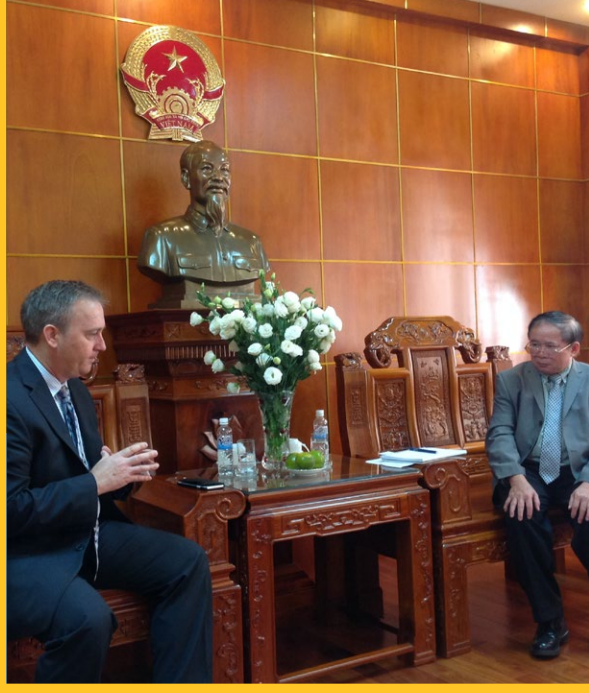
HIGHER ENGINEERING EDUCATION ALLIANCE PROGRAM

January 2016 - NEWSLETTER



what's inside?

ASU teams with USAID HELM to launch Leadership Education for Engineering Accreditation Program at Andalas University in Indonesia

Arizona State University, the U.S. Agency for International Development/ Indonesia Higher Education Leadership and Management project (USAID-HELM) and Andalas University in Padang, Indonesia launched a collaborative effort in June 2015 under a special initiative called the Leadership Education for Engineering Accreditation Program (LEEAP).

The LEEAP initiative will serve as a catalyst to enhance the quality and competitiveness of science, technology, engineering and math (STEM) programs at higher education institutions in Indonesia that meet regional and international standards. LEEAP is a result of the success of the Ira A. Fulton Schools of Engineering's involvement in Vietnam with the Vocational and University Leadership and Innovation Institute (VULII) and the Higher Engineering Education Alliance Program (HEEAP).

VULII is designed to contribute directly to Vietnam's national goal of increasing the quality of higher education while strengthening human and institutional capacity to contribute to Vietnam's economic growth. HEEAP is designed to modernize traditional Vietnamese theory-based engineering programs by introducing applied and hands-on instructional approaches.

Jeff Goss, associate vice provost and the director of HEEAP, led the ASU delegation and emphasized LEEAP's significance as an opportunity for industry and academic partners to develop impact projects with the U.S. government to solve some problems or create solutions.

"Accreditation will help to employ students in smart positions and retain the companies' engineers and technicians to drive growth in the science and technology sector and increase opportunities for technology development and innovation," WGoss said.

The ASU team is assisting Andalas University in reaching global recognition and international accreditation. Andalas will then use it as the primary mechanism to attain international standing as a university.

Scott Danielson, director of the VULII and an associate professor in the Fulton Schools, explained that achieving international recognition requires understanding of what students know and working to improve what they know.

"Andalas University did very well in Indonesian accreditation and now we have to go beyond that," he said. "Now the university must think beyond the borders of Indonesia and earn the school and its programs recognition in other countries." Danielson said there are two routes of international recognition, each with their own scope and uniqueness: Asian University Network-Quality Assurance (AUN-QA), and Accreditation Board for Engineering and Technology (ABET).

"What we will teach the university's leaders is what works to gain accreditation from both ABET and AUN-QA. There is more to do for either ABET or for AUN accreditation than what we will cover, because this is a large effort," he said. The most challenging part of the endeavor will be changing traditional attitudes and approaches to education, Danielson explained. It will take leadership by the dean and rector of Andalas University to drive that change.

