



USAID
FROM THE AMERICAN PEOPLE

PEARSON

SIEMENS

NATIONAL INSTRUMENTS

DANAHER

cadence®

ASU IRA A. FULTON SCHOOLS OF
Engineering
ARIZONA STATE UNIVERSITY

HTP
SAIGON HI-TECH PARK

intel

HIGHER ENGINEERING EDUCATION ALLIANCE PROGRAM

APRIL 2015 NEWSLETTER

what's inside?

- 2** Engineering Education Conference a catalyst for Innovation and Entrepreneurship in Vietnam
- 4** Movers and shakers of ASU honored for changing the world for the better
- 5** National Instruments Innovation Design Competition for Young Entrepreneurs
- 6** UTE Launches a State-of-the-Art Distance Learning Classroom Supported by ASU and the HEEAP Alliance Partners
- 7** Maker Space in Vietnam
- 7** Intel Continues Scholarship Program for Technical Female Students
- 8** HEEAP Representatives Share Experiences at CDIO Asian Regional Meeting 2015 in VNU - HCMC
- 8** Upcoming Events
- 9** HEEAP December In-Country Workshops



Engineering Education Conference a Catalyst for Innovation and Entrepreneurship in Vietnam

BY MS. SHARON KEELER, ASU

The Higher Engineering Education Alliance Program (HEEAP) and its partners hosted the third annual Vietnam Engineering Education Conference (VEEC) recently at the Novotel in Danang City, Vietnam. Those attending included more than 270 guests from 80 different institutions of higher education, government and industry, making it the largest conference to date.

HEEAP is a partnership among the United States Agency for International Development (USAID), Arizona State University's Ira A. Fulton Schools of Engineering and Intel. It launched in June 2010 to help improve the quality of higher education, specifically in mechanical and electrical engineering.

VEEC is a major annual event bringing global industry, government and academic professionals together to discuss transformative ideas and solutions to engineering and technical education programs in Vietnam. The theme this year was "Engineering Education as a Catalyst for Innovation and Entrepreneurship in Vietnam."

The conference included interactive plenary sessions, panel discussions, technical sessions and seminars with emphasis on partnerships between education, industry and government to innovate and build capacity in engineering and technology innovation in teaching, research and discovery. "HEEAP partners have been significant contributors in innovating and updating

the program content, research and teaching methods in Vietnam higher education engineering institutions, contributing to the complete transformation of education and training," said Prof. Bui Van Ga, deputy minister of the Vietnam's Ministry of Education and Training. "The Vietnam Engineering Education Conference provides an effective link between professional public-private partnerships that brings industry, government and academia together to enhance innovation in engineering and technology education and research."

Featured presenters at the conference included, Dr. Sonia Ortega, program director, United States National Science Foundation (NSF); Rena Bitter, the U.S. Consul-General in Ho Chi Minh City; Joakim Parker, USAID mission director; Dr. Le Manh Ha, vice chairman of Ho Chi Minh City People's Committee; Kenny Sng – Intel Asia Pacific and Japan solution architect manager; professor Tran Van Nam, president of the University of Danang; and professor Le Kim Hung, Rector, University of Science and Technology – The University of Danang.

Keynote presentations highlighted how the Maker Movement can transform science, technology, engineering, and math (STEM) and



Dr. Victoria Kwakwa, Country Director, World Bank Vietnam; Mr. Joakim Parker, Vietnam Mission Director, U.S. Agency for International Development, and Mr. Phuong Hoang Kim, Director General, Department of Human Resource Development, Ministry of Industry and Trade during the panel "Vietnam in 2030: How can Higher Engineering Education be a Catalyst for Development?"

 **click here**
for more pictures of this event



2015 VEEC



The participants of the panel “Inspiring the undergraduate engineer’s entrepreneurial and innovative mindset: Ideas and models for Vietnam.”



