Tran Ngoc Dam (HCMC University of Technology and Education)*  
 Global R&D in Developing Country, Vietnam  
*Min Shin (Chungdahm Learning)*  
*James Cervin (Arizona State University)*  
 Instructional Technology Design: Smart Classrooms

**Session 12: Capstone Projects and Internships - Closing the Loop on the Educational Experience (Emerald Room 3)**

*Dr. Pham Huy Tuan (HCMC University of Technology and Education)*  
*Dang Minh Phung (HCMC University of Technology and Education)*  
 Linking Internship and Capstone Projects: An Inquiry-Based Learning Method to Prepare Students with Work-Ready Skills  
*Dr. Pham Huy Hoang (Ho Chi Minh University of Technology)*  
 Capstone Projects: Trial Versions and Improving Solution  
*Dr. Le My Ha (HCMC University of Technology and Education)*  
*Nguyen Tran Minh (HCMC University of Technology and Education)*  
*Le Thi Thanh Hoang (HCMC University of Technology and Education)*  
 The Proposal for Replacing Conventional Thesis by Capstone Project in Engineering Course Assessment

**5:00 p.m.**

**End of the First Day**

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**Friday, April 15**

**7:30–8:15 a.m.**

Check-in and Coffee/Tea (2nd floor lobby)

**Plenary Sessions:**

**8:30–9:30 a.m.**

The Workforce Landscape of ASEAN Economic Community: Why is Science and Technology Capacity Important?

**Moderator: Marco Santello**

Director, School of Biological and Health Systems Engineering, Arizona State University

**Distinguished Presenters**

**Honorable Dr. Nguyen Quan**

Minister, Ministry of Science and Technology

Dr. Nguyen Quan is originally from Thai Binh. He is a member of the Party Central Committee of the XIth session of the Communist Party of Vietnam. He served as a faculty member at Hanoi University of Science and Technology from 1977-1980 before joining the army and working as technical assistant to the High Command of the Air Force of Vietnam. From 1983-1999 he returned to Hanoi University of Science and Technology as a faculty member and Vice Dean. He served as the Head of Organization and Personnel Department and then Vice Rector of Hanoi University of Science and Technology before entering his current role of Minister of the Ministry of Science and Technology (MOST).



**Honorable Ms. Rena Bitter**

United States Consul General of Ho Chi Minh City

Rena Bitter is a career Senior Foreign Service Officer and with nearly twenty years in the Foreign Service, Ms. Bitter has served in Europe, the Middle East, Latin America and Washington DC. She most recently served under Secretary Clinton as Director of the State Department's Operations Center, the Department's 24/7 Briefing and Crisis Management Center. Prior to her work in the Operations Center, Ms. Bitter served as Consular Section Chief in Amman, Jordan and Nonimmigrant Visa Chief in



London. She was a Special Assistant to Secretary of State Colin Powell from 2001-2002 and on Madeleine Albright's Secretariat Staff from 1999-2000. She has also served at Embassies Bogota and Mexico City. Ms. Bitter is a native of Dallas, Texas and attended Northwestern University. She speaks Vietnamese, Spanish and limited Arabic.

**9:30–10:15 a.m.**

The Smart-Connected Society: How is Internet of Everything going to transform the World and implications for Higher Education?

**Moderator: Dr. Kyle Squires**

Dean, Ira A. Fulton Schools of Engineering, Arizona State University

**Distinguished Presenters**

**Ms. Sherry Boger**

VP and General Manager, Intel Products Vietnam

Sherry Boger is the General Manager of Intel Products Vietnam and is responsible for all aspects of the ramp of Intel's \$ 1B state-of-the art assembly and test facility located in HCMC. The new HCMC factory will produce the latest technology microprocessors and chipsets for Intel's global supply chain and when full the site will employ 4000 employees. Prior to coming to Vietnam, Sherry was responsible for Intel's highest volume chipset operations in Chengdu China from November 2009 through October 2012. Prior to this, Sherry was in Shanghai China leading the asset transfer and disposition strategy as part of Intel's consolidation efforts. From 2007-2008, Sherry was the Fab Director for Intel-Micron NAND Flash Joint Venture, leading the green field start-up of a \$2B state-of-the-art semiconductor fabrication facility located in Singapore. Sherry started working for Intel in 1993 and has spent most of her working career in fab in various positions within engineering. She has done two development rotation assignments in technology development, working at five different sites in the US and three sites internationally.



**Mr. Andrew Bell**

Vice President, National Instruments (USA)

As Director of Academic Programs, Andy Bell oversees a team whose mission is to empower discovery in undergraduate classrooms, graduate-level studies, and advanced research



through the use of LabVIEW system design software and NI hardware. Since joining NI in 2000, Bell has held positions spanning from field and applications engineering to leading strategic partnerships with organizations such as FIRST Robotics and Project Lead the Way. Most recently, Bell managed the academic program for North and South America. Previously, Bell has also worked for LEGO Education as the Director of Innovation and Alliances where he focused on transforming K-12 science, technology, engineering, and math (STEM) education through the development and improved use of robotics technology. Bell serves on several advisory boards including the American Society for Engineering Education (ASEE), the Southern Regional Educational Board (SREB), and the Electrical and Computer Engineering Department Heads Association (ECEDHA). Bell holds a bachelor's degree in mechanical engineering from the Georgia Institute of Technology and a certificate in Integrative STEM Education from Virginia Tech.

**10:15–10:45 a.m.**

Coffee Break (2nd floor lobby)

**10:45–11:45 a.m.**

Cultivating Innovators and Big Thinkers:  
Platforms to Develop Innovative STEM  
Curriculum and Analytical Tools

**Moderator: Mr. John Rome**

Deputy Chief Technology Officer, Arizona State University

**Dr. Phuong Hoang Kim**

Director General of Human Resources, Ministry of Industry and Trade (MOIT)

Dr. Phuong Hoang Kim, received his Master's of Science in AIT Thailand and Ph.D in Hanoi University of Science and Technology in 2007. He has been with the Science and Technology Department since 2002. Dr. Kim is in charge of energy conservation not only for the Ministry of Industry and Trade but also for all of Vietnam. Thanks to his efforts the Law of Energy Conservation and Efficiency was enacted in 2010. In 2013, he was promoted to be Director General of the Department of Human Resource Development, Ministry of Industry and Trade which manages 49 institutions (10 Universities and 39 colleges) with more than 300,000 students in total. With the task of reforming the education and training system in MOIT, he has tried to innovate teaching and learning by introducing new models and approaches to higher education with strong participation from the Industry/Enterprise sector.



**Mr. Francis Nguyen**

Evangelist, Microsoft Corporation

**Mr. Damian Haas**

Regional Director, Oracle Academy, JAPAC

Damian is the Regional Director for Oracle Academy across Asia Pacific and Japan. The role involves the oversight of activities to support Oracle Academy's mission to advance computer science education globally through its portfolio of learning resources and to make it accessible and engaging to students. Oracle Academy is an entirely free and philanthropic program designed to enable higher education learners to advance proficiency in core, in-demand skills which are fundamental to modern computing. Damian has over 20 years experience in sales, marketing and business development within the information technology industry in Australia/New Zealand and internationally. He has worked for both Fortune 500 companies and small-medium enterprises specializing in market and business development. Damian has held various management roles with IBM in AsiaPac within Learning Services. In 2005 he joined an Australian enterprise specializing in learning technologies and successfully launched and managed their UK/Europe operations which included partnering on projects with higher education institutions and participation in the annual Online-Education Conference in Berlin. In 2011, Damian was engaged by Oracle University as an Education Solution Consultant and was subsequently appointed the Director of Oracle University for Australasia until his appointment with Oracle Academy in 2016.



**Mr. Vincent Quah**

Business Development Lead, APJ -Education, Research and Not-For-Profit at Amazon Web Services

With more than 25 years of experience working in the education and research sectors, Vincent is currently the Business Development Lead for the Education, Research and Not For Profit sectors across Asia Pacific and Japan at Amazon Web Services. He has held multiple roles in his career, including sales and business development, consulting, strategic engagements, project and programs management. His passion has lead him to pioneer several initiatives across the Asia Pacific and Japan region, led successful teams to deliver strong business outcomes and have spoken at major events and conferences.



**12:00–1:30 p.m.**

Lunch (Atrium Cafe & Oggi Bar - Ground floor)

1:30–3 p.m.

Afternoon Concurrent Technical Track 03

**Session 13: Active Learning: Examples and Practices #3 (Sapphire Room 1)**

*Dao Vinh Xuan (HCMC University of Technology and Education)*

*Dr. Nguyen Loc (HCMC University of Technology and Education)*

*Dr. Dang Van Thanh (HCMC University of Technology and Education)*

A Survey of Cases for use in Applying Case Study Methods

*Dr. Nguyen Dinh Son (Danang University of Technology)*

Active Learning Experiences for Large Class in Engineering Mechanics Course

*Dr. Nguyen Van Cuong (Cantho University)*

Effective Application of Active Learning Method for Mechanics Course

**Session 14: Accreditation: Examples and Best Practices (Sapphire Room 2)**

*Ngo Thi Thanh Binh (Cao Thang Technical College)*

Developing and Implementing an Assessment and Evaluation System at CTTC

*Dr. Dedison Gasni (Andalas University)*

*Dr. Ismet Hari Mulyadi (Andalas University)*

Defining and Reviewing Program Educational Objectives of Mechanical Engineering Department at Andalas University Indonesia

*Phan Phuong Lan (Cantho University)*

*Dr. Ngo Ba Hung (Cantho University)*

Developing a Assessment System

**Session 15: Techology for Teaching (Emerald Room 1)**

*Tran Thanh Ha (HCMC University of Technology and Education)*

The Electronic Portfolio Development Process for Graphic Arts and Media Students

*Dr. Le Thanh Phuc (HCMC University of Technology and Education)*

Implementation of Pearson – Moodle for Teaching and Learning at HCMUTE

*Abdul Rahman (USAID)*

Blended Learning for Quality Assurance Course through HELM Project in Indonesia

**Session 16: Assessment Techniques (Emerald Room 2)**

*Dr. Duong Thi Kim Oanh (Ho Chi Minh University of Technology)*

Reforming Competency Based Assessment for Postgraduate Students in Education Science at Institute of Technical Education, Ho Chi Minh City