The focus will be on improving the quality of academic study programs, which would be of primary importance in earning accreditation from AUN

LEEAP leadership met to discuss how to develop impact projects that create solutions for Indonesia.
Left to Right: Abdul Rahman (HELM quality assurance specialist), Hairul Abral (Dean, Andalas University), John Rome (Deputy Chief Information Officer, ASU), Jeff Goss (Associate Vice Provost, ASU), Scott Danielson (Faculty, ASU), Werry Darta Taifur (Rector, Andalas University), Kathy Wigal (associate director for curricular innovation at ASU), Tafdil Husni (New Rector inauguration on Nov 2015, Andalas University) and Zainul Daulay (Dean, Andalas University). Photo courtesy of HELM/USAID.

and ABET. The goal is to help the university understand what its students know and what they are capable of doing, and then taking steps to improve their knowledge and abilities.

"This is a special initiative of HELM so we have limited time," Danielson said. "We are only working on a piece of this — the piece that is centered on continuous program improvement."

The hope is that leaders and academic staff will be able to document in a data-driven way what students know and have learned and use that information to make good decisions about improving the program.

"That's what we're going to focus on. It is only a piece of achieving international accreditation, but I believe it is both the hardest part and also the most important part of the process," Danielson said.

"The Andalas University LEEAP faculty are fortunate to have the active support of their rector and dean in their efforts," said Kathy Wigal, associate director for curricular innovation in the Fulton Schools' Office of Global Outreach and Extended Education.

Kathy Wigal (associate director for curricular innovation at ASU) and David Benson (Senior Lecturer, ASU) with the participating faculty members of Andalas University.
Left to right: M. Ilhamdi Rusydi, Denny Helard, Ismet Hari Mulyadi, Dicky Fatrias, Jonrinaldi, Dedison Gasni, Ansiha Nur, M.T, Dewi Fitria, Menuk Primawati, David Benson, Kathy Wigal, Nilda Tri Putri, Shinta Indah, Elita Amrina, Rika Ampuh, Syafei, Sabril Haris, Junaidi, M. Imran Hamid and Primas Emeraldi. Photo courtesy of HELM/USAID.

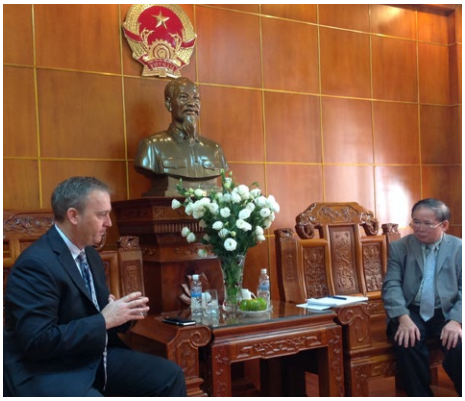
She said workshops conducted in September, plus follow-up coaching and mentoring has sparked progress in several areas – including development of the academic program objectives and program outcomes, initial strategy and planning for assessment and evaluation necessary for continuous improvement, as well as the individual faculty course development efforts.

"We are continuing our coaching and training efforts by emphasizing innovative curriculum and teaching pedagogy including active learning techniques and problem-based and project-based methods," Wigal said. "I am looking forward to seeing the next iteration of their efforts in January."

The ASU LEEAP team acknowledges the complex nature of the international accreditation processes, and emphasizes the importance of collaborative work between all parties, including university leaders, program leaders, key faculty members and students.

Various workshops are planned for the coming year. In addition, results of work done under the initiative will be shared at a Partnership Network Seminar at the conclusion of the project. ■

MOET and HEEAP leaders meet in Hanoi to discuss collaboration



Vice Minister Bui Van Ga of the Ministry of Education and Training and HEEAP Executive Director Jeffrey Goss discuss collaboration in Hanoi, November 17, 2015.

On the heels of HEEAP being awarded the new USAID Higher Education Innovation grant, HEEAP executive director Jeffrey Goss and a team from Arizona State University met with Vice Minister Bui Van Ga of the Ministry of Education and Training (MOET) in Hanoi, November 17, 2015.

