



**ASEAN University Network/  
 Southeast Asia Engineering Education Development Network**

**Studying in ASEAN with AUN/SEED-Net: Cost-Effective and Region-Focused Education within Reach**

In the old days students in this region just thought of USA, Europe or Australia when being asked where to continue their studies. However, studying in those countries is of high cost and based on western-oriented notions or cultures, which sometimes cannot be applied to the Asian circumstance. Some students also suffers from cultural differences, causing negative effects on their academic performances, social interactions and lifestyles.

Considering the abovementioned disadvantages, AUN/SEED-Net has become a solution for ASEAN students. By utilizing human resources of leading member institutions in ASEAN with academic assistance from prominent Japanese universities, AUN/SEED-Net has been considered highly effective and successful in developing both educational and economic capacities of the region.

AUN/SEED-Net's graduate programs in ASEAN generally provide young graduates and faculty members of member institutions with scholarships to study in 9 engineering fields at leading institutions in Indonesia, Malaysia, Philippines, Thailand

and Singapore. The Master's Degree Program grants 2-year scholarships while the Doctoral Degree Sandwich Program grants 3-year scholarships including a short-term study period in Japan to successful candidates. The Doctoral Degree Program in Singapore offers to bachelor's holders a direct pathway to doctoral level with 4-year scholarships.

All of the scholars, except those studying in Singapore, will receive research funds under the Collaborative Research Program whereby their research projects are being conducted under specific research umbrellas in respective engineering fields. AUN/SEED-Net also provides several supports to strengthen academic networking within ASEAN and with Japan, e.g. field-wise seminars, short-term visits to Japan and within member institutions, Japanese professor dispatches, and promotional trips for host institutions to recruit students from member institutions.

By way of host-sending approach and regional hub establishment, the graduate programs at host institutions have been upgraded to comply with international



Japanese professor giving academic advice to AUN/SEED-Net students at Gadjah Mada University, Indonesia

standards whereas the faculty qualifications of sending institutions have been enhanced progressively. To guarantee the research quality, Japanese professors have added their contributions through joint supervision of students with host supervisors. Thus, AUN/SEED-Net students have benefited greatly from this value-added studying system because they can acquire higher degrees and advanced knowledge from regional institutions and Japanese universities, while saving a lot of traveling and living costs compared to studying in western countries. This system also facilitates their networking with other academics in the region for future research collaboration. For the region's benefits, the research being conducted are mostly concerned with ASEAN-related issues and based on real environments. Moreover, most students have been impressed with living in ASEAN countries as it is easy for them to accommodate to.

All of the AUN/SEED-Net programs and activities have been created to enhance engineering education of ASEAN to meet with the international benchmark and to deal with typical issues of the region



Left: Lao student at King Mongkut's Institute of Technology Ladkrabang, Thailand, conducting a pioneer research on *Online Lao Handwritten Feature with Automatic Noise and Real Feature Identification*  
 Right: Vietnamese student presenting her research at a field-wise seminar held by De La Salle University, Philippines

## Manufacturing Engineering @ UM: Academic Excellence and Holistic Development Rolled Up Into One

By University of Malaya, Malaysia

The Department of Engineering Design and Manufacture of the University of Malaya (UM) was first established as CAD/CAM Unit in 1993. By year 2000, the Unit expanded tremendously hence it was upgraded to become an independent department. Over the years, the department has become well-equipped with research facilities and expertise in different areas, such as CAD/CAM, Ergonomics, Robotics, Conventional and Non-conventional Machining, High Speed Machining, Processing of Particulate Materials and Metal-Ceramic Composites, Stir Casting, Electrical Resistance Sintering, Statistical Modeling, Surface Engineering and Total Quality Management. Members of academic staff are actively engaged in R&D with financial support from the Federal Government (IRPA grant), AUN/SEED-Net, and other industrial grants.



AUN/SEED-Net students with Prof. Zahari Taha during the NUS trip, June 2006

July 2003 was truly an important month both for AUN/SEED-Net and the department when the first group of AUN/SEED-Net scholars formally began their studies at UM. With this event, UM officially became the hub for Manufacturing Engineering education under the AUN/SEED-Net program. During the first year, there were 3 scholars accepted under the Master's Degree program, and increasing in number every year, with more than 20 master's and PhD students taken under its wing.

