



# American University of Armenia College of Engineering NEWSLETTER Fall 2011



## Message from the Dean

Dear CoE students, alumni and friends,

I am pleased to announce that we at the College of Engineering (CoE) are



launching this newsletter to keep you informed about the large number of academic and research activities taking place at our College. Over the past 20 years, CoE has graduated over 440 engineers. They, along with our hundreds of current students and friends, represent a sizable community with whom my colleagues and I wish to meaningfully engage. We would also like to learn about your successes and experiences in the world of engineering, business, or community engagement. At the bottom section of this Newsletter, you can find my personal contact info. Please feel free to write if you wish to explore the possibility of presenting your work, offering externships to our students, or becoming more involved in the activities of CoE.

Sincerely yours,  
Aram Hajian, PhD

## News and Updates

**STUDENTS & SCHOLARSHIPS:** This year over 33 new students are joining CoE's Master's Degree programs in Computer & Information Science (CIS) and Industrial Engineering & Systems Management (IESM). A third of these students receive financial aid or scholarships that are primarily funded by AUA benefactors. The CoE is expected to experience a marked growth, both in number of students and faculty members, starting in 2013, when AUA—for the first time in its 20-year history—launches its undergraduate education. Computational Science is expected to be one of the undergraduate majors offered through CoE.

**OPEN TO PUBLIC:** In the month of September, CoE organized two training sessions free and open to the public. The first was a 6-day introductory seminar on [municipal solid waste management](#) led by [Dr. Edwin Safari](#) of the Queens University, Canada. More than 30 participants from local NGOs, international organizations, state university, among others, completed the training. The second was a 2-day intensive training on [project management](#). The training was conducted by [Ms. Ojeni Sammis](#) who has enjoyed a long career at the Xerox Corporation in the US. More than 100 students, alumni, and industry practitioners participated in the training. These two events were the most recent of the 20 open-to-public seminars organized throughout the year at the CoE. ... [Read more](#)

**EXTERNSHIPS AND PRACTICUMS:** CoE students, in fulfilling their degree requirements, complete projects or practicums at companies in Armenia. Most recently, Industrial Engineering students completed projects at the Pure Iron Factory, Mars Factory, Yerevan Aluminum Factory, and Ararat Cognac Factory. For Pure Iron, for example, students investigated and redesigned the factory's heat-treatment process, eliminating a non-value-adding high-temperature furnace. The Computer & Information Science students have done their practicums with companies such as MetaKortex, Linkgard, Holland9, Smart Systems, Macadamian, Newmetrics and Armsoft. At Metakortex they designed and developed new features for web applications in the insurance industry. Let us know if your company is open to accept externs from our College.

### EVENTS:

- DigiTec Expo 2011 to be held in Yerevan, Oct. 7-9, at the Karen Demirchyan Sports and Concert Complex (Hamalir).
- ArmTech Congress 2011 to be held in Yerevan, Oct. 10-11, at the Marriott Hotel.
- 16th IFIP WG 7.5 Working Conference on Reliability and Optimization of Structural Systems, June 24-27, 2012 to be held on the AUA campus in Yerevan.

## ENGINEERING RESEARCH CENTER [ERC]

### CYBER SECURITY: Cutting-edge cryptography research funded by the Volkswagen Foundation

ERC, in collaboration with Dr. Han Vinck of the University of Essen in Germany, has secured a two-year contract from the Volkswagen Foundation in the field of error-control coding and cryptography. The project will engage talented students and provide them with the opportunity to connect with leading scientists in the field. The research project, led by AUA's Dr. Gurgen Khachatryan, will focus on biometric verification, technology that will enhance digital security and authentication. This leading technology is in great demand in the face of increasing threats of hackers, identity-theft, and other digital crime.

In photo from right: Dr. Melsik Kyureghyan, Dr. Gurgen Khachatryan, Ms. Siranush Chopryan (listener), Mr. Narek Malkhasyan (listener), Ms. Anna Asmangulyan, Mr. Hovik Khasikyan, Mr. Sergey Abrahamyan, and Mr. Aram Jivanyan. Not pictured is team member Dr. Vladimir Balakirsky.



### ALTERNATIVE ENERGY: Renewable Energy Roadmap for Armenia

Drs. Ken Touryan and Artak Hambaryan of ERC participated in a comprehensive analysis of renewable energy options for the Republic of Armenia. They identified the renewable energy resources available to Armenia and the steps necessary to reach high levels of adoption for

these solutions by 2020. The work was funded by R2E2 Fund under a World Bank grant and was contracted to the Danish Energy Management, a consulting firm based in Copenhagen. ... [Read more.](#)

### **INDUSTRIAL ENGINEERING: U.S. National Renewable Energy Laboratory Grant Completed**

ERC has recently completed a research project for the U.S. Department of Energy's National Renewable Energy Laboratory (NREL). The multi-year project required the design and prototyping of a laser-probe system that allows for real-time detection of defects in solar cells made from silicon wafers. The equipment can be used for quality control during the manufacturing process or as an instrument for researchers investigating the causes of defects in the crystalline material during the production process. Dr. Artak Hambarian, the Principal Investigator of the project, describes the feature of the device: "There is a precisely balanced high spin turntable (up to 4000 rpm) with a probe arm, accurate to 1 micrometer, that scans the surface of the silicon. We have also developed control and Graphical User Interface software. The apparatus has a data acquisition system and 3-channel laser probe." NREL is currently testing the system with the aim of commercialization.

In photo: Varuzhan Melikyan, project engineer, with the PV Scan equipment developed at AUA.



### **INDUSTRIAL ENGINEERING: Florida State University Wind Turbine 3D Modeling**

Sargis Zeytunyan, the Director of the CoE's CAD/CAM Lab, together with a team of students, using computer aided design and manufacturing software, developed a 3D model, drawings, and bill of material documents for a 25ft turbine for Keuka Wind, a private company, and Florida State University (FSU). Along with his FSU colleague, Dr. Rob Hovsopian, Mr. Zeytunyan is now supervising an international student project that will design a water desalination system and use these wind turbines in powering the system.

### **CYBER SECURITY: NTX Biometric Password**

Dr. Gurgen Khatchatryan with a team of AUA students completed a Java code for user-client secure authentication for the French company NTX. The team is now working on a second phase the project that will use the cryptographic Hash algorithm called Erindale+ to develop further security solutions for NTX.

**Look for the AUA  
College of Engineering's  
IDEAS Competition  
starting in 2012.  
Details in next issue  
of our Newsletter.**

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