The new investment in HEEAP will expand its focus on faculty instructional innovation and collaboration with the MOET National Quality and Accreditation Institute. The grant will also allow for increased development of industry-driven curricula aligned to Maker Innovation Design Studios for faculty and students, as well as expand the number of universities and scope of the project across STEM fields.

Goss and Vice Minister Ga spoke about how ASU and MOET can collaborate to build capacity and modernize technology platforms at Hanoi Open University to make it a leader in online education. Vice Minister Ga praised HEEAP's contribution and committed MOET to further collaboration with HEEAP. ■

Intel, ASU partner with Vietnamese engineers to develop 'smart' objects, infrastructure

The Arizona State University campus this fall welcomed 20 faculty members from the Vietnam National University-Ho Chi Minh City system, who came to campus to learn more about the emerging Internet of Things (IoT) field.

IoT is a proposed development of the Internet in which everyday objects have network connectivity, allowing them to send and receive data. IoT has the potential to transform many processes, including how cities manage their infrastructure and how high-tech companies manufacture their products. Ho Chi Minh City, in its quest to become a "smart city," has a keen interest in both.

A cohort of 20 instructors from the Vietnam National University-Ho Chi Minh City system visited Arizona State University in fall 2015 to learn more about the emerging field of Internet of Things. The Internet of Things is a development concept in which everyday objects have network connectivity and the ability to transfer and receive data. Photographer: Kevinn Tran/ASU

The Vietnamese instructors were the first "special topics" cohort to come to ASU under the Higher Engineering Education Alliance Program, or HEEAP. The program is run by ASU's Ira A. Fulton Schools of Engineering.

HEEAP was formed by Intel Corporation and ASU, and funded by the U.S. Agency of International Development, or USAID, to train Vietnamese professors from eight universities on more innovative ways to teach engineering. HEEAP launched in 2010 through founding partners Intel Corporation, ASU and USAID through a Global Development Alliance grant.

Intel, the world's biggest chipmaker, opened a $1 billion factory in Ho Chi Minh City in 2010, providing opportunities for a growing high-tech workforce.

From 2010 to 2015, the program has trained more than 400 lecturers at ASU who, upon returning to Vietnam, are teaching and graduating work-ready students who possess the applied and technical communication skills required by multinational corporations.

"Intel identified IoT as a rapidly emerging field worldwide and approached us to deliver a workshop on how to create curricula for Vietnam," said Jeffrey Goss, an assistant dean in the Fulton Schools and executive director of Global Outreach and Extended Education (GOEE), who directs the HEEAP Project. "The objective was to combine HEEAP's teacher development program with IoT fundamentals to train faculty members from the Vietnam National University system."

Upon returning to Vietnam, these "champions," said Goss, will spearhead an IoT strategy at their respective departments to implement student-centered design projects in IoT, a certificate or minor with an IoT focus and IoT research projects. The goal is graduating Vietnamese engineers who are fluent in this emerging field.

"In the Internet of Things world we are able to more efficiently gather information from a manufacturing production line, fine tune our processes and optimize them to make them more efficient, lower cost and keep production running smoothly," said Richard Tyo, industrial IoT solutions architect for Intel and a workshop instructor.

In programs like HEEAP, he said, industry and academia can work together to advance research and apply it in a real world setting. "When we are implementing these new technologies, and transferring them to Vietnam to be operational,

we need the people in Vietnam to be able to understand the technologies they are going to be working with," Tyo said. "Educating the workforce is a very positive thing for Intel."

The visiting faculty members were at ASU learning from HEEAP's industry partners and ASU research faculty, including Intel executives and ASU faculty, on how to integrate different technologies (sensors, cloud computing, networks, etc.) to create a curriculum at their respective institutions that prepares their students for the emerging IoT field.

"The faculty explored different philosophies of teaching and learning, with a focus on active learning and student-centered teaching methods," said David Benson, HEEAP academic director. "They participated, as students, in an engineering design project to reinforce problem-based learning. They were excited about learning new things that can be immediately brought into their classrooms to improve the engagement of their students."

Participant Bui Hoai Thang, who is a faculty member of the computer science and engineering department at the Ho Chi Minh City University of Technology, said there were many things learned at the workshop that would help him improve the classroom experience when he returned home.

