Electrical and Computer Engineering

UMASS LOWELL

September 18, 2006

Contents

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Welcome Message

I hope you had a great summer and are ready for the new semester. We would like to welcome all of our freshman and new transfer students. Our freshman class has increased by over 50% this year!

If you look around you may notice some changes. We've renovated our Capstone Lab (BL402) with brand new equipment, lab benches, a smart board and new flooring. We are looking forward to great assistive technology projects from our seniors! We also upgraded some of the equipment in the Microprocessor Lab (BL407) and installed anti-static flooring. A new Virtual Instrumentation Lab (BL304) has been set up with specialized equipment and Labview software. This lab will be used to teach virtual instrumentation as part of the sophomore and junior lab courses. We have also upgraded computers in a number of our labs. ECE has been a very busy place this summer!

I'm also happy to report that we have two new ECE faculty members. Prof. Xingwei Wang, a recent graduate of Virginia Tech, will be teaching Electronics II this semester. Her research interests include biosensors, biomedical devices and nanotechnology. Prof. Martin Margala, currently a professor at the University of Rochester, will be joining ECE in January. His area of expertise is VLSI technology, particularly in low power applications.

I hope to see you at department activities this year and look forward to your participation in ECE organizations such as the IEEE and Eta Kappa Nu. If you'd like to join IEEE, visit the IEEE lounge in BL 302 and to an officer.

Have a great semester!

Professor Armiento
Chair, ECE Department

New Faculty

The Department welcomes Prof. Wang! Prof. Wang's research interests cover the areas of optical biosensing and biomedical devices

Research

GRANTS:

Professor Prasad received a $10K grant from Intel to develop a test mask to be transferable in his Distributed Semiconductor Instructional Processing Laboratory(DSIPL) during the academic year 06-07.

Professor Salameh finished a project of adding 10.5kW of photovoltaics on the roof of Ball building. The Grant entitled "Design, construct and evaluate a 10.5 kW PV system" of $46K from MTC was upgraded to $50K.

JOURNAL PUBLICATIONS:

Prof. Akyurtlu

"Group Theory Based Design of Isotropic Negative Refractive index Metamaterials," N. Wongkasem, A. Akyurtlu, and K. A. Marx, *Progress in Electromagnetic Research, PIER* 63, pp. 295-310, 2006.

"Novel Broadband THz Negative Refractive Index Metamaterials: Analysis and Experiment," N. Wongkasem, A. Akyurtlu, J. Li, A. Tibolt, Z. Kang, W. D. Goodhue, *Progress in Electromagnetic Research, PIER* 64, pp. 205-218, 2006.

Prof. Luo

Y. Luo, J. Yu, J. Yang and L. Bhuyan, "Conserving Network Processor Power Consumption By Exploiting Traffic Variability," Accepted by and to appear in ACM Transactions on Architecture and Code Optimization.

L. Zhao, Y. Luo, L. Bhuyan, R. Iyer, "A Network Processor Based Content Aware Switch, IEEE Micro Special Issue on High-Performance Interconnects," Volume 26, No. 3, pp. 72-84, May/June 2006

CONFERENCE PRESENTATIONS:

Prof. Akyurtlu

A. Akyurtlu, A-G. Kussow, A. Semichaevsky, and A.S. Karakashian, "Metamaterials for the Visible Regime," *2006 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting*, July 9-14 2006, Albuquerque, NM, **Invited Paper**.

A. Semichaevsky, A. Akyurtlu, "Homogenization of metamaterial-loaded substrates for antenna applications," *2006 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting*, July 9-14, 2006, Albuquerque, NM.

N. Wongkasem, A. Akyurtlu, "Broadband THz DNG Metamaterials for Simplified Fabrication," *2006 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting*, July 9-14, 2006, Albuquerque, NM.

N. Wongkasem, A. Akyurtlu, and K. A. Marx, "Development of Double Negative Chiral Metamaterials in the Visible Regime," *2006 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting*, July 9-14, 2006, Albuquerque, NM.