With the four batches of students who joined and are currently part of the program, various research activities had been and being carried out in numerous topics covering the wide array of manufacturing fields. Previous and present master's and PhD researches include areas such as brazing technology, powder metallurgy, bioceramics coating and grafting, image processing, machine condition monitoring, robotics, machine design and others.

AUN/SEED-Net students are also exposed to other various experiences aside from the already notable research and academic orientation of the department. Due to the multidisciplinary nature of some of the researches being done by the students, it provides a venue for further collaboration not only among the AUN/SEED-Net students but also with



AUN/SEED-Net students with Dr. Sutrisno, Prof. Zahari Taha and Prof. Rehan during the Indonesia trip at UGM, August 2006

other graduate students and some lecturers in the university. This aspect of training and exposure offered by the department is very helpful in the mission of the AUN/SEED-Net Project in fostering network among the ASEAN member institutions, since majority of the

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through the use of local human resources and region-oriented wisdoms, corresponding with the ASEAN's initiative to strengthen the academic network for solidarity and regional identity. Because of cost-effectiveness, knowledge applicability, and cultural resemblance, studying in ASEAN with AUN/SEED-Net is a very interesting choice that comes to ASEAN students' minds in recent days.

### Student's Research Presented at Big Exhibitions in Malaysia

The research "Development of a Software for Designing and Manufacturing of an Impeller" by AUN/SEED-Net student at University of Malaya Mr. Agung Bramantya (from Gadjah Mada University) under the supervision of Prof. Dr. Zahari Taha (University of Malaya), and Prof. Dr. Yasuo Suga (Keio University) was presented as a poster at two big exhibitions in Malaysia. This research has been supported by AUN/SEED-Net under the collaborative research theme: Product Design and Development.



Bramantya's research was presented as a poster at the Langkawi International

Maritime and Aerospace Exhibition (LIMA) during 6-11 December 2005. This international

exhibition is one of the world's major air shows, bringing together latest technology and products from the aerospace industry. The same research was also presented at the Manufacturing and Automation Technology Exhibition (MAT2006) in Penang during 21-23 September 2006. This specialized machine tool & metalworking event has been earmarked as the gateway to the manufacturing industry as it hosts a wide array of exhibits never witnessed before.



## AUN/SEED-Net Program in Mechanical and Aeronautical Engineering, Institut Teknologi Bandung, Indonesia

By Institut Teknologi Bandung, Indonesia

It has been more than three years now since the first batch of AUN/SEED-Net master's and PhD students arrived in Institut Teknologi Bandung (ITB), Indonesia. Hosting the Master's and PhD programs in Mechanical and Aeronautical Engineering, up to now 11 master's students of the first and the second batch have graduated from the program. Four of them are pursuing their PhD in Japan, one becomes a PhD student in USA and other two will soon start their PhD courses in ITB.

Every year, AUN/SEED-Net provides 5 master's scholarships for students from ASEAN countries to continue their education in Mechanical or Aeronautical Engineering in ITB. The competition to get the scholarship is quite tough. Last year alone ITB received 24 very good applicants from Vietnam, Laos, Cambodia, Thailand, Philippines and Myanmar. Consequently, only excellent students are being selected. This can be represented by their results. Five out of eight second batch master's students graduated with honors (*cum-laude*).

There are 36 credit units that a master's student has to pass in order to complete his/her master's program. Out of 36



Graduation Ceremony of Batch 2 AUN/SEED-Net Students, July 2006

credit units, 6 credit units are allocated for compulsory courses (Engineering Analysis I and II), 15 credit units for research project and other 15 credit units for optional courses. The student can join a research group of his/her interest, and the optional courses will be selected based on the interest and suggestion from the supervisor to support his/her research project. Research groups on Thermodynamics, Renewable Energy (e.g. Biofuel, Solar Technology), Aerodynamics, Aircraft Design, Dynamics (Vibration and Control), Hydraulic Control, and Solid Mechanics Experimental and Computational Mechanics, Fracture and Impact) are several of the available research groups within Mechanical and Aeronautical Engineering that have attracted AUN/SEED-Net students to join.