Mr. Hawkins Pham, Head of Advisory, Indochina Capital, Ms. Hoang-Anh Phan, Co-founder, Fablab Saigon, Dr. Mitzi Montoya, University Dean and Vice President, Entrepreneurship and Innovation, Arizona State University during the panel “How the Maker Movement can transform STEM and Higher Engineering Education.”

higher engineering education, as well as interactive industry/academic panel discussions on inspiring the undergraduate engineer’s entrepreneurial and innovative mindset with ideas and models for Vietnam. Other keynote presentations focused on building bi-lateral technology and economic development partnerships and how higher engineering education can be a catalyst for development in Vietnam.

“Education cooperation remains a cornerstone of our bilateral relationship, and the Higher Engineering Education Alliance Program—or HEEAP—is a pioneering example of the great results that can be achieved through vibrant public-private partnerships,” said Bitter.

Conference technical sessions addressed topics such as: creating a sustainable engineering graduate pipeline, developing capstone projects and forming industry partnerships, entrepreneurship and technology innovation, leveraging online and mobile applications in the classroom, undergraduate research models in engineering education, and faculty development and collaboration, among others.

The conference also included technology exhibits from HEEAP’s technology partners and VEEC sponsors. The event was hosted by University of Science and Technology – The University of Danang (DUT), a partner of HEEAP and ASU. Specific conference partners included USAID, National Instruments, SHTP, Siemens, Cadence, Pearson, Intel, Danaher, Mekong Technologies and Mediasite.

Next year’s event will take place in April. For more information, see the conference website at veec.heeap.org.

4 HEEAP Newsletter, April 2015

Movers and shakers of ASU honored for changing the world for the better

ASU NEWS

The following is an excerpt from an article published by ASU News to celebrate the accomplishments of nine teams and four individuals for their exemplary work. Visit the [ASU News website](#) to read the article in its entirety.

From harvesting oranges grown on campus, to spreading the importance of sleep in two languages, to creating engineering excellence half a world away, Arizona State University faculty and staff are helping to change the world for the better.

Those efforts and others were honored at the April 14 President's Recognition Reception, where ASU President Michael M. Crow awarded university movers and shakers with the President's Award for Innovation, the President's Award for Sustainability and the President's Medal for Social Embeddedness, as well as the SUN Awards for Individual Excellence.

Speaking at the reception, President Crow cited three key things the efforts of ASU faculty and staff are accomplishing: inspiring people through innovation, using those innovations to achieve university goals and demonstrating the model of enterprise.

"We have to move forward, adjust, be creative, leverage. All the things that you all do are a part of all that," Crow told the crowd at the reception. "We are trying to inspire the rest of the institution and we are trying to inspire the rest of the community to be creative, to be adaptive, to move forward."

President's Award for Innovation

Vietnam is home to the Intel Corporation's largest test and assembly site



The HEEAP team received the ASU President's Award for Innovation. Back row (from left to right): Jim Collofello, Bryce Keeler (Siemens PLM Software), Dan Shunk, Carlos Contreras (Intel Corporation), Frank Jones (Intel Corporation), Stefanie Leite, Nicole Bar, Gila Aispuro, Jose Quiroga, Doug Montgomery, Octavio Heredia, Michael Crow. Front row (from left to right): Tamara Deuser, Lisa Hudson, Scott Danielson, David Benson, Shannon Moore (Pearson), Kathy Wigal, Connie Borror and Dona Duncan.

in the world. To a company that is the world's foremost producer of devices that make computers possible, having a staff of expertly trained engineers is essential.

In 2010, Intel approached ASU to pursue a USAID Global Development Alliance grant, which would bring co-investment from a consortium of higher-education, industry and government partners, allowing Vietnamese engineering faculty to train at ASU as well as participate in ASU-led, in-country workshops.

One of this year's recipients of the President's Award for Innovation, the Higher Engineering Education Alliance Program (HEEAP) is giving Vietnamese engineering faculty the knowledge and skills to graduate work-ready students who possess the applied and technical communication

skills required by multinational corporations.