Nicholaos Limberopoulos, Vasilios Limberopoulos, Alkim Akyurtlu, Aram S. Karakashian, and William D. Goodhue, "A Test Bench Device for the Characterization of Metamaterials in the Optical Regime," *2006 IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting*, July 9-14, 2006, Albuquerque, NM.

Prof. Salameh

P. Buasri and Z. Salameh, "An Electrical Circuit Model for a Proton Exchange Membrane Fuel Cell (PEMFC)," *Proceedings of the Annual IEEE_PES, PP. NO, 06GM0394,* Montreal, Canada, 2006.

W. Lynch and Z. Salameh, "Electrical Component Model for a Nickel Cadmium Electric Vehicle Traction Battery," *Proceedings of the Annual IEEE_PES, PP. NO, 06GM1201*, Montreal, Canada, 2006.

A. Cultura and Z. Salameh, "Design of A Distributed Wind/PV Hybrid Systems For Rural Electrification of An Island In The Philippines", *Proceeding of the Solar 2006 Conference*, Denver CO, July 2006.

Faculty News:

Prof. Akyurtlu has been selected as an Editor for the IEEE Antennas and Propagation Magazine.

Prof. Ibe was a member of the NSF Panel on Power, Control and Adaptive Networks, June 22-23, 2006, in Arlington, VA

Prof. Luo served as a reviewer for:
IEE Proceedings Computers and Digital Techniques;
ACM Transactions on Architecture and Code Optimization;
IEEE Conference on Computer Communications, to be held on May 6-12, 2007, Anchorage, AL, USA

Thesis Defense

Doctoral Defenses:

Name: Nantakan Wongkasem
Title: "Computational and Theoretical Investigation of Micro- and Nano-scale Chiral Electromagnetic Metamaterials"
Date: June29, 2006
Advisor: Alkim Akyurtlu

Name: Andrey Semichaevsky
Title: "Applications of Metamaterials to Planar Antenna Design"
Date: July26, 2006
Advisor: Alkim Akyurtlu

Announcements by the ECE Graduate Coordinator

1. Core Requirements
   Core courses should be given top priorities in course selections because most of them are offered only once a year. Core requirements cannot be waived or replaced.
2. Concentration Requirement
   Completion of a concentration for the Masters degrees in both Electrical Engineering and Computer Engineering is recommended but not mandatory. Concentration is not a requirement for graduation.
3. Non-ECE Courses
   Courses taken outside the Department of Electrical and Computer Engineering, UML, must be pre-approved.
4. Undergraduate Course Requirements
   Undergraduate course requirements for graduate students accepted with conditions can be waived only by passing a written equivalency exam. Requirements cannot be waived by taking graduate courses with the required undergraduate courses as prerequisites.
5. Transfer of Credits
   Students who wish to transfer credit must file the Academic Petition within the first semester. (Graduate School policy)
6. Fall 2006 Graduation
   The deadline for filing the Graduate Degree Clearance Form for Fall 2006 graduation is November 17, 2006.
7. Change of Degree Program
   Change of degree Program (between MS in Electrical Engineering and MS in Computer Engineering) no longer requires submission of a new application to the Graduate Admissions Office. Students who wish to change their degree programs may submit an academic petition to the Graduate Coordinator after one semester at UML.
8. Application for Combined BS/MS
   Undergraduate students cannot apply for the combined BS/MS program until they have completed their junior year. Contact the Graduate Coordinator for any questions on eligibilities.
9. Senior Courses with Dual Numbers
   Seniors who are accepted to or intend to apply for the combined BS/MS program should register senior courses with dual numbers such as 16.482/16.561 at 500-level, so that they can use two 500-level courses with a grade of “B” or better for both BS and MS.

Calendar of Important Dates

SEPTEMBER **18 Monday**

- Last Day for Registered Students to:
  - Add a Course with a Permission Number
  - Drop a Course without Record
  - Change Enrollment Status from:
    Audit to CreditCredit to Audit "Pass-No Credit" to Letter Grade, or Letter Grade to "Pass-No Credit"
    Note: No refund after this date

OCTOBER **9 Monday**

- Columbus Day (University Closed)

OCTOBER **10 Tuesday**

- Monday Class Schedule

OCTOBER **24 Tuesday**

- Mid-Semester: At least one evaluation required in each Course.