*Ngo Anh Tuan (HCMC University of Technology and Education)*

Roles of Reflection and Reflective Practice in Engineering Education

*Mr. Vo Minh Huan (HCMC University of Technology and Education)*

Analyzing Student's Motivations for Using Online Formative Assessment

*Dr. Vo Minh Huan (HCMC University of Technology and Education)*

Web Based Informative Assessment for Crowded Classes

**Session 17: Employability Skill Development (Emerald Room 3)**

*Ho Phung Hoang Phoenix (RMIT University Vietnam)*

*Nguyen Thi Tuyet (RMIT University Vietnam)*

Career Services: The Bridge Between the University Students and the Industry

*Le Thi Tuyet Mai (Nong Lam University Ho Chi Minh City)*

*Dr. Doan Hue Dung (Nong Lam University Ho Chi Minh City)*

Employability Skills for Undergraduates

**Session 18: Maker Spaces - Making Them Work (Sapphire Room 3)**

*Tran Hoang Quan (Ho Chi Minh University of Technology)*

Complementary Courses on Demand: A Way to Narrow the Gap between Universities and Industries/Maker-Communities

*Dr. Vo Minh Tri (Cantho University)*

Project-based Laboratory with Available Facilities Can Make up of a Small Maker Space

*Nguyen B Hoi (GoFabLabs & University of Danang)*

*Hoang-Anh Phan (Fablab Saigon)*

Fablabs - Saigon and Danang

3–3:30 p.m.

Coffee Break (2nd floor lobby)

3:30 p.m.

End of Conference

## Thursday, April 14 - Track 01

### Session 01: Active Learning: Examples and Practices #1

#### ABSTRACT

##### Implementation of Flexible and Active Learning Methods

*Dewi Sari Dewi Dian, Thran Thi My Dung*

*Widya Mandala Catholic University, Can Tho University - CTU  
dianretnosd@yahoo.com*

Motivated by exploring the main principles of education by UNESCO since 1997, "The Four Pillars of Education", which is learning to know, to do, to be and to live together, we want to know the impact of increasing learning ability among the students using flexible learning methods (FLM) and active learning methods (ALM). From our preliminary research, there were gaps between the expectation and the level of satisfactory on our stake holder about our alumni performances. Stakeholders said that they need a person who has a high emotional quotient (EQ) not only intelligence quotient (IQ). Our learning system is a traditional one that depend on teacher control such as: lecture, demonstration, and tutorial. We have to develop the active methods of learning to achieve high EQ. Flexible Learning is a expansive term for education formats offering improved schedule handiness and personalization, allowing learners to make choices about where, when, and how learning occurs. Flexible courses are demanding; students must manage time well and be self motivated to be successful. Active learning is a model of instruction that focuses the accountability of learning on learners. Students must do more than just listen: They must read, write, discuss, or be occupied in solving problems. We were implemented FLM and ALM in the subject of Marketing research in Industrial Engineering department. We were using quantum teaching for teaching methods and also mind mapping. To analyze the character of each student, we were using personality puzzle and for creating as a team work we were using enabling knowledge creation, starting block, field trip, simulation and role play. Presentation, peer learning scoring, individual assessment are using as evaluation tools. As a result, not only the individual score is increasing but also their softskills are increased.

#### ABSTRACT

##### Apply Active Learning Method from HEEAP Training in HCMUT – Case Study at Project on Mechanical Engineering Course

*Dr. Pham Trung Kien*

*Ho Chi Minh University of Technology - HCMUT  
phamtrungkien@hcmut.edu.vn*

Active learning method is essential for student to develop all skills in science, technology, engineering and mathematic (STEM). Vietnam is developing country with huge source of young manpower but the workforce is not being trained to on active learning. To improve the skills of my students I have aimed to apply many active learning techniques in my Mechanical Engineering class.

Active learning is necessary to develop all skills in science, technology, engineering and mathematic (STEM). In order to improve the quality of students or future workforce, the lecturer must apply active learning technique. However, students are not familiar with active learning. They are so shy to speak in front of class and do not show confidence in themselves. Our approach is taken step-by-step, where the students are first split in to different groups and are forced to speak to as many as possible. Then we implement active learning skills such as brainstorming, group discussion etc. in order to help the students become more familiar to public speaking. At the end of the course, students are confident present their work individual as well as team. They do model on the machine and are excited to see the real machine at the company during subsequent field trips.

### Session 02: Accreditation from a Program/ Institution Level Perspective

#### ABSTRACT

##### Developing an Effective Workforce through Curricular Innovation: Lessons Learnt from Advanced Program Implementation at HCMUT

*Dr. Nguyen Huu Phuc*

*Ho Chi Minh University of Technology - HCMUT  
nhphuc@hcmut.edu.vn*

As a member in the Trans-Pacific Partnership (TPP) and the ASEAN Economic Community (AEC) Vietnam is now eager and under high pressure and to be integrated into the global economic market through transforming its engineering higher education to meet the international standard workforce criteria. Since 2006 with the initiation of Vietnam Ministry of Education and Training a national-level project of introduction of the Advanced Program Training has been carried out in select Vietnam universities, in which the HoChiMinh City University of Technology (HCMUT) with a program in Electrical Engineering. The project main objective is to implement a program of advanced undergraduate education to create conditions for building and development of a number of training programs, departments, universities meeting regional and international standards, and to contribute to fundamental and comprehensive reform of Vietnam engineering higher education in its efforts to meet the international workforce standard. The Advanced Program in Electrical- Electronics Engineering (AP-EEE) at HCMUT is one among other 30 programs based on the academic

system (curriculum, syllabi, academic regulations...) currently and widely applied in more advanced universities in the world. In the program modern teaching methodology with student process evaluation is applied. The goal of AP-EEE is to provide students with modern scientific and technical knowledge, professional skills with their full immersion in English studying environment, and to inspire them to develop analytical, synthesis capabilities and facilitate integration into the highly competitive and fast changing working environments in the future. All academic activities within AP-EEE (courses lecturing, homeworks, discussions, projects, thesis... are completely conducted in English, except some humanity subjects in Vietnamese. After 10 years (2006-2016) of AP- EEE implementation at HCMUT, it is now high time that evaluations should be made in terms of its achievements, impacts on HCMUT engineering curricular transform process, as well as the issues and lessons learnt from the program implementation. The analysis is for further improvements and developments of the country higher engineering education, in its comprehensive effort to prepare a workforce responding to the needs of an emerging global economy.

## ABSTRACT

### Higher Education Institution Policy Innovation in Vietnam: A Practical Leadership Framework and Toolkit for Co-Producing Reform

*Dr. Marcus David Ingle, Dr. Huan Van Dang*

*Portland State University*

*mingle@pdx.edu*

In response to Vietnam's new Higher Education (HE) law and reform efforts (including recent World Bank projects and HEEAP I, II and III also known as the Build-It Project supported by USAID with Arizona State University as the lead implementing entity), many top tier science and technology universities throughout the country are considering the formulation and implementation of new institutional policies. Some of the areas where new policies are being considered related to STEM include: faculty development, technology solutions, curriculum innovation with industry engagement, quality assessment, national accreditation and institutional policy leadership. Unfortunately, there is a dearth of practical knowledge and applied tools on how the leaders and managers of higher educational institutions in Vietnam can tackle the herculean challenge of formulating policies that contribute to quality educational impacts in the Vietnamese societal context. The literature on higher education policy innovation and leadership in Vietnam is limited. Only a few evidenced-based studies examine the leadership dimension of higher education reform in relationship to the unique and often opaque nature of the Vietnam's polity characteristics. Consistent with the conference theme, our presentation will set forth a practical leadership framework for policy innovation in Vietnam's science and technology higher education institutions. It will then introduce a higher education policy

innovation leadership toolkit and provide illustrations of co-produced leadership tool applications in Vietnam and the USA. The presentation will conclude by describing how the policy innovation tools are being prioritized for sharing with executives of Vietnam's higher educational institutions through the Build-It project during the next two years in partnership with the Southeast Asian Ministers of Education Organization, Regional Training Center in Vietnam (SEAMEO RETRAC). Finally the authors will offer some suggestions for additional applied research to better understand how the policy innovation leadership tools -- and resultant leadership practices -- are related to educational quality impacts.

## ABSTRACT

### Building IAB for a Program Reveals More Challenges as Institution Located in Agricultural Area

*Dr. Vo Minh Tri*

*Cantho University - CTU*

*vmtri@ctu.edu.vn*

Established and chaired by appointed members from industry leaders, department alumni, government agencies, engineering research and other communities related to mechatronics engineering, Industry Advisory Board (IAB) was principally an external consultative group to support the dean to constantly review the vision/mission of the institution, the program objectives and curriculum. It is also respected to reflect the dynamic links amongst constituencies. However, there are many challenges to form such a board to function for not only accreditation but also for local or national recognition of the department. In this report, the findings of difficulty when formulating IAB for mechatronic program at department of automation technology, college of engineering, CTU were addressed. The findings indicated that (i) at both site the industry and the college have not enough mutual concerns of that win-win collaboration; (ii) at college site we would have not served well for relevant issues in industry with activities may be started at first with faculties; (iii) there is a wide range of industries from small to global but not surrounded by in our city but rather than in HCMC, these limited-number industries in Mekong delta have either low technologies or imported technologies so that they do not need to adapt new technology where the engagement with college may occur to solve potentially technical issues, and (iv) our graduates as a rule of thumb come to find a job in a HCMC or Binh Duong province where located a lot of industries even though they not really find a right job which they were trained at college before. In short, forming an IAB for a program is inevitable to ensure the quality of the degree program, to success an IAB with its meaning there is a lot of work to do together amongst constituencies of that program.