"It is gratifying six years into this project to see the transformation in the classroom by the faculty bringing a lot of the active-based, applied project and team-based learning approaches to their instruction," said Jeffrey Goss, project director for HEEAP, executive director for the Office of Global Outreach and Extended Education and assistant dean in the Ira A. Fulton Schools of Engineering. ■

National Instruments Innovation Design Competition for Young Entrepreneurs

The NI Innovation Design Competition for Young Entrepreneurs, a collaboration between NI and the HEEAP, was held for the first time in Vietnam. It offers engineering students and graduates from HEEAP academic partners a unique opportunity to design innovative solutions that support sustainable development in their communities. NI provided participants access to development platforms to help them design prototypes of their projects and further test their research. In addition to tools, NI provided the teams with training and consultation to help turn their innovative ideas into functional prototypes using the myRIO embedded hardware platform and LabVIEW software.

The final round of the competition took place on December 9, 2014 in Ho Chi Minh City. Five teams received the opportunity to present their projects in front of an audience of NI and HEEAP industry partners, along with a distinguished panel of judges who included Chandran Nair, Managing Director of NI Southeast Asia, Duy Loan Le, Senior Fellow of Texas Instruments and Board of Director of National Instruments and Richard Carruth, General Manager of ON Semiconductor Vietnam Assembly and Test Operations. The five finalists included teams from Can Tho University, Hanoi University of Science and Technology and Ho Chi Minh University of Technology. They focused on addressing community challenges in areas such as agriculture and healthcare.

A team from Hanoi University of Science & Technology won the grand prize for their project titled "Use of MyRIO to develop advanced control for agriculture produces drying



The winning group receiving their award from Ms. Duy Loan Le, Senior Fellow of Texas Instruments and Board of Director of National Instruments.



The judges Mr. Chandran Nair, Managing Director of NI Southeast Asia, Ms. Duy Loan Le, Senior Fellow of Texas Instruments and Board of Director of National Instruments and Mr. Richard Carruth, General Manager of ON Semiconductor Vietnam Assembly and Test Operations discuss the project with each group before making their final decision.

system." This project approached the global design of an advanced and cost effective microwave drying system to increase the value of agricultural products such as lychee, longan, and medicinal herbs. The team won a cash prize of \$600 USD and a LEGO® MINDSTORMS® NXT programmable robotics kit. In addition, the team will have the opportunity to travel to the NIWeek2015 global

conference in Austin, Texas, and present their paper in the global competition. The second prize winner was the Can Tho University team. They received \$300 USD and a LEGO® MINDSTORMS® NXT programmable robotics kit, and will have their paper published on ni.com. ■

6 HEEAP Newsletter, April 2015

UTE Launches a State-of-the-Art Distance Learning Classroom Supported by ASU and the HEEAP Alliance Partners

On Tuesday March 31st, 2015 the University of Technology and Education (UTE) in Ho Chi Minh City, Vietnam inaugurated a new distance learning (DL) classroom equipped with the latest technology in video-conferencing and collaboration software and hardware. This facility will allow UTE to connect with Arizona State University (ASU) and other institutions of higher education around the world to create an

interactive channel between faculty and students. These type of global interactions are aimed at increasing the competitiveness of UTE graduates by preparing them with crucial skills needed in today's workforce, such as team work, problem solving, project planning, presentation skills and English language training. The DL classroom is a US \$278,345 co-investment between UTE and the HEEAP Alliance partners, specifically

Intel and Pearson. The classroom has a capacity for 50 people arranged in seven workstations, each one equipped with tools that support virtual collaboration. Prior to the creation of this classroom, UTE successfully offered global engineering courses with eight different universities and 12 companies in the disciplines of telecommunications, biomedical engineering, and information technology, among others. The DL classroom will be utilized by UTE to further expand its collaboration opportunities with Vietnamese and global partners and continue to enhance the teaching and learning experience on its campus. The DL classroom inaugural ceremony was presided by Minister Pham Vu Lan, Ministry of Education and Training (MoET); and by the U.S. Consul General for Ho Chi Minh City, the Honorable Rena Bitter; as well as other members from UTE and local MoET leadership.