He said some of the challenges Vietnamese faculty face are lack of time to keep the curriculum updated and in line with industry needs, and a teaching and learning system that is "passive" in the sense that teachers lecture and students listen.

"Our students are good at thinking and learning, but they need to be more innovative and able to put theory into practice," Thang said. "As teachers we need to be able to inspire them to design and analyze and improve process. We have to balance knowledge and practice, and teach more what industry needs."

Goss also said a challenge faced by Vietnamese faculty is lack of access to tools and equipment to teach hands-on curricula to large classes.

To address this Intel and National Instruments have agreed to provide faculty with programmable development boards (free or at a discounted price for education) that support the collection, processing and transmission of data to build IoT devices. Intel, through their Higher Education Program, will donate hundreds of Galileo boards to be used in a variety of embedded computing applications to support curriculum innovation at the HEEAP schools. ■

Upcoming Events

April 14 - 15
Vietnam Engineering Education Conference. Ho Chi Minh City, Vietnam.

May 23 - June 17
Vocational Faculty Development Training. Tempe, AZ.

July 11- August 19
University Faculty Development Training. Tempe, AZ.

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Intel awards 109 scholarships to technical female students through HEEAP

Intel Products Vietnam and HEEAP, led by Arizona State University, awarded scholarships to 109 female students from technical universities and colleges in Ho Chi Minh City, December 18, 2015. The 109 scholarships, worth a total value of VND 708,500,000, are part of an annual program under HEEAP's framework. Between 2012 and 2015, there have been 436 scholarships awarded. A total of 2,834,000,000 VND has been awarded to young women from 14 engineering universities and colleges.

"Promoting educational opportunities for girls and capacity building for women is one of the core elements of Intel's education program and social responsibilities," said Public Affairs Director of Intel Products Vietnam Ho Uyen at the ceremony. "With the desire of improving the percentage of female students in technical programs in Vietnam, we are committed to extending this scholarship program from 2015 to 2017 through HEEAP, to bring more opportunities for girls in their technical career paths."

The 109 girls who received the scholarships came from 14 technical universities and colleges:

Industrial University of Ho Chi Minh City, Ho Chi Minh Vocational College of Technology, Cao Thang Technical College, Thu Duc College of Technology, Dong An Polytechnic, Ho Chi Minh Vocational College, Ly Tu Trong Technical College, Nguyen Tat Thanh University, Ho Chi Minh City Technical and Economic College, Industry and Trade Vocational College, Vietnam-Singapore Vocational College, Ho Chi Minh University of Technology and Education. Can Tho Vocational College and Ho Chi Minh City Institute of Applied Science and Technology.

At the ceremony, representatives of HEEAP also announced the 2016 scholarship program which will begin accepting applications in September 2016. ■

Highlights:

- Intel continues to award 109 scholarships to technical female students under HEEAP for universities and vocational colleges; each scholarship is worth VND 6.5 Million for a total of VND 708,500,000.
- This is the fourth consecutive year Intel awarded such scholarships to reaffirm their commitment of enhancing access to technical education for girls and women.

ASU's Representative Office featured on local television in Ho Chi Minh City

The Chief Representative of Arizona State University's Representative Office in Vietnam, Khoi Le Van, appeared on local Ho Chi Minh City television to discuss foreign investment in Vietnam's higher education November 5, 2015.

Khoi Le Van, Chief Representative of the Arizona State University Representative Office in Vietnam and host Minh Duc discuss foreign investment in Vietnam's higher education, November 5, 2015.

Hosted by experienced journalist Minh Duc, the program invites guest speakers to discuss a range of topics from education and health to industry and culture. Khoi spoke of the 220 investment projects in education with a registered fund of $825 million USD, focused mainly in Hanoi, Ho Chi Minh City and Danang. Most of the projects are involved with training centers, as well as elementary and high schools, and very few are targeted at higher education. In fact, higher education only accounts for less than one percent of the total investment.