## Session 03: Maker Spaces, FabLabs and Supporting PBL Activities

### ABSTRACT

#### Accelerate Student Innovation in Maker Spaces with Tools of Discovery

*Mr. Pham Dang Khoa*

*National Instruments*

*dangkhoa.pham@ni.com*

It's all about discovery. Researchers discover what no one knows. Students discover what they don't know. But it's the rate of discovery that is important. Maker spaces on campus are inspiring engineering students to learn by making with fabrication tools like 3D printers and laser cutters. But what about modern electronics and instrumentation? These tools help accelerate discovery by interfacing with microcontrollers, sensors, and actuators. This presentation will demonstrate how virtual instrumentation (LabVIEW software) empowers students to rapidly implement rigorous mechatronics projects, thus growing their understanding of automation, electrical, and mechanical engineering within a maker space. Virtual instrumentation enables students to gain in-depth visibility into the behavior of their system in order to deliver extraordinary results. We will share inspirational student projects from around the world such as a haptic medical training device, a stair climbing wheelchair, a nautical robot, and a reusable space launch vehicle. If we empower students with tools of discovery, they always exceed our expectations of what's possible.

### ABSTRACT

#### A Redesigned Curricula to Develop Winning Student Inventions and International Competition Wins (Lac Hong University)

*Dr. Nguyen Vu Quynh*

*Lac Hong University*

*vuquynh@lhu.edu.vn*

In the recent few years, Lac Hong University (LHU) has won several well-known technology competitions at both national and international levels, such as Vifotec Awards, Asia-Pacific Robot Contest (also known as ABU Robocon), Shell Eco-Marathon, etc. The successes are the vivid proofs for the effectiveness of the curricula especially designed for students of our Mechatronics – Electronics Department. Particularly, in designing the curricula, we have set some critical principles to guide our faculty to do their jobs better. For example, it is really important to organize the school subjects/ courses in an appropriate order that well stimulates student interests in actively learning and doing research from the early year as a fresher. This can effectively attract more and more students to take part in our technology-oriented activities where

students are encouraged to have creative ideas, inventions, and solutions to improve the inherited achievements in scientific research and innovations from several consecutive generations of students. In addition, active approaches are all encouraged to improve the quality of teaching and learning; especially, the methods of evaluating the completion of practical subjects should help students review related literatures, recognize the importance of the subjects and their practical applicability to deal with actual problems in the society. More importantly, our curricula are designed with appropriate number of subjects to provide more free time for students to have their own innovations and practical experiments under the support of materials and equipment from the Executive Board of LHU. These are considered as the key factors in designing effective curricula significantly contributing to the remarkable accomplishments of student inventions and international competition wins.

### ABSTRACT

#### Labo-Based Education (LBE) to Foster Students Through Research Works Based in a Laboratory

*Dr. Rita Tahir Lopa*

*Hasanuddin University*

*ritalopa04@yahoo.com*

Labo-Based Education (LBE) is one of educational methods which foster students through research works based in laboratory. Therefore LBE also could be synonymous with research based education and / or problem based learning. Even now Faculty of Engineering, UNHAS (herein after referred to as the Faculty) has a lot of laboratories, however, most of them always functions as a place for students' practice and much different from the concept of laboratory in engineering universities of Japan. A laboratory in terms of LBE should be defined as "Research infrastructure consisting of faculty members, undergraduate and graduate students, and facilities targeting specified education subject and research topics". Even now Faculty of Engineering, UNHAS (herein after referred to as the Faculty) has a lot of laboratories, however, most of them always functions as a place for students' practice and much different from the concept of laboratory in engineering universities of Japan. A laboratory in terms of LBE should be defined as "Research infrastructure consisting of faculty members, undergraduate and graduate students, and facilities targeting specified education subject and research topics". The research resulted in scientific papers, patents or new technology.

What's New? New idea, new concept, new findings, etc. are essential to create new technologies and to write scientific papers .

LBE is expected to bring the Faculty positive impacts as follows;

- To improve the quality and relevance of engineering education
- To increase faculty members involvement in research

- To increase students involvement in laboratory
- To enhance 'student-centered learning' process
- To increase interaction between faculty members and students

Minimum requirements to implement LBE are 1) curriculum, 2) human resources, 3) facility, and 4) research topics in the form of roadmap, 5) laboratory activities, 6) Standard Operational Procedure (SOP) for Laboratory management.

## Session 04: Promoting Collaboration and Cooperation Between Industry and Universities

### ABSTRACT

#### Experience in University- Industry Cooperation in Education and Facility Sponsorship

*Tran Thanh Huong*

*HCMC University of Technology and Education - HCMUTE*

*huongtt@hcmute.edu.vn*

This paper presents the rationale of university – industry cooperation in education in general and the current cooperation model applied between Faculty of Garment Technology and Fashion Design of Ho Chi Minh City University of Technology Education and industrial partners. The paper also proposes an implementation process and some useful experience for the collaboration in the current context.

### ABSTRACT

#### Industry-Academic Collaboration - Key to Improve Quality of Mechanical Engineering Graduates

*Dr. Nguyen Van Cuong*

*Cantho University - CTU*

*nvcuong@ctu.edu.vn*

The industry-academic collaboration has a very important role for intensifying quality of engineering students. In mechanical engineering program of Can Tho University (CTU), the curriculum is designed with the internship's course (3 credits) so that students can practice at companies located in the Mekong Delta. Besides, there is also one course of visiting companies before going there for practice. With the support of companies in mechanical field, third-year and fourth-year students can visit, study and practice directly in the factory or workshop. They can learn more and more experiences from experts and professional persons who work in companies. In combination with theory studied in university, students can improve their professional knowledge as well as develop their proficiency and soft skills. They can learn how to solve the real technical problems. In the recent years, the relationship between CTU and companies becomes closer. There are more and more companies receive students

for internship, as well as come to CTU in order to recruit engineering graduates. So students can choose the company where they want to do internship that they could easily get a job after graduated. Of course, students will confidently graduate and success in their future. This paper presents and shares some experiences of collaboration activity between CTU and companies in education and training mechanical engineering's students.

### ABSTRACT

#### Having the Right High Tech Industry and Academic Partnership

*Bruce Newton*

*E-Silicon Corporation*

This paper presents the process and outcomes obtained from a long term Industry partnership between eSilicon, a world leading Independent supplier of Semiconductor Design and Manufacturing Solutions and Danang University of Technology. It examines the partnership benefits obtained by all parties involved - Students, Company and University.

With eSilicon staff doing world leading semi-conductor design developments, the Company relies heavily on having the right talent available within our Vietnam design team to meet increasing complex customer requirements. This University partnership significantly helps us access graduates who have more effective technical, business and interpersonal skills. The graduates who later join as employees under this partnership not only "know" about a subject area but importantly are able to "do and contribute" from an early stage and that makes the difference.

The principles required for effective long term partnership and process are outlined including the phased process where students receive delivery of their course subject curriculum segment on Company premises and under the guidance and training of our Managers. This training program then leads directly into an intensive Internship program with ongoing thesis support. The partnership process is then finalized with job offers for selected students.

Through this practical partnership approach, all parties benefit:

1. eSilicon maximizes the opportunity to recruit students who better fit our culture and business requirements
2. students are able to better assimilate into the work environment and
3. Danang University of Technology is able gain first hand feedback to assist in curriculum development, teaching methodology and future requirements.



## Session 05: Developing Professional Skills in Students (“Soft Skills” and More)

### ABSTRACT

#### Soft skills in students at Danang University of Technology: Survey and Solutions

*Dang Thi Thuong, Bui Thi Hoang Uyen, Nguyen Dinh Son  
Danang University of Technology - DUT  
dangthuongtk94@gmail.com*

Today, engineers are required to have a good professional knowledge in the context of global and concurrent economy. In addition, they need to be equipped the other skills such as communication, teamwork, leadership skills, etc. According to the survey of Nanyang Technological University in Singapore, it shows that soft skills are very useful for social interaction as well as career advancement. From the study of Michigan State University in US, seven soft skills necessary for students to work in industry including communication, decision making/ problem solving, self-management, teamwork, professionalism, experiences and leadership skills. From the importance of soft skills for students, our research team including four students from the Faculty of Technical Education, Danang University of Technology (DUT) will make a survey to investigate soft skills in students at our faculty and DUT. This survey will be implemented on some groups students in different disciplines from freshman to senior via the questions designed by the our team. We also extend the survey on stake-holders such as employers, faculty and alumni. As a result of the survey, we propose some solutions to improve soft skills for the students in our faculty and DUT. The solutions can be a new course in curriculum and a student club that helps students practicing some necessary skills. We can encourage the lecturers to help students improve their soft skills in class. The presentation in the conference is to share our research results and learn experiences from the others in order to improve and expand our research in the future.

### ABSTRACT

#### The Correlation Between Student's Self-learning Skills and Learning Results- at HCMUTE

*Do Thi My Trang, Do Manh Cuong  
HCMC University of Technology and Education  
mytrang@hcmute.edu.vn*

Self-learning is a key to help students succeed in their studying and also core element for lifelong learning. The purposes of this study described about students' self-learning (SL) and found the correlation between SL and learning results. A sample of 359 students was randomly selected. The data collection tool was self-learning questionnaire which was adjusted was employed by the

University of Central Florida's Student Academic Resource Center. Applying the Cronbach's alpha, the reliability of the questionnaire was 0.88, Mean, Frequencies, Variance were used to assess SL skills of students; ANOVA, Pearson Product-Moment Correlation Coefficient were used to analyze the relationship between SL and learning result. The significant level was set to 0.05. The result shown that students' SL skills were better than average, Mean= 3.42; and there is not correlation between students' SL and learning results ( $r=0.115$ ;  $sig.=0.03$ ). This result lead to hypothesis was given that teacher changes teaching methods and assessments to encourage students get deep learning. And, further study for this topic is learning approach of students.

### ABSTRACT

#### Factors Relating Students' Planned Activities of some Universities in Ho Chi Minh City

*Dang Thi Dieu Hien  
HCMC University of Technology and Education - HCMUTE,  
hiendtd@hcmute.edu.vn*

The relation of students' planned activities (SPA) with other individual factors have received very little attention of researchers. It is the objective of this study to find out the relation of SPA with others as characteristics: deep thinking characteristics, positive self-learning, purpose of learning, patient learning actions, group working, self-working, and grade point average. 498 university students were randomly selected from their classes and responded to a questionnaire on their perceptions. By applying regression analysis it was found that factors like extroversion activities and characteristics, deep thinking characteristics, patient learning actions, positive self-learning and purpose of learning have a positive impact of student's planning activities.