Honorable Rena Bitter, U.S. Consul General, Ho Chi Minh City.



Grand Opening Ceremony participants, including Minister Pham Vu Lan, Ministry of Education and Training (MoET).

 **click here**
for more pictures of this event

Maker Space in Vietnam

BY QUANG VO, ASU



Mr. Jeff Goss, HEEAP Director discusses ideas for the Maker Space with meeting participants.

On Friday, January 30, 2015 the U.S. Consulate General in Ho Chi Minh City in conjunction with Arizona State University was honored to receive guests, academic and industry partners at the American Center for the working group meeting to discuss

the Open Innovation Lab project. The meeting marked the second step of the roadmap towards the creation of a network of innovation hubs – Maker Space in Vietnam. In attendance were Rena Bitter, the U.S. Consul General in Ho Chi Minh City, Sherry Boger,

General Manager of Intel Products Vietnam, Jeffrey Goss, Director of the Higher Engineering Education Alliance Program (HEEAP), and several other representatives of different organizations including Microsoft Vietnam, Unicef, National Instrument, eSilicon, Vietnam National University and Ho Chi Minh city University of Technology. After the warm welcome message of the U.S. Consul General, the meeting was focused on developing the concept plan for Maker Space in Ho Chi Minh City: why create a Maker Space, critical design elements of a Maker Space, etc. Followed a tour and presentation of Maker Studio in American Center, ASU Associate Dean Scott Danielson, Director of VULII (HEEAP) guided the participants through a structured process to define the action items for proposal development of Maker Space in Vietnam. ■

Intel Continues Scholarship Program for Technical Female Students

For the third consecutive year, Intel Products Vietnam Co. Ltd. has granted 109 scholarships for 109 female students from 13 technical universities and colleges with total value of VND708 million.

The scholarship is part of Higher Engineering Education Alliance Program (HEEAP) and has been implemented since 2012. A total of 327 female students studying in a technical field (12+2 and 12+3 diploma) from 13 universities and vocational colleges in Ho Chi Minh city, Binh Duong and Can Tho have been awarded the scholarship.

"The scholarship is a visible sign of Intel's commitment to promote



diversity in Vietnam high tech industry. We are committed to supporting Vietnamese students, in particular female students and we will continue our commitment through this scholarship with the extension of the program for another three years from 2015 to 2017," Sherry Boger, General Manager of Intel Products Vietnam said.

In the next three years, the scholarship will continue to support females studying and pursuing technical programs such as electronics, mechanical, automation and IT. The scholarship will resume by quarter 3 of 2015 and scholarship information will be available at: heeap.org/scholarship-fellowship. ■

8 HEEAP Newsletter, April 2015

HEEAP Representatives Share Experiences at CDIO Asian Regional Meeting 2015 in VNU - HCMC

BY NGUYEN HUU DIEM HUONG, ASU

From 25th to 27th March 2015, Vietnam National University Ho Chi Minh City, one of the two current members of CDIO in Vietnam, hosted a CDIO [Asian Regional Meeting 2015](#).

The CDIO initiative is an innovative educational framework for producing the next generation of engineers. The framework provides students with an education stressing engineering fundamentals set in the context of Conceiving — Designing — Implementing — Operating (CDIO) real-world systems and products. The CDIO organization now has over 100 member universities worldwide.

With the theme "CDIO Implementation for Engineering Education and Beyond" the CDIO Asian Regional Meeting 2015 provides opportunities for CDIO educators and executive officers from around Asia to build network, to exchange ideas and experiences in implementation of CDIO and to improve education in the region. As higher education institutions in Vietnam have been adopting the CDIO approach widely, they are also experimenting with integrating CDIO into other non-engineering programs. Proliferation of CDIO approach, as discussed in the conference, paves the way for systematically developing educational programs based on the needs of students, industry and government.

