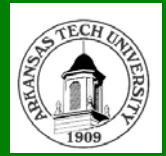


# SPARKS & MAGIC



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## Welcome

Welcome to the first publication of the Electrical Engineering Department Newsletter. Our purpose is to inform you of the activities of the students, faculty and staff. If it has been a while since you were on campus or heard from us, there is a lot of news to catch up.

In 2001, our department became accredited by ABET, Inc. ATU is only one of two universities in Arkansas that offers a fully accredited Electrical Engineering bachelor's degree. The ABET accreditation process involves extensive self-study and evaluation as well as "outside" evaluation and input from our advisory board, alumni and others. The importance of accreditation cannot be understated since according to the ABET website, "ABET accreditation is assurance that a college or university program meets the quality standards established by the profession for which it prepares its students."

### *A MESSAGE FROM MULDOVA by Dr. Gill Richards*

Well, we're having a great time here in Moldova – everything in the university system is different from the U.S. The Engineering curriculum in Moldova (and all east European countries east of about Hungary) is the Russian model: a high degree of specialization and textbooks all in Russian. For example, a student may spend his entire academic career in industrial electric systems, or electromagnetics, or electric power systems, or electric machines, or power plants or some others. In each of these, he will learn only enough about the other specialties to do a particular job. Math and humanities are spread in as necessary. The whole thing is designed for a system where a student is destined for a certain power station or large transmission line project, which exact job will be waiting for him when he graduates. This is the efficient ideal of a planned economy – worked fine as long as there was a plan. Of course this region is now westernized, which means everyone for himself in job getting. So they are painfully switching to the less specialized western curriculum – but slow to begin. Western Europe is going through a curriculum standardization too – known here as the "Bologna process" because of the European Union conference that started it off a few years ago. And Moldova wants to be part of this, because it hopes to be part of the European Union some day.

Anyway, students there should be relieved to know that the American curriculum seems to be the logical end of all these changes. That means that the American trained engineer, who is a broadly competent professional able to address technological problems in the general way, and able to specialize himself as it is required, may be the winning ticket. That sounds chauvinistic, and there are plenty of ways the American system falls short – especially in the access to education area (money).

Moldova is a really delightful place to live. The Technical University of Moldova (where I teach a class for the relatively few students who are slightly fluent in English) is where I work. The capital of Moldova is Chisinau, with about 800,000 inhabitants, where we live in a nice modern apartment. Food is great – the public market is huge, loaded with fresh stuff from the countryside. Restaurants are excellent and inexpensive. Parks are well maintained, located everywhere around the center of town. This area was a vacation spot in the former Soviet Union, so it has (and deserves) the reputation of being a party (ie, celebration) town. Every other weekend is some kind of festival (Wine, Flag, Language, National, and more). Music of all kinds is publicly supported, and is everywhere performed. The population is relatively poor on the average, but they dress extremely well and pride themselves on friendliness.

In short it's been a few great months – but we are looking forward to getting back, too.

Gill Richards

Let us know about you! Email us today at [eedept@atu.edu](mailto:eedept@atu.edu)

# Research Corner

Dr. Carl Greco and Mrs. Pat Buford were both notified October 28, 2005 that their Faculty Undergraduate Research Grants were funded for this academic year. Proposals were submitted to the Arkansas Tech University Undergraduate Research Office headed by Dr. Mostafa Hemmati.

Dr. Greco's project is entitled, "Electrocardiographic T-Wave Repolarization Analysis" and is a continuation of the research funded last year by the Arkansas Space Grant Consortium - NASA.

Mrs. Buford collaborated with Dr. Daniel Bullock on the submission of "Mock Automated Warehouse Autonomous Robotics Project." This grant allows sixteen students to design and construct a robot to compete in the IEEE Region 5 Robotics Competition in San Antonio, Texas next spring.

Dr. Ping Liu has been doing research in wireless communications for 7 years. Her expertise lies in applying advanced signal processing and statistics techniques for solving communications' problems, such as channel equalization, channel estimation, and multiuser detection for TDMA, CDMA and Ultra-wideband systems (UWB). Her recent interest focuses on developing low-complexity UWB transceiver, and setting up a software simulation test bed for a 3G CDMA system. The test bed will be used to evaluate existing algorithms as well as new ideas.

Chris Justice, a spring 2005 graduate, had been working with Dr. Liu on UWB research project, which is sponsored by Arkansas Center for Energy, Nature Resources and Environmental Studies (ACENRES). Currently, two junior students: Jeffrey Parker and Andrew McCullough are working with her on channel equalization project, which is sponsored by Arkansas NASA Space Grant and ACENRES.

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## IEEE

The student section of the IEEE is alive and well. Last year the Engineering Club split into the ASME and the IEEE. While we miss many of our mechanical students, the split has enabled us to grow and expand the electrical programs.

The ATU branch of the IEEE has been very busy this semester. They have recruited students at the Organizational Fair, visited Engineering Orientation Classes, sponsored a ski trip to Lake Thunderbird, and jointly sponsored with the student section of the ASME presentations on internships and of course the semi-annual trash pickup and cookout. Currently 46 students are members of the ATU student branch.



IEEE Officers: Adam Effrein, Nathan Litterest, Nathaniel Scott, Donnie Leitmeyer, Katy Klotz, CJ Fisher, Andrew McCullough, Isaac Vaughan and Nick Stokes; standing at their display at the Organizational Fair.



Thrills, chills and spills as Nathaniel Scott releases the ski rope during IEEE sponsored ski trip to Lake Thunderbird. Photographer: CJ Fisher