## Thursday, April 14 - Track 02

### Session 06: Campus Technology Resources

### ABSTRACT

#### Using EES Software in Technical Teaching and Learning Activities

*Nguyen Minh Phu, Hoang Thi Nam Huong  
Ho Chi Minh University of Technology - HCMUT  
nmpfu@hcmut.edu.vn*

To meet the demand of higher and higher soft skills for technical faculty and students, EES (Engineering Equation Solver) software is one of the most suitable selection. As its own name, EES is a program that solves systems of linear or nonlinear algebraic or differential equations numerically and more. To the university faculty, EES assists to prepare lecture

notes, problems and test materials. Moreover, it is an useful tool for writing textbooks and scientific papers. Teachers can hold in-class activities such as quizzes, multiple choice questions, minute papers, and project design by applying EES. The software is capable of analyzing data like Minitab software. To students, EES helps to solve many engineering issues by providing the compact programming language and a large library of built-in thermodynamic property functions as well as mathematical functions. There is a variety of application of EES for several subjects and multidisciplinary fields. The author and colleagues have applied EES for almost 10 years, the results showed that the software is significantly effective.

## ABSTRACT

### Professional Development Training and In-company Training of UTE - Rockwell Automation Lab

*Dr. Truong Dinh Nhon*

*HCMC University of Technology and Education - HCMUTE  
nhontd@hcmute.edu.vn*

UTE - Rockwell Automation Lab was established in 2009 which is sponsored by Rockwell Automation. The lab is equipped with modern and synchronous systems of Allen Bradley (Rockwell) from CompactLogix Controllers, ControlLogix Controllers, Power flex Inverter, Flex I/O and HMI PanelView 600 to Supervisory Control And Data Acquisition (SCADA) communication system through industrial networks. Besides using for training students of UTE, this lab is also utilized for Professional development training and In-company training. The courses are designed by ourselves and/or based on the requirements from the companies usually training in one week or two weeks to improve the skills of Engineers. Most of the courses are focused on the industrial network communication such as DeviceNet, ControlNet, EtherNet and SCADA system. It can be seen that after attending these courses the skills of Engineers are enhanced.

## Session 07: Active Learning: Examples and Practices #2

## ABSTRACT

### Active Learning and Teaching Methods in Large Classes

*Mr. Nguyen Minh Luan, Tran Thi My Dung, Tran Thi Tham  
Cantho University - CTU  
nmluan@ctu.edu.vn*

Vietnamese government has been opening the gate for the youth generation having good chance to approach knowledge, especially in undergraduate level. There is

evidence that there has been a significant increase in the student recruitment in undergraduate programs at universities over the past ten years in Vietnam. Therefore, as many universities in others countries, the number of students in the class of each course has increased more quickly than teaching and learning resources. A statistical data which was collected from College of Engineering Technology (CoET) at Can Tho University (CTU) shows that 47% of courses has more than 60 students in Spring semester, 2015. Large classes are considered a teaching and learning environment that has many obstacles in engage students; face to face discussion in lecturer - student and student - student; active learning activities to improve knowledge and society skills. That is not mean, however, these activities can not be applied to the large classes. To overcome this problem, the lecturer should know what to do and how to do in improving student performance. In addition, many researches show that techniques using by teachers in large classes in order to engage their students are more effectively than the size of classes. In this presentation, three potential methods will be suggested for effective teaching and learning in large classes to improve active engagement with students and encourage deep learning. Furthermore, the paper is evolved to implement the survey on students who attended into large classes from different branches of engineering in CoET at CTU. The questions focus on assisted means for students benefits; students perspective on large classes such as lack of opportunity for discussion and less commitment to courses; the levels of satisfactory on class activities such as group discussion, project report, undergraduate teaching assistants and problem base learning. This survey explored what were students' needs and helped lecturers taking the appropriate approach to encourage and engage learning in large classes.

## ABSTRACT

### Coupling In-class Exercises with Lab Assignments to Boost Students' Teamwork in Teaching SE: a Case from HCMC UT

*Dr. Le Lam Son, Truong Thi Thai Minh, Le Dinh Thuan  
Ho Chi Minh University of Technology - HCMUT  
lam-son.le@alumni.epfl.ch*

Computer Science & Computer Engineering are the two ABET-accredited undergraduate programs currently offered by the Faculty of Computer Science & Engineering, HCMC University of Technology. Introduction to Software Engineering (502002) is a mandatory course offered to 3rd year students from both of them. Typically, undergraduate students find it hard to follow this course due to its methodological nature. Teaming the students up is generally considered a good practice in running this course. In this presentation, we report our work on the design and implementation of in-class exercises and lab assignments that together reinforce the students' teamwork. Under the supervision of the lecturer who is in charge of the course,

teaching assistants prepare materials for in-class activities ranging from role-playing games, specification, prototyping to coding. They also join the lecturer in running these in-class activities. The course has a total of three lab assignments that are carefully designed to match the topics given in the lecture hours. Observable outcomes indicate that our in-class exercises and lab assignments help students recognize the necessity of sticking to their team and effectively contributing to their joint work throughout the course in order to obtain sufficient grading.

## Session 08: Tools, Methods and Processes to Support Accreditation

### ABSTRACT

#### Application of QFD for Curriculum Development Process: Collecting and Determining Stakeholders' Requirements

*Nguyen Thi Le Thuy, Tran Thi Tham, Vo Tran Thi Bich Chau*  
Cantho University - CTU  
[ntlethuy@ctu.edu.vn](mailto:ntlethuy@ctu.edu.vn)

In the recent years, universities in Vietnam have been concerning about maintaining the quality of curriculums to meet the requirement of international standards such as AUN-QA or ABET. To achieve these, the curriculum shall meet several requirements such as having to formulate learning outcomes, ensuring the coherence and integration of courses, and reflecting the relevant demands and needs of all stakeholders. In this report, the author will show a systematical step-by-step application of the QFD (quality function deployment) for the curriculum development process. The aim of the report is that how QFD can be discussed and applied both on external evaluators of the university, companies that hire graduates and alumni, and internal evaluators of the university, the student themselves and faculty. It can be concluded that the QFD is a useful tool for designing and redesigning a curriculum for educational institutions.

### ABSTRACT

#### Process of Continuous Improvement at Cao Thang Technical College

*Nguyen Quoc Van*  
Cao Thang Technical College - CTTC  
[vanlongan072@gmail.com](mailto:vanlongan072@gmail.com)

ABET (Accreditation Board of Engineering and Technology, United States of America) is a non-profit, non-governmental organization which confers the accreditation certification for prestigious technical training programmes in the international community. To satisfy the standard of ABET, the training

programmes have to meet nine criteria where the fourth criterion, "continuous improvement", is a critical one which needs to be implemented throughout the training process. There is a challenge on how to set up a procedure of the continuous improvement in the college. Moreover, this procedure is associated with the needs of society. The development and implementation of an appropriate and efficient continuous improvement process is greatly helpful, particularly for the training of high-quality human resources.

In this report, based on research from the national and international universities which have reached ABET, and from the knowledge studied from VULII/HEEAP and the experience accumulated from the Mock Visit at Cao Thang Technical College in November 2015, Mechanical Engineering Faculty has conducted researches on quality assurance models and developed a "process of continuous improvement", which is suitable with the context of vocational training in Vietnam, in general and at Cao Thang Technical College, in particular. Advantages and disadvantages of the model, as well as the challenges that Mechanical Engineering faculty faced during the development process, will be discussed.

### ABSTRACT

#### Human Resources Development – a Core Factor in Quality Assurance

*Dr. Nguyen Chi Ngon*  
Cantho University - CTU  
[ncngon@ctu.edu.vn](mailto:ncngon@ctu.edu.vn)

Since 2013, Can Tho University is one of three Vietnamese universities becoming member of AUN (Asian University Network). Joining AUN accreditation, the Can Tho University invited the AUN to assesses 4 curricula, and got accreditation for 3 training programs, consisting of Agricultural Economics, Biotechnology and Aquatic Engineering. The 4th program in Electrical Engineering had gotten only 3.9/7.0 points (accredited points are 4.0). As the report of the AUN assessors, the criteria related to human resources in Electrical Engineering had evaluated below average, namely: (i) Academic staff quality (standard 6) was only 3.4 points; (ii) Support staff quality (standard 7) scored 3.5; (iii) Student advice and support (standard 9) was only 3.3 points; and (iv) Staff development activities (standard 12) scored 3.5. Results of evaluation on faculty and staff criteria were low, resulting in the average of 15 standards was only 3.9 points. Obviously, the development of human resources has an important role impacting to the quality assurance. This paper presents the role of human resources in AUN quality assessment. Since then, the situation analyzing, weaknesses identifying and solution proposing are shared to develop human resources for AUN and ABET assessments in the future at the Can Tho University.

## ABSTRACT

### Factors Affecting TVET quality: A Case of Two Public TVET Institutions in Cambodia

Chan Phakkdey

National Technical Training Institute

chan\_phakkdey@yahoo.co.uk

The main objectives of this study are to measure the quality of technical and vocational education and training (TVET) and to explore the factors that affect the TVET quality at two public TVET institutions: National Technical Training Institute (NTTI) and National Polytechnic Institute of Cambodia. The study employed a qualitative approach, using in-depth interviews. The study investigated the quality of TVET in terms of students' prior knowledge, teacher academic qualifications, teacher motivation, teaching and learning resources as well as the laboratory equipment, funding for TVET, curriculum, teaching competence and industry linkages. The study found out that the quality of TVET has slightly improved over the years; moreover, it also found out that students' prior knowledge, the availability of qualified teachers, the access to teaching and learning resources and laboratory equipment, the funding of TVET, curriculum, teaching competence and the industry linkages are affecting TVET quality at NTTI and NPIC.

## Session 09: Innovative Centers for Education

### ABSTRACT

#### Practice-oriented Teaching as a Path to Couple Practical Engineering Education to Sustainable Growth Opportunities in Vietnam

Dr. Michael Braun, Thomas Guidat, Dr. Carsten Reise

VGU - Vietnamese German University

michael.braun@vgu.edu.vn

Since the beginning of 1986, Vietnam has achieved one of the most impressive economic success stories worldwide. Until now, economic growth has mostly been driven by sub-contracting manufacturing tasks for foreign companies, in such domain as textile or electronics assembly. The Vietnamese-German University (VGU), as 'new model university' has been setting up a modern laboratory for production and mechanical engineering. While our first approach remains theoretical, our perspective is to offer a "hands-on" approach where students could effectively understand the application of industrial engineering process.