The research that have been conducted by the students under supervision of their supervisors produce results of international quality. Research on bio diesel fuel made from palm oil and physic nut oil (*Jatropha Curcas*) by Nguyen Ngoc Dung (Vietnamese), Tran Quang Tuyen (Vietnamese), and Rey Sopheak (Cambodian) under the supervision of Dr. Iman K. Reksowardojo will be presented in one of the biggest World Automotive Congress, FISITA 2006 in Yokohama, Japan in October 2006. Nguyen Quang Nguyen's research, under supervision of Dr. Lavi R. Zuhail about the use of digital images to measure air flow velocity is the first of its kind in South East Asia.

Apart of academic activities, ITB also promotes cross-cultural and social activities for the students. The International Student Office regularly



AUN/SEED-Net Vietnamese Students at ITB Celebrate New Year's Eve 2006

arranges these activities, such as attending traditional music concerts, visiting some places of interest, organizing cultural functions. Some students also join extra-curricular activities such as football, hiking, etc. These activities are fully supported by ITB since they are considered as important aspects to complete student's experience and exposure. Through these activities the students are exposed to cultural and social activities different from theirs, and they can build the network with Indonesian students which will be useful for the future of the region.

During the interview after final examination, the students said that they are very happy with their study, in both academic facilities and the scholarship. Duong Van Yen (Vietnamese) said that he got a lot of knowledge from the lecturer as well as from the literatures available in the library. Nguyen Quang Nguyen (Vietnamese) said special thanks to Prof. Djoko Suharto, member of AUN/SEED-Net Steering Committee who is also a Vice-Chairman of ITB's Board of Trustee, and mention that his scholarship is 'so enough' so he can concentrate in academic activities.

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scholars will be returning to serve their respective countries and to apply the knowledge acquired from the program.

Other activities initiated by the department are short-visit trips to other member institutions. In June 2006, Prof. Dr. Zahari Taha brought several AUN/SEED-Net master's students to Singapore to visit the National University of Singapore (NUS). During the trip, the

students had the opportunity to visit research laboratories and had first-hand interaction with NUS professors, which highly motivated them in their respective areas of research.

In addition to the NUS trip, the students along with Prof. Dr. Zahari Taha made another trip during 27-31 August 2006 to Indonesia to visit Gadjah Mada University (UGM) and Institute of Technology Bandung (ITB). Through this trip, the students were able to see the kinds of researches being done by the

other member institutions. The students also made brief presentations in front of student audience to promote the AUN/SEED-Net programs and the Manufacturing Engineering program at UM.

Combining the research capability and the creativeness of UM to facilitate learning and holistic development makes them worthy of being given the honor to host the field of Manufacturing Engineering under the AUN/SEED-Net Project.

## Events



July 5, 2006: AUN/SEED-Net arranged an orientation and monitoring of students at University of Malaya, Kuala Lumpur, Malaysia.

◀ July 18, 2006: Students at Universiti Sains Malaysia in Penang, Malaysia, attended an orientation and monitoring conducted by AUN/SEED-Net.



July 20, 2006: AUN/SEED-Net and AUN joined the World University Presidents Summit organized by the Commission on Higher Education of Thailand at Queen Sirikit's National Convention Center, Bangkok, Thailand.



◀ August 1-2, 2006: Field-wise Seminar in Environmental Engineering was held by University of the Philippines-Diliman at Intercontinental Hotel, Manila.



August 3-4, 2006: De La Salle University held Field-wise Seminar in Chemical Engineering at Intercontinental Hotel, Manila, the Philippines.



◀ August 3-4, 2006: The 1st Field-wise Seminar in Geological Engineering for the year 2006 was held back-to-back with the 3rd International Symposium on Earth Resources and Geological Engineering Education by Gadjah Mada University, Jogjakarta, Indonesia.



August 7-8, 2006: Gadjah Mada University hosted Field-wise Seminar in Information & Communication Technology at Grand Mercure Hotel, Jogjakarta, Indonesia.



◀ August 17, 2006: AUN/SEED-Net arranged an orientation and monitoring for students at Nanyang Technological University, Singapore.



August 18, 2006: AUN/SEED-Net visited National University of Singapore to conduct an orientation and monitoring of students and to discuss a preparation for the 12th Steering Committee Meeting, to be held in Singapore in January 2007.



◀ September 25, 2006: AUN/SEED-Net met new and current students at Institute of Technology Bandung, Indonesia, for the purpose of orientation and monitoring.



September 26, 2006: AUN/SEED-Net held an orientation and monitoring of students at Gadjah Mada University, Jogjakarta, Indonesia.