Khoi stressed the need for better policy, regulation and support, as well as continued joint efforts by the Ministries of Planning and Investment and Education and Training to attract investment in higher education. He shared the HEEAP model of public/private partnerships, citing the collaboration between the Ministry of Education and Training, USAID, Intel and ASU as examples of strong support for higher education in Vietnam. ■

Saigon Hi-Tech Park hosts third annual conference

The Saigon Hi-Tech Park (SHTP) hosted its third annual conference November 12-13, 2015 in Ho Chi Minh City. The conference's central theme was "Applications of Internet of Things (IoT) for Smart Cities and Quality of Life." IoT is a development concept of the Internet in which every-day objects are interconnected with the ability to send and receive data.

The international conference gathered domestic and foreign experts, along with representatives of businesses active in information technology (IT) to discuss Ho Chi Minh City's movement toward a business-friendly climate and a creative space where sci-technological activities are encouraged. Another focal point discussed was the applications of IoT and how it will serve as the pillar for managing a smart city. Topics included: building a smart city, infrastructure solutions for a smart world, IoT security and smart transport, among others.

Arizona State University and Vietnam National University-HCM (VNU-HCM) gave a joint presentation on how to develop an undergraduate certification program on IoT. This program is one of the benefits of a six-week HEEAP faculty development training, where 20 faculty members from VNU-HCM trained alongside ASU and Intel experts on educational and research topics centered around IoT in the fall of 2015.

The presentation underlined the high demand for a workforce skilled in IoT solutions and highlighted the value of a mandatory course aimed at familiarizing undergraduate students in the fundamentals of IoT. With Vietnam and HCMC committed to the Smart City Ecosystems, the presenters from ASU and VNU-HCM stated that industry, society and end-users could all benefit from such a certification program in Vietnam. Intel, ASU and VNU-HCM are ready to join hands to develop such a certification program.

Saigon Hi–tech Park Training Center, the location of the third annual conference. Photo courtesy of SHTP

Learn more about the VNU-HCM faculty development training at ASU and the special focus on IoT: https://vimeo.com/143936054 ■

ASU talk about U.S. master's program scholarship opportunities draws more than 50 in Ho Chi Minh City

Khoi Le Van, Chief Representative of the Arizona State University Representative Office in Vietnam and Huyen Nguyen, International Admission Specialist, spoke about scholarship opportunities in the U.S. at the American Center in Ho Chi Minh City, October 22, 2015.

The informational lecture covered master's program scholarship opportunities available, including the HEEAP Master's Fellowship. Khoi and Huyen also advised students on how to submit winning scholarship applications, as well as provided guidance on how to interview well. The event drew more than 50 students hoping to pursue master's degrees in the U.S. Many in attendance stated their intention to take part in other informative sessions by ASU in the future. ■

More than 50 Vietnamese students hoping to pursue master's degrees in the U.S. attended the information session.

April 14-15, 2016, Ho Chi Minh City, Vietnam

Are you interested in presenting your work at the conference?
Submit your abstract by February 12, 2016 for consideration

HEEAP is currently accepting abstract submissions for presentations (no associated papers) at the VEEC 2016. Presentations during technical sessions are expected to run 20-30 minutes each with 10-15 minutes allotted for questions. For more information visit veec.heeap.org.

Abstracts on all topics associated with higher education will be accepted. The program committee is especially interested in presentations on the following topics:

- **Workforce Partnerships: Developing Effective Program Boards and Councils**
- **Building Effective Industry Partnerships**
- **Research Development: Creating Industry-Research Consortia**
- **Direct Assessment Methods and Practices**
- **Program Assessment: Implementation of the Continuous Improvement Model**
- **Integrating Professional Skill (Soft Skill) Development in the Classrooms**
- **Examples and Approaches of Effective Teaming in the Classroom**
- **Student Portfolios and Other Methods for Building a Resume**
- **Instructional Technology Design**
- **Internship Programs: Models and Methods for Running an Internship Program**
- **Designing a 'Maker' Space: Innovative Spaces for Student Projects**
- **Developing Institutional Policies around Institutional Change in Higher Education**
- **Creating Institutional Education Policy to Encourage Innovation in Engineering Education**
- **Women In STEM: Best Practices for Addressing Gender Issues in STEM Education**

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