VGU has already implemented partnerships in the domain of practice-oriented teaching by opening a Lean Training Center in the university premises in partnership with the Leonardo Group from Germany. Students enjoy the opportunity to apply theoretical principles learnt in classroom in a factory environment. Lean manufacturing concepts such as Value

Stream Mapping, 5S, Kaiban and shop floor management are exercised both at practitioner or managerial level. Further, students are encouraged to apply their new skills during internships to ensure knowledge transmission for the Vietnamese industry. Based on the same principle, VGU wishes to develop practice oriented teaching for the introduction of promising industrial activities in Vietnam.

Vietnam faces the challenge of a low share of value added captured, a dependency towards foreign companies' orders and remains massively dependent on importations to satisfy their local market. Re-manufacturing is an industrial process aiming at returning a used product to same or better characteristics as a new product, while offering same or increased warrant conditions and a lower market price. This labor-intensive method has gained momentum in USA, Europe and China for such high value-added industries as automotive parts, heavy duty machines and laser printing devices. Practice oriented re-manufacturing in engineering education can trigger a large scope of subjects, such as quality management, mechanical engineering, operations management, material flow simulation and engineering economics, while making the students aware of the opportunities of circular economies. Results of a prototypical re-manufacturing project focused on motorcycle cylinder blocks will be presented.

### ABSTRACT

#### A New Model of School of Innovation & Entrepreneurship at HCMUTE

Dr. Nguyen Ba Hai

HCMC University of Technology and Education - HCMUTE

bahai.ce@gmail.com

This topic introduces the connection of traditional education classroom and a new adaptive classroom to provide a personal learning environment in a current classroom at Hochiminh university of technology and education. The topic explains what are current trends in engineering education and new waves of social development and interaction, and new learning styles of new generation born after 1990 (generation Z). The framework of supportive components to build an ecosystem for learners and startups in university is provided and discussed.

### ABSTRACT

#### Interdisciplinary Collaborative Learning in the Centre of Technology at RMIT University Vietnam

Lyza Anna Sancho Felipe, Dr. Alex Stojcevski, Pham Chi Thanh, Dr. Edouard Amouroux

RMIT University Vietnam

anna.felipe@rmit.edu.vn

Interdisciplinary collaborative learning and teaching has been an attractive research topic for the past fifteen years.

Such approach offers benefits such as enabling large-scale projects or student exposure to real-world working environment. Common challenges for such approach includes the difference in the nature of two or more disciplines, limited number of collaborative activities, and alignment of the learning outcomes for different group of students. Strongly related disciplines such as Engineering and IT share much similarity in how they are taught and learn at higher education levels. Such similarities facilitates the introduction of interdisciplinary collaborative activities as we have done at RMIT University Vietnam, with the Bachelor of Information Technology (BIT) and the Bachelor of Electrical and Electronic Engineering (BEEE). In 2015, an initiative to introduce interdisciplinary collaborative learning between two courses from the two programs was carried out. Mixed Groups of Engineering and IT students engaged in a variety of learning activities including group discussion, planning, project management and then delivering actual group projects as the outcome. These projects were designed carefully to include both hardware and software designing tasks so both groups of students can apply and demonstrate their technical expertise. The joint class resulted in many positive feedback from students in terms of knowledge acquisition and experience, in particular, students expressed interest to work on complex interdisciplinary projects in the future. The results also suggest an opportunity to engage interdisciplinary collaborative learning with Project-based learning techniques (PBL). This paper describes the processes involved in designing, managing and delivering the above interdisciplinary collaborative learning environment. It also summarizes the student feedback and presents several important findings such as crucial process of aligning learning outcome and course outcome for the two programs.

## Session 10: Examples of Industry-University Partnerships

### ABSTRACT

#### Engineers for Virtual Product Development

*Jean-Louis Biaggi, Jerome Retif, Nguyen Ngoc Van Thanh*  
*University of science and Technology of Hanoi, Dassault Systèmes Academy France, University of science and Technology of Hanoi*  
*jean-louis.biaggi@usth.edu.vn*

Last year, Dr. Hong Phuong Phan spent one year at Arizona The Product Lifecycle Management Competency Centre (PLMCC) is a state of the art training center set up in 2014 by three partners. Dassault Systèmes, the leading company in PLM (Product Lifecycle Management) area in the world market, the University of science and Technology of Hanoi (USTH France-Vietnam University), and the French Ministry of Education. The objective of the center is to provide for the Vietnamese industry better qualified collaborators, improving their skills and performance to become more innovative and reactive. Our purpose is to present this

partnership through our activities and collaboration:

- Engineers for virtual product development
- Training USTH students to industry best practices with innovative educational practices (Project Based Learning, Multi-disciplinary work, Collaboration, etc.)
- Knowledge transfer from French teacher to Vietnamese Educators
- Professional training with final certification recognized by the Industry.
- Industrial projects in collaboration with industries, universities or research centers (In France and Vietnam).
- International collaboration work in a digital environment.

### ABSTRACT

#### Public Private Partnerships to address the Terawatt Challenge

*John Joseph Mitchell*  
*Arizona State University*  
*john.j.mitchell@asu.edu*

In order to address complex global problems, the public and private sectors are increasingly joining forces through public-private partnerships (PPPs). Many believe PPPs are the new collaboration paradigm of the 21st century. Today's global challenges often out-scale the capacity of a single institution to address. These partnerships leverage the sector-specific expertise of private industry and the resources available through the public sector.

Complex societal challenges such as climate change, pandemics or famine require boundary-spanning solutions – transcending political and institutional boundaries. Solutions of this magnitude require expertise from several companies, sometimes even competitors, working toward a common goal.

This presentation will review an example of a PPP within the US National Science Foundation, Engineering Research Program (ERC). The Quantum Energy and Sustainable Solar Technology is an eight university, 20 firm consortium focused on addressing the Terawatt Challenge. Coined by 1996 Nobel Prize Winner Richard Smalley, the Terawatt Challenge asks: "How can we find enough clean energy to raise the living standards of people around the globe?" Today, 1.5 billion people, approximately one fifth of the world's population, live in the dark without electricity.

The QESST PPP has created an environment where firms can engage with peer firms and academe to cooperatively address industry-wide technological barriers to achieving the terawatt challenge. QESST's network of industrial collaborators effectively serve as thought-leaders for the solar industry. Developing a strong network of industry thought leaders attracts and further advances collaborations with

other firms, faculty, and students – creating a virtuous cycle of innovation.

## ABSTRACT

### Integrated Engineering Education; Cooperation between Education & Industry for Competitive Workforce – experiences from Germany

Michael Braun, Peter Wunsch

Vietnamese-German University, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

michael.braun@vgu.edu.vn

The success of engineering education is defined by both the capability to meet the demands of the labor market and the employability of graduates. This requires a permanent adaption of skills to new technologies, advanced manufacturing methods and other changing demands. As the manufacturing and engineering industries develop, new or drastically changing job profiles arise. Both 'white collar' and 'blue collar' staff must be able to master fast technological changes, including the integration between mechanical, application and IT skills, future trends like the next revolution in manufacturing expected from the 'Internet-of-things' and they must be able to adapt continuously to new challenges in a life-long learning process. These trends call for new approaches to engineering education and for increasing cooperation and integration between education institutions and industry as well as between different educational levels. Germany provides an example for how educational institutions, industry, public authorities and other stakeholders work together to meet these requirements. One of the characteristics of the German system is its combination of high-quality education both on the levels of higher education and vocational education. Graduates from both groups are familiar with basic and advanced technologies, modern work flows, etc. and can supply complementary skills for their efficient implementation in the work environment. This provides German enterprises with a pool of highly skilled and motivated staff on all levels which work together seamlessly between researchers, engineers, manufacturing and service staff.

In recognition of the importance of human resources for economic development and international competitiveness, Vietnam has embarked on ambitious programs to reform and grow both its higher education and technical and vocational education and training systems. Germany supports this process on both levels. Together with GIZ and KfW, the Vietnamese Government is introducing the development of state-of-the-art TVET at leading Centers of Excellence like LILAMA 2; the Vietnamese-German University VGU, which is jointly developed as a new model university by Germany and Vietnam, complements this by demonstrating state-of-the-art education in engineering and related areas. This presentation will start with an overview over Germany's approach to securing that current and future needs of the labor market are met and on how the necessary links and synergies

between different educational levels are created. Engineering Education in the context of current German-Vietnamese initiatives, especially the Program Reform of TVET in Viet Nam (<http://www.tvet-vietnam.org/>) and the Vietnamese-German University VGU (<http://www.vgu.edu.vn/home/>) will be briefly described.

On this basis, the second part of the presentation will discuss implications for Vietnam and possible development directions for practice-oriented integrated engineering education in collaboration with the industry. Examples drawn from current good practices in higher education and TVET will be used to illustrate integrated state-of-the-art approaches. Examples will include industrial relations as a key to better understanding and serving enterprises' needs, development of occupational standards and training programs in collaboration with the industry, advanced practice-oriented teaching and training methods, piloting of cooperative training models and synergies between different educational levels.

## Session 11: Language and Global Studies/ Research

### ABSTRACT

#### Global R&D in Developing Country, Vietnam

Dr. Tran Ngoc Dam

HCMC University of Technology and Education - HCMUTE

damtn@hcmute.edu.vn

Nowadays, the developing countries are integrating its science and technology for effective in economy, political and social. To prepare for global R&D, the researcher must be done research with modern technology, leading professors and global environment. However, several surveys have reported that researcher in both developing and developed countries confuse researching in developing countries. In this study, the global R&D framework in Vietnam were proposed as the key to improve the technology in Vietnam and as the change for international researching collaboration. The study was focus on industrial situation, R&D states and resources such as energy, material, workforce, and environment protection to find out what the R&D needed and how international collaboration. A global R&D center was setup based on global R&D framework for demonstration. For R&D education, two projects; five pilot lessons for preparing global researcher and training in laboratory and two courses; a global engineering course for international job market and an adaptive engineering for japan job market have done. For R&D industry, three entrepreneur's projects are now in the phase of industrial commerce. The results show that the global R&D is not only improving research ability but also successful industrial cooperation. The results also satisfied Vietnam government and global company requested.