On this occasion, representatives from ASU, Mr. Khoi Le Van, have given a keynote on how employers view the quality of Vietnamese graduates, HEEAP's experiences and support in building faculty's capacity and developing curriculum to satisfy the increasing demands from industry.



Mr. Khoi Le Van from ASU shared HEEAP's activities in supporting higher education institutions in Viet Nam.

Mr. Khoi also shared HEEAP perspectives on how to improve the quality of Vietnamese workforce training.

Other presenters from Malaysia, Singapore, Thailand and Vietnam also shared their experiences in implementing CDIO as a strategic framework to reinvent engineering education. Representing industry voice, Mr. Norman O'Rourke from GE gave a subtle request to institu-

tions to recruit more female students. Research has confirmed that greater representation of women in technical environment will improve the quality of that environment in all aspects. This is also a goal of the HEEAP, trying to advocate diversity by having policies and actions to increase the number of female students and faculty at HEEAP partner institutions. ■

Upcoming Events

April 27- June 5

HEEAP University Faculty Development Training

April 27- May 1

VULII Rectors Meeting at ASU

July 6- July 31

HEEAP Vocational Faculty Development Training

Follow Us on Social Media



twitter.com/weareheep

flickr.com/photos/heeap

facebook.com/heeap

HEEAP December In-Country Workshops

BY DR. DAVID BENSON AND DR. KATHY WIGAL, ASU

In December of 2014 a series of workshops were presented to HEEAP and non-HEEAP faculty in HCMC, Danang and Hanoi. The workshops consisted of four different sessions, two lead by David Benson and two by Kathy Wigal for a total of two days. David Benson created two sessions to support HEEAP efforts. The first session: "Introduction to

In this activity, faculty experienced being challenged while they worked as a team to reverse engineer the construction of a cam-follower toy and then designed a cam-follower system out of cardstock paper which performed to a given criteria.

The second session led by Benson: "Creating Active-Learning Exercises

unit on incorporating the Arduino microcontroller system into classes. Faculty members explored the Arduino system, its basic elements and the interplay between inputs and outputs that can be achieved using this system. Faculty members also explored several of the built-in tutorial activities to identify educational gaps in the tutorials and to practice proposing alternative methods for instruction.



Dr. Kathy Wigal and Dr. David Benson with workshop participants in Hanoi.

"Active Learning", was an experiential workshop examining the goals of active learning and contrasting the methods used in active learning classes with passive or "traditional" lecture methods. Faculty learned about the reasons for introducing active learning methods into their classes and how Bloom's Taxonomy can be used to evaluate the level cognition involved in their instructional methods. A key part of this workshop involved exploring the wide range of active learning methods that can be used to engage students and promote high-level thinking: activities ranging from quick and inexpensive activities (low-overhead activities), such as think-pair-share and minute papers, to activities which require considerable preparation and some expense, such as integrated design problems, desktop projects, and problem-based learning activities. The "Introduction to Active Learning" workshop concluded with an example of a low-cost, desktop project activity.

by Adapting Resources Found" on the Internet focused on how faculty members can evaluate instructional materials found online and then take steps to customize and re-design the materials to achieve their own classroom objectives. This session walked faculty members through a variety of online educational resources. These sessions concluded with a



Workshop participants in Danang.

