

REPORT OF THE ENGINEERING RESEARCH CENTER

Spring Quarter, 1993

The Engineering Research Center (ERC) continued its activities in basic and applied scientific research during the Spring Quarter of 1993. As of the end of May the Center employed 39 researchers, 14 of whom are second-year AUA engineering students and 25 are specialists from outside working on various projects on a contract basis. The work done by AUA students are primarily related to the topic of their Master's theses, while the contract research workers are assigned to projects supervised by various AUA professors.

During the reporting period there were 12 projects under way in the Center. These projects were primarily funded by two research subcontracts from the University of Southern California and the University of California at Berkeley and a grant by the Olympia Tools Corporation in the United States. The Center expenditures for the Spring Quarter of 1993 were as follows:

March	R 381,484
April	R 391,321
May.....	R 457,486
 Total	 R 1,230,291

The principal projects under way at the Center during the Spring Quarter of 1993 are outlined below:

Project Title	Project Description	Principal Investigator	Sponsor
Investigation of Methods for Seismic Rehabilitation of Buildings	An experimental and analytical project to investigate means of reinforcing quake-damaged buildings in Armenia	Michael Melkumian (AUA)	University of Southern California
Expanding Pile for Strengthening Soft Soils	An investigation of a novel type of pile that converts vertical loads into lateral ones	Ruben Harutunian (AEERI)	ERC
On-line Computerized Armenian-Russian-English Technical Dictionary	A resident program that can assist users in translations and explanations of technical terms	Sashik Darbinian (Institute of Armenian Encyclopedia)	ERC
Research on Alternative Energy Sources	An investigation of the legislative measures and policies needed to stimulate foreign investment in alternative energy projects in Armenia	Yuri Avakian (Ministry of Energy)	ERC
Residual Stresses in Micro Heterogeneous Materials	An investigation of the mechanical properties of elements of micro-electromechanical devices	Suren Gevorkian (State Engineering University)	University of California, Berkeley

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Earthquake Record Digitization	A program designed to read and process earthquake data gathered by analog seismographs in Armenia	Levon Aslanian (Computing Center of the Academy of Sciences)	ERC
Software for Geological, Geophysical and Geographical Map and Data Processing System	A software package that integrates graphics with databases for displaying maps of different types on a computer screen	Vartan Douvalian (AUA)	ERC

Other Activities

During the reporting period two proposals were written: One to USAID for approximately \$25,000 seeking assistance on a project to produce computer boards using local specialists and manufacturing facilities; and the other to AGBU seeking matching fund support (for \$37,500 per year for 2 years) for a National Science Foundation grant to Ara Arabyan. The first of the proposals was declined on grounds that the proposed project would pit Armenian manufacturers in direct competition with U.S. producers, and a decision on the second one is still pending.

The Center received four new computers and a laser printer during the reporting period out of the shipment of 40 computers the University received in April. All the computers were purchased with USAID funds awarded to the University for capital expenditures. The computers were installed with the appropriate software and have been extensively used by all ERC personnel.

In April, the ERC acted as a clearing center for proposals submitted for a competition organized by the Armenian Professional Society of the Bay Area. The competition envisaged awarding grants of \$400 each to 12 scientists with meritorious projects. A total 91 proposals were received for the competition from many different institutes and institutions of higher learning. The proposals were received, logged, numbered and filed by the ERC and forwarded to San Francisco for reviewing. At the completion of the review process 16 proposals were selected for funding. A lunch was organized in the University cafeteria for the grantees in June, and the awards were presented.

About the beginning of May, the Center hired a new secretary, Mr. Tigran Arakelian, to help with various chores which have grown in parallel with the expansion of ERC activities. Specifically, Mr. Arakelian will help with the typing and maintenance of ERC technical reports, filing of various documents, organization of ERC projects and other day-to-day chores related to the Center's activities.

Future Goals

The ERC has begun asking all principal investigators on ongoing projects to submit progress or final reports. Two reports have already been submitted, and it is expected to have at least a half dozen final reports by the end of 1993. In addition, plans are being made to display principal current projects in poster form in the halls of the 6th floor of the AUA building. The ERC computers will be networked in a LAN configuration as the networking project for the University proceeds.

The ERC expects to be involved further with award competitions of the type organized by the Armenian Professional Society. Efforts are already under way in the United States to procure funding from various organizations for similar competitions. In addition, work is in progress to obtain additional grants and funds from various organizations and industrial concerns for direct ERC expenditures.