## ABSTRACT

### Instructional Technology Design and English Teacher and Professor Training: A Proactive Partnership

Min Shin, James Cervin

Chungdahm Learning, Arizona State University

minshin@chungdahm.com

It cannot be denied that technology is increasingly being integrated into education, with the goal of making the learning process ultimately more efficient for teachers, students and related parties. The smart classroom market, which is defined by technology-enabled classrooms, was a 31.7 billion dollar market in 2014, and is projected to reach 62.6 billion dollars by 2019. However, two major challenges are faced by organizations deciding to transition into smart learning are lack of expert providers of smart classrooms, and lack of digital fluency. This was certainly the case for Chungdahm Learning. This presentation will cover the approach to these challenges and the process that was followed to overcome them in order to successfully implement smart learning at Chungdahm and other institutions. The presentation will close with both objective and subjective results of the effectiveness of smart learning.

As the world continues to globalize, the need for a standard communicative medium has never been greater. Governments, businesses, and educational institutions the world over have invested billions of dollars in English education as a means to advance educational opportunities and grow economies. David Nunan (2003) declares, "English is currently the undisputed language of science and technology". With such an importance placed on the English language, how do we ensure that teachers and professors are thoroughly trained to prepare their students for the global markets? For the past 40 years, Arizona State University has excelled at providing quality teacher and professor education through the use of cutting-edge methodology, experiential learning, collaborative research, and a continued belief that, through a concentrated effort, we can find local solutions to worldwide educational problems. With a teaching staff of highly educated and experienced instructors, ASU's innovative and customizable approach embeds communicative language teaching techniques into all programs through a rigorous TESOL pedagogy. This portion of the presentation will provide an overview of the versatility of ASU's English teacher and professor training programs and the success they continue to yield year after year.

### Session 12: Capstone Projects and Internships - Closing the Loop on the Educational Experience

## ABSTRACT

### Linking Internship and Capstone Projects: An Inquiry-Based Learning Method to Prepare Students with Work-Ready Skills

Dr. Pham Huy Tuan, Dang Minh

HCMC University of Technology and Education - HCMUTE

phtuan@hcmute.edu.vn

Preparing university graduates with work-ready skills is a thrust for any educational institution. However, the traditional information transmission / teacher-focused (ITTF) approach prevents students from developing their thinking skills – creative problematization, problem solving and idea generation, etc. Reflective learning, a prospectively pedagogical philosophy to bring students beyond their degree study, is a crucial element to promote life-long learning and an excellent preparation for their employability. In the current manufacturing engineering program in HCMC University of Technology and Education, the internship has been connected with capstone projects to facilitate the inquiry-based learning. Students are exposed to real-world projects during the internship period at the factory. A consortium including employers, their customers, lecturers and students was founded to work for practical projects. While students have valuable chances to apply their academic skills, supervisors can enrich their research experience. Especially, the employers and their partners can gain benefits from low-cost consulting opportunities. This research presents some advantages and difficulties inherent in practical application of this teaching method for the last few years and proposes several recommendations to widen this approach to the engineering community.

## ABSTRACT

### Capstone Projects: Trial Versions and Improving Solution

Dr. Pham Huy Hoang

Ho Chi Minh University of Technology - HCMUT

phhoang@hcmut.edu.vn

The academic program adapting ABET outcomes should provide students chances to apply the science and engineering knowledge to the design of a product as machine, system, component or a process in a capstone project. The capstone project reflects student ability of industrial and/or mechanical engineering design and may involve a combination of multidiscipline such as engineering, economics and ergonomics. Each project includes the use of open-ended problems, development and the use of design methodology, formulation of design problem statements and specification, consideration of alternative solutions, feasibility consideration and detailed system descriptions. Ideally, the project also includes realistic constraints such as economic factors and social impact. Three trial capstone projects are applied to the final projects in three years (2013 - 2015) are involved to this paper. The report presents the analyses about the planning, organization, process, results of the capstone projects as well as the disadvantages that need to be improved. The intended solution for improving the disadvantages is also proposed for the future guidance.

## ABSTRACT

### The Proposal for Replacing Conventional Thesis by Capstone Project in Engineering Course Assessment

Dr. Le My Ha, Faculty, Nguyen Tran Minh Nguyet, Le Thi Thanh Hoang

HCMC University of Technology and Education - HCMUTE, [halm@hcmute.edu.vn](mailto:halm@hcmute.edu.vn)

This paper presented the analysis of advantages and disadvantages for changing from the conventional thesis to capstone project in engineering course assessment. Also, the step by step process of capstone project application are proposed. The overall procedure consists of several stages. Firstly, the course outcomes are rewritten based on the university mission. The outcomes and syllabus of all subjects are modified including the soft skills of team-works, presentation, planning, decision making, communication, etc. Secondly, a team of mentors and instructors are selected from faculty members who were trained in HEEAP programs. Thirdly, the typical students are selected from some disciplines of university to evaluate the effect of this assessment method. The feedback from company or factory who employ these graduated students is the useful information to review the overall procedure. As receiving the highly appreciation from employers, the application of this capstone project will be expanded to all faculties of the university.

## Friday, April 15 - Track 03

### Session 13: Active Learning: Examples and Practices #3

## ABSTRACT

### A Survey of Cases for use in Applying Case Study Methods

Dao Vinh Xuan, Dr. Nguyen Loc, Dr. Dang Van Thanh

HCMC University of Technology and Education - HCMUTE, [vinhxuandao@gmail.com](mailto:vinhxuandao@gmail.com)

With the recent launches of Trans-Pacific Partnership and ASEAN Economic Community, Vietnam has been increasingly participating in global integration, leading to both opportunities and challenges to its workforce. To address the challenges of workforce competitiveness, universities in Vietnam are required to improve their teaching methods. Proven as one of the most effective teaching methods, case-study method facilitates learners to improve their industrial knowledge and problem-solving skills. The nature of this practical method is to exploit the real world situations (cases) which are designed based on real problems in industry. However, types of cases are diverse because their purposes for developing learners' skills are diverse. This causes

limitations in designing, choosing and deploying appropriate cases for improving some specific skills of learners. In this paper, we propose a taxonomy for classifying cases in the case-study method based on the skills targeted for the learners. Based on our proposed classification, we review some previous works, thereby indicating which part of the solution space they cover. In particular, the most suitable case type will be identified and recommended for improving the problem-solving skills. We intend our taxonomy and review of past work to be useful when comparing different approaches to case designs, when choosing appropriate cases for the targeted specific skills, and when deploying the cases in classrooms.

## ABSTRACT

### Active Learning Experiences for Large Class in Engineering Mechanics Course

Dr. Nguyen Dinh Son

Danang University of Technology - DUT  
[ndson@dut.udn.vn](mailto:ndson@dut.udn.vn)

When I started teaching the Engineering Mechanics course at Danang University of Technology (DUT) in 2005 my approach was exclusively with a traditional teaching (lecture) style. After studying PhD in France I became an official lecturer at DUT and I decided to redesign everything in my course from ground up. Changes were made to the syllabus, homework, teaching scenario planning, team work: working to incorporate as much active learning and new teaching approach as possible. Reference materials for my course came from many universities around the world, including the MIT OpenCourseWare, Penn State University, Carnegie Mellon University, etc.

In 2012, I restarted teaching the Engineering Mechanics course at DUT and applied these new teaching methods. Initially, the feedback I received some of the students was positive: I was told that they felt excited when they studied my class. I was also excited to see my students working together, challenging me with interesting problems, and getting more involved with classes. It was professionally fulfilling to see my efforts finally pay off. However, during this time, I was also faced with many challenges in organizing and teaching a large group of students. With a teaching load consisting of seven classes with 100 to 120 students per class, it was a challenge to organize students in teamwork, project-based learning, but many problems were posed such as:

- How I could organize teamwork activities for 100-120 students in each class; how many students are in each group?
- How to organize students in each group for large classroom at DUT?
- What is an effective solution for teaching a crowded class? What technique is useful for dealing with a crowded class?

After spending considerable time working to solve this



problem without any luck, I joined the training course on Active learning and teaching organized by HEEAP in August 2012 and then the University Cohort at Arizona State University in 2014. The information and experiences at ASU were applied to solve these challenges in my class at DUT. The goal of this presentation is to share my experiences and challenges while implementing active learning and teaching in large classes in Vietnam.

## ABSTRACT

### Effective Application of Active Learning Method for Mechanics Course

*Dr. Nguyen Van Cuong,  
Cantho University - CTU  
nvcuong@ctu.edu.vn*

In recent times, the effective application of active learning methods in crowded engineering classes (70 to 80 students) is the interesting issue of Universities in Vietnam. There are some difficulties for lecturers who use active learning methods in their classes. In this paper, we would like to summarize and share some of experiences when applying the active learning in mechanics class. In this way, some techniques as think-pair-share, case studies, cooperative learning are applied with the theory fundamental lectures. Then, problem-based learning and group working (4 to 5 students) are used by students at home to solve problems which given as homework assignment. An individual and group activity are done in order to help students get knowledge in the best way, and solve themselves the engineering mechanics problems. The different exams are carried out during class: midterm exam, final exam, continuous exams and problem reports. The result of student's survey showed that this method engages students very much in going to class, solving problems at home, as well as motivates students in studying, getting knowledge and improving their soft skills. The exam results showed that students passed the mechanics course with excellent, good, average, poor/failure grade is 20% to 25%, 45% to 55%, 10% to 12%, and 13% to 15%, respectively. Besides of the efficiency of this active learning method, there is still some difficulties that we would like to share as group control, negative attitude of some students, as well as the time/schedule of the course.