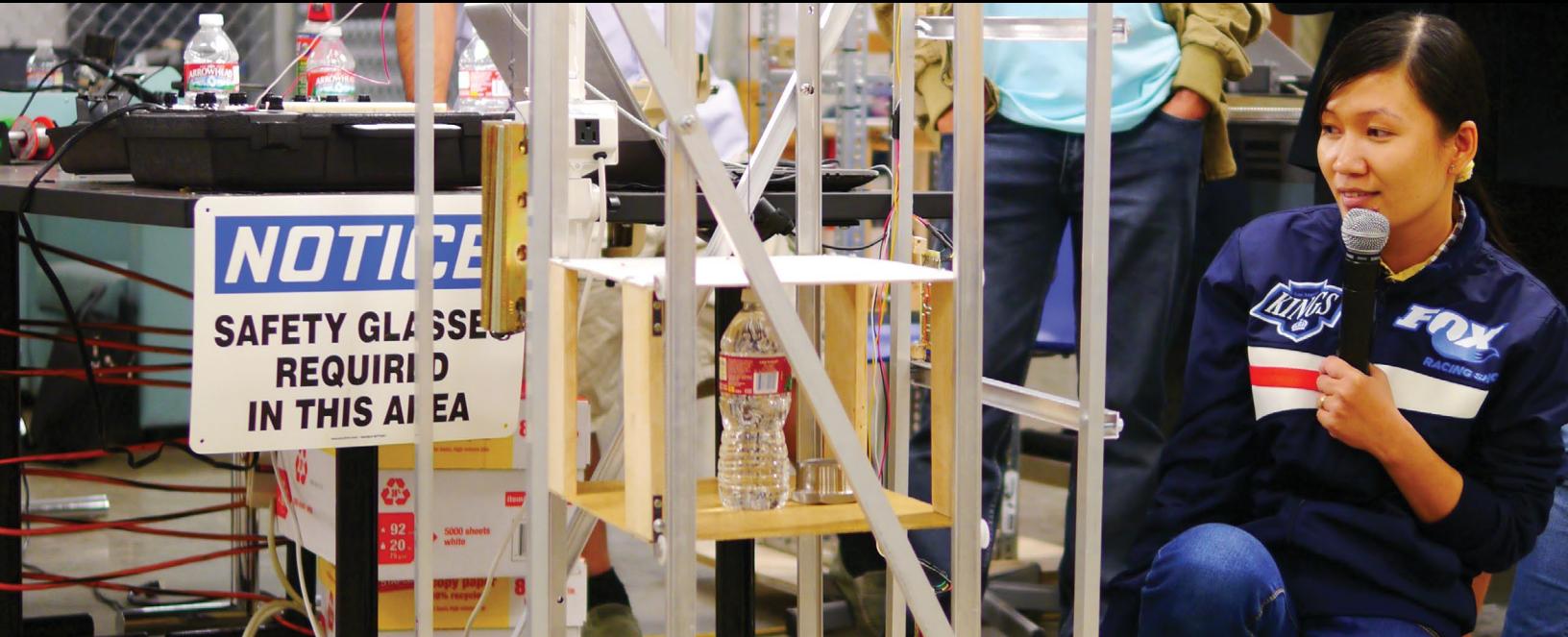
In discussions with Benson during the workshop, many faculty indicated that they were surprised and encouraged that some of these methods and techniques could be directly inserted into their existing classes with very little difficulty or expense. Many faculty were also deeply impressed by the simplicity of the desktop project (and how their skills and thinking were stretched by something so simple) and also by the potential inherent in the Arduino systems.

In addition, Kathy Wigal led two sessions, the first session titled: "Building Consensus – Effective Team Decisions for a Common Purpose." The objective of this session was to provide faculty with an opportunity to explore and evaluate a variety of techniques for effective team decision making, practice strategies for conflict resolution, implementation and follow-up strategies. The second session led by Wigal titled, "Classroom Assessment and Evaluation: Supporting ABET and AUN-QA Accreditation Efforts," allowed faculty to explore and practice techniques for classroom assessment and evaluation with a focus on the dual purpose of assessment for continuous program improvement critical to supporting ABET and AUN-QA accreditation efforts as well as course grading. ■



Advancing Women in Engineering

faculty development fellowship



study at Arizona State University

visit heeap.org/fellowship/heeap-advancing-women-engineering-fellowship