## Session 14: Accreditation: Examples and Best Practices

### ABSTRACT

### Developing and Implementing an Assessment and Evaluation System at CTTC

*Ngo Thi Thanh Binh  
Cao Thang Technical College  
binh.ngo@asu.edu*

Cao Thang Technical College (CTTC), based in Ho Chi Minh City, is a member of the Higher Engineering Education Alliance Program (HEEAP), and has been actively participating in the Vocational University Leadership Innovation Institute (VULII) project. In recent years, together with the support from HEEAP and VULII project, the school has been going through major changes in various teaching and learning activities, including: curriculum innovation, quality assurance, teaching methodologies, to name a few.

In particular, Electrical and Electronics Engineering Technology (EEET) program has been developing and implementing an assessment and evaluation system that is essential to the program's continuous improvement process. The assessment and evaluation system is also developed to follow the requirements of ABET (Accreditation Board of Engineering Technology) standards. This study will discuss the process of revising assessment activities by EEET faculty, establishing an evaluation system that efficiently evaluate students' attainment over program student outcomes. These evaluation results are critical to help the program identify and prioritize areas that are in need of improvement. Difficulties arisen during the process and actions taken will also be addressed. Finally, suggestions on a good practice in building an assessment and evaluation system for an equivalent program, in the context of Vietnam educational system, will be made.

### ABSTRACT

### Defining and Reviewing Program Educational Objectives of Mechanical Engineering Department at Andalas University Indonesia

*Dr. Dedison Gasni, Dr. Ismet Hari Mulyadi  
Andalas University  
gasnisheff@yahoo.co.uk*

This research aims to Define Program Educational Objectives (PEOs) of Mechanical Engineering Department of Andalas University and review it for improvement. PEOs was defined by considering Andalas University vision and mission, quality standard of Indonesian Engineering professional body and Indonesian Accreditation Board (i.e. BAN-PT) as well as Indonesian government policies. Subsequently, reviewing

defined PEOs was conducted through a stakeholder survey using questionnaire method. Students, Alumni, Faculty Members and Employer were taken part in this survey. Particularly for Alumni and Employer, the survey was carried out in three Indonesian cities where most of Mechanical Engineering Alumni are working and/ being employed. These cities are Jakarta, Padang, and Batam. From the result of the survey, it implies that most of respondents agreed with all objectives stated in PEOs. Thus, there are no needs for PEOs revision. However, the validity of the result is still questionable due to several obstacles. These are including a) awareness of the respondents of the importance of PEOs for Mechanical Engineering Department, b) misinterpretation of the use of terminology and c) out of focus on University's vision and mission in respect to academic objectives. In advanced, the defined PEOs was also correlated with Student Program Outcomes (SPOs). It revealed that PEOs of Mechanical Engineering Department of Andalas University had strongly correlated with ABET standard of SPOs.

## ABSTRACT

### Developing a Assessment System

*Phan Phuong Lan, Dr. Ngo Ba Hung*

*Cantho University - CTU*

*pplan@cit.ctu.edu.vn*

An assessment system provides information for improving learning and teaching. It identifies, collects, and prepares data to evaluate the attainment of student outcomes (SOs) and program educational objectives (PEOs). This presentation introduces an assessment system applied to Software Engineering program of Can Tho University. The major contents to be presented are: a process used for assessing PEOs, a process used for assessing SOs, advantages as well as disadvantages when using this assessment system. Especially, the second part of the presentation will focus on: developing performance indicators, specifying courses where data are collected, creating assessment tools (such as rubric, checklist).

## Session 15: Techology for Teaching

## ABSTRACT

### The Electronic Portfolio Development Process for Graphic Arts and Media Students

Tran Thanh Ha

HCMC University of Technology and Education - HCMUTE

*hatt@hcmute.edu.vn*

An electronic portfolio (also known as an eportfolio, e-portfolio, digital portfolio, or online portfolio) is a collection of electronic evidence assembled and managed by a user which can be used for interacting with provide both

demonstrations of the user's abilities and skills in Engineering and platforms (or examples) for demonstrating mastery of professional "soft" skills and creativity. For graduating students, finding a job that matches their capabilities and meet their expectations is not very easy. The challenge of impressing employers in a short time (about 10-15 minutes) is not simple (especially for those students who do not have good speaking skills). Therefore, this article aims to detail the process of creating an electronic portfolio with the goal of "finding a job"

Students of graphic arts and media faculty are strong in the use of different softwares such as structural design (Artios Cad), surface design software (graphic design), image processing, page layout software, converting to pdf files, impositioning software, and color management software. Although printing communication is mainly used 2D design but with the knowledge for paper board packaging and flexible packaging we need to know the using 3D simulation to support the whole knowledge about the 1st, the 2nd and 3rd level of packaging. Therefore, the printed Portfolio cannot be fully expressed all the need of design. So how can we help students to get Portfolios not only in electronic form, but they can also be printed effectively in 2D form? Since the goal is for readers to be able to read 'smoothly' one Electronic Portfolio, the selection of the software use is important. These skills for creating Acrobat portfolio focused on the basic power point software, Adobe Illustrator, Adobe InDesign is taught. The basic requirements for PDF files are included: ensuring high image resolution with suitable file size, setting up automatic bookmarks, hyperlinks, etc As a result of these efforts, two classes of final students have made the Electronic Portfolios as resumes with relatively good results. One of these classes conducted themselves especially well with a higher level of making Electronic Portfolios.

The paper presents the process of guiding students to perform a Portfolio through five basic steps: Defining the Portfolio Context; The Working Portfolio; The Reflective Portfolio; The Connected Portfolio; The Presentation Portfolio.

## ABSTRACT

### Implementation of Pearson – Moodle for Teaching and Learning at HCMUTE

*Dr. Le Thanh Phuc*

*HCMC University of Technology and Education - HCMUTE*

*phuclt@hcmute.edu.vn*

The presentation shows the implementation of Moodle platform for teaching and learning at HCMUTE. Since 2014, with the support of the experts from HEEAP and Pearson, HCMUTE started the e-learning project aiming at enhancing the active learning. The team has successfully managed the Moodle administration to create courses, users as teachers and students. At the moment, there are approximately 1,000 courses available on the website.

The survey was taken to evaluate the satisfaction of using

the platform. The results show that most of teachers and students are excited about the online courses. They may discuss the problems in the chat rooms, take the online tests at home, submit soft-copy assignments, watch the demonstration videos and download lecture notes. Most of feedback also informs that they feel comfortable with the Pearson - Moodle platform which is friendly and accessible.

HCMUTE plans to increase number of courses and promote the blended learning. The online materials provide as a channel where students may study some contents of the course outside the class and teachers may effectively interact with students.

## ABSTRACT

### Blended Learning for Quality Assurance Course through HELM Project in Indonesia

*Abdul Rahman*

*USAID – HELM Project*

Classroom learning is considered as conventional. Blended learning will be the future learning models. Does internet connection improve teaching and learning access for all higher education services? Will blended learning be adoptable by university teachers? We found two fact findings: positive response from 94 to 257 participants and the emerging group distance learning initiatives.

While the growth of internet as a vehicle for better teaching and learning in higher education has expanded around the world, internet and online learning have not made a significant difference in higher education in Indonesia. Aside from three top universities, there are very few higher education institutions which are using internet tools to improve education. At the same time, mobile phone coverage continues to explode around the country and grow as a tool for communication and sharing information.

This presentation explores the use of mobile phones and landlines as a means to bring in remote universities and polytechnics into webinars and blending learning sessions in meaningful ways. The USAID-funded HELM project created a three month blended learning course for quality assurance professionals at 50 higher education institutions across Indonesia. After many internet challenges, 777 of the participants in the courses were able to join the webinars and share documents through their phones.

## Session 16: Assessment Techniques

## ABSTRACT

### Reforming Competency Based Assessment for Postgraduate Students in Education Science at Institute of Technical Education, Ho Chi Minh City

*Dr. Duong Thi Kim Oanh*

*Ho Chi Minh University of Technology - HCMUT*

*oanhdtk@hcmute.edu.vn*

Competency based training has been becoming an inevitable trend in the world's education, especially in higher education. The general trend of Competency based training has moved from "focus on knowledge" to "focus on learning competency". Competency based assessment focuses on formative assessment and links between formative assessment with summative assessment. Using competency based assessment approach will identify the competency of learners in applying the knowledge and skills that they have learned to solve occupational situations. So, this article refers to reforming competency based assessment for postgraduate students in Education Science at Institute of Technical Education, Ho Chi Minh City University of Technology and Education

## ABSTRACT

### Roles of Reflection and Reflective Practice in Engineering Education

*Ngo Anh Tuan*

*HCMC University of Technology and Education - HCMUTE*

*tuankti@hcmute.edu.vn*

In the 21st century, the new metaphor of learning is the knowledge-creation metaphor of learning. The knowledge acquisition will be changed into knowledge creation that means knowledge will not transfer by the teacher instead of transforming/ building by own students. To achieve this purpose, the Reflection and Reflective Practice is the best way. This article will aim to determine the role of reflection and reflective practice in Engineering Education.

## ABSTRACT

### Analyzing Student's Motivations for Using Online Formative Assessment

*Vo Minh Huan*

*HCMC University of Technology and Education - HCMUTE*

*huanvm@hcmute.edu.vn*

Online formative assessment (OFA) provides feedbacks on student performance to improve the methods of learning and teaching. However, OFA might not be preferred for all students. Some students reason for using and not using OFA. Here, OFA is implemented in VLSI course for the fourth year undergraduate students (N=60). Students received questions about they did (not) completed OFA. Based on this data, a list of detail questions was given and distributed for survey. Results of this study show different reasons for completing and not completing OFA. For completing OFA, students expect the summative assessment similarly in terms of both content and form. They also expect a relation between what they already studied and what they need to study more in next time. For practice, the OFA should be designed for summative assessment. The main reasons for

not completing OFA were lack of time and preferences. Students did OFA for expectation that is similarly related to summative assessment in both content and form. Students also expect the relation between what they have already acquired in previous courses and topics that they need to study further in next semester. Not only summative but also formative assessments strongly drive learning of students. Reasons for not completing OFAs can be useful to design online learning activities which make student prefer to study and match their preferences.

## ABSTRACT

### Web Based Informative Assessment for Crowded Classes

*Dr. Vo Minh Huan*

*HCMC University of Technology and Education - HCMUTE  
huanvm@hcmute.edu.vn*

The classroom is crowded with attendees. The knowledge and skill are designed deeply and broadly to integrate into courses. Students take less time to join classes than study by themselves. Web based formative assessment is an effective technique to improve students' achievements and active learning. More than 57% of faculty members of Electrical and Electronics Engineering is in the age of under 35 that is a potential human resource in applying information technology to formative assessment. Moodle learning management system, which is operating very well at faculty and HCMUTE, is enhancing the flexibility of formative assessment. Google Drive which is free of charge may be an alternative solution in case of limited financial budget. In this talk, we use Google tools such as Spread Google Drive, Presentation Google Drive, Document Google Drive and File Sharing to design the lectures in crowded classes (N=100) for VLSI design course, the fourth year, Electrics and telecommunication engineering.

## Session 17: Employability Skill Development

### ABSTRACT

#### Career Services: The Bridge Between the University Students and the Industry

*Ho Phung Hoang Phoenix, Nguyen ThiTuyet*

*RMIT University Vietnam  
phoenix.ho@rmit.edu.vn*

Topic: Bridging between university students and industry

Point 1: the important role of the career services as the bridge between university and industry (using World Bank Report 2014, mentioning the lack of employability skills in fresh graduate in Vietnam, including those in the engineering sector)

Point 2: given the current situation, suggesting the following plan:

1. First-aid: teaching employability skills to university fresh graduates or senior years in the engineering programs;
2. Long term development:
  - a. developing university staff in career development skills for sustainability
  - b. teaching employability skills to university sophomore and junior years;
  - c. providing career consulting to freshmen because they still have chances to choose their emphasis during this time;
  - d. build effective student recruiting plan that includes career consulting to high school students so university gets the most suitable students for their programs.

Point 3: how the industry can support the university in this task: funding and evaluation. Universities won't have money to start this project, yet if industry sponsors, they must have way to assess the quality of the project. Two criteria of evaluation include: sustainability and quality service.

### ABSTRACT

#### Employability Skills for Undergraduates

*Le Thi Tuyet Ma, Dr. Doan Hue Dung*

*Nong Lam University Ho Chi Minh City  
littmai@hcmuaf.edu.vn*

As the rates of unemployment among Vietnamese university graduates alarmingly increase every year, higher education presently faces the constrains of cutting down on student intakes on one hand and improving the qualities of graduates on the other hand. This paper looks at enhancing employability skills for university students as a partly solution of the problem. Based on an experimental study carried out at Nong Lam University Ho Chi Minh City (formerly University of Agriculture and Forestry) in 2015, the authors describe how employability skills have been perceived by students, university staffs, and employers. It is noted that employability skill is still a new concept at university level, which was not highlighted in most curriculums nor understood fully. The findings show that even though enterprises and students highly appreciate employability skills, universities have not provide sufficient orientation and training on essential skills that ensure jobs and long term professions for students. The study also suggests core skills that undergraduates need to acquire prior to seeking for their employment.

## Session 18: Maker Spaces - Making Them Work

### ABSTRACT

#### Complementary Courses on Demand: A Way to Narrow the Gap between Universities and Industries/ Maker-Communities

Tran Hoang Quan

Ho Chi Minh University of Technology - HCMUT

thquan@hcmut.edu.vn

In Vietnam, fresh graduates need complementary courses or training in order to perform a specific job in industry. Similarly, junior students before joining the maker community often lack of some specific technical skills. We will consider these needs and find a way to address them. The case study in this presentation focuses on IC design jobs and electronics maker community. The technical and professional demands of several IC design companies will be collected via interviews. Founders of electronics maker communities also give their opinions on difficulties a newbie facing. We will analyze the gap between these facts and the outcomes/curriculum of HCMC University of Technology (HCMUT).

An approach to close the gap is to provide complementary courses on demand. These courses must take in to account what we have analyzed in the case study presented above. As an example, we will design 2 courses. One course is reserved to Electronics and Telecommunication fresh graduates in order for them to perform a job in RTL Logic IC design. Another course will equip junior students in Electric-Electronics with skills needed to join Internet-of-Things hardware maker community. A system to implement these courses, by a third-party entity, will also be discussed.

## ABSTRACT

### Project-based Laboratory with Available Facilities Can Make up of a Small Maker Space

Dr. Vo Minh Tri

Cantho University - CTU

vmtri@ctu.edu.vn

Department of automation technology (DAT) at College of Engineering Technology, Cantho University is in charge for two training programs: Control engineering and automation technology program and Mechatronic program. Two programs have more or less the same basic science and math training in the first two years, then after obtaining fundamentals knowledge, students go to study specialization subjects which they spend two and a half year rest. The difference between two programs can be inferred as former program directs student go to integrate things together into an automatic system while the latter program, mechatronic program, directs student go to develop new things. This report presents the efforts at DAT to build an innovative space for mechatronic students because they need space to create mechatronic systems or devices innovatively. In this report some preliminary achievements regarding to not only facility improvement but also the innovation products are also included. Compare to 'maker' space, our space is just a project-based lab, but it will help students experience the major design activities. For years of operating the lab we recognize that innovation is always based on a basic

foundation, it means that students very much need the availability of basic facility for innovating. And the last, but not least, faculties should inspire them or deliver the passion to them during lectures or meetings. In summary, somehow like a 'maker' space for mechatronics student have been started up and incubated ideas to develop some products in mechatronic fashion at DAT.

## ABSTRACT

### Fablabs - Saigon and Danang

Nguyen B Hoi, Hoang-Anh Phan

GoFabLabs & University of Danang, Fablab Saigon

hoi.nguyen@gofablabs.net

Fablab Saigon is the first fablab and makerspace in Vietnam. Our mission is innovation literacy through digital fabrication. We promote the Makers movement not only as innovation but also as a new way to think consumption, economy and collaboration. Fablab Saigon is an open creative space to empower locally the community of makers, schools, students and hardware entrepreneurs to co-work and co-make with social awareness. Within the last 6 months, we ran a dozen public introduction workshops on digital fabrication, welcomed more than 140 middle and high school students through field trips, and provided regular hands on support and mentoring to a dozen of grassroots innovators. Being a grassroots fablab and given the vibrant context of Ho Chi Minh City, our focus is community and collaboration building to help shape a maker ecosystem inclusive of local universities, industries, investors along with other institutions supporting the maker movement, such as the Arizona State University and the US Consulate General.

Fablab Danang, started on the half of five-story house, built with the spirit of "design is everything" and was triggered to open by the VEEC Danang 2015. It grew from four people to more than twenty people within eight months. Importantly, it helped built a great and tight relationship with Arizona State University. From early days, FabLab's compact size is focusing on acting on promoting STEAM+B to middle and high school students in a new way. Its Gofab LDM initiative, which stands for 'go for fabulous learning through digital making', has entered a few schools and educational centers and been on expansion. It is now proposing Gofab series of booth aiding innovation in school (Gofab BAIS) at four locations. The target of 210 LDMs is planned by the end of 2017 and it now reaches ten percent of that. In addition, it a bit fosters interest in developing a pipeline of engineering, science and technology professionals and entrepreneurs through applied project experiences and competitions. Though slowly, a few startups engaged at Fablab in which one submitted to Global Innovation through Science and Technology Tech-i in California for 2016 entrepreneurship competition.

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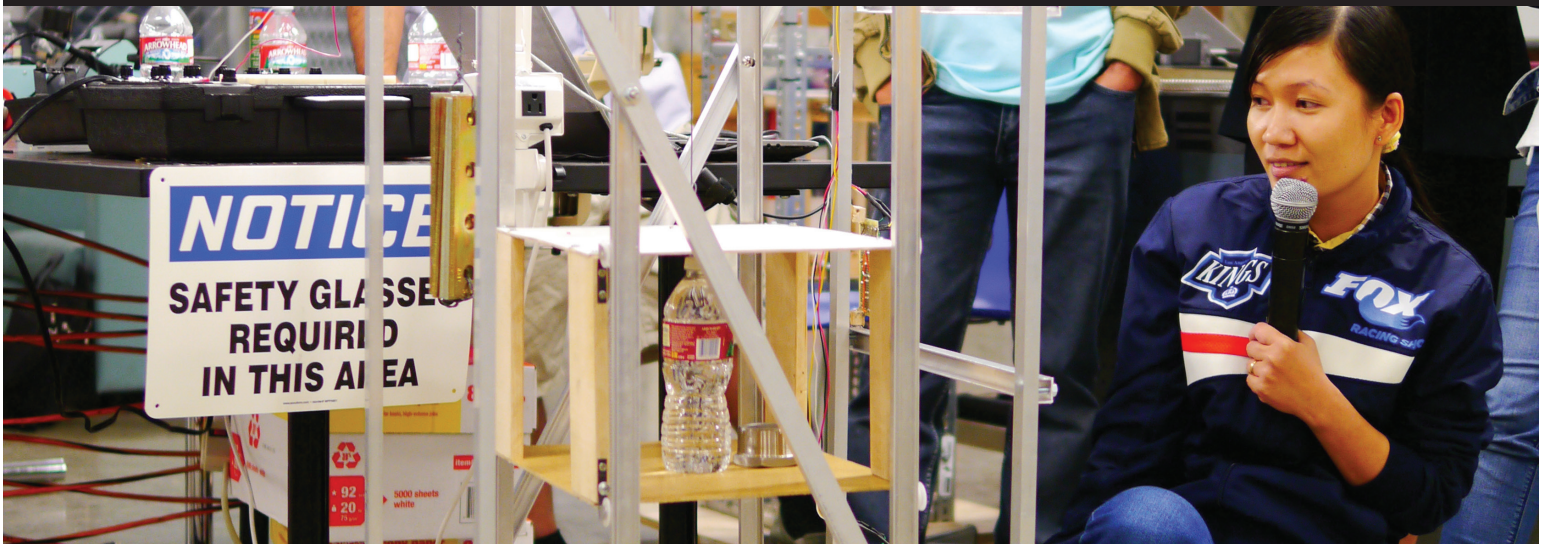
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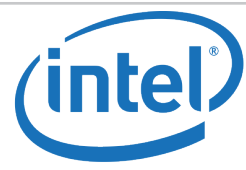
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