

# Electrical & Computer Engineering Graduate Programs



Did you know?

- Did you graduate from UML engineering with a GPA over 3.0 within the past five years? *We'll waive the application fee and the GRE requirement!*
- A Master of Science in Electrical Engineering or Computer Engineering consists of 30 credits for a thesis based degree or 33 credits for the coursework only or project-based option.
- You can start by taking courses as a non-matriculated student and then transfer up to 12 credits in towards your full or part-time graduate degree.
- Doctoral programs - both PhD and D.Eng - are available in both Electrical & Computer Engineering.
- Teaching and Research Assistantships may be available for full-time grad students!
- We have externally funded research! Research projects exist in every area of specialization, including optoelectronics, biophotonics, electromagnetics, renewable energy, VHDL & VLSI Design, wireless.
- Other Graduate options include the Masters in Education, MBA and new Masters in Innovation and Technological Entrepreneurship.



# Electrical & Computer Engineering

Non-Profit Org  
U.S. Postage  
PAID  
UMASS Lowell  
Permit #69

## Graduate Programs

Start Building Your Future Career



- Quality!** Courses are taught by well qualified full-time Faculty or adjunct faculty from industry
- Value!** \$1678 tuition + fees per 3 credit on-campus course for Massachusetts residents  
\*Courses offered through Continuing Ed—  
\$1485 tuition & fees per 3 credit course.
- Convenience!** We're close to Boston & many companies in the Rte. 128 & I-495 corridor.

Sign up for a course for the fall as a non-matriculated student, or apply for the degree program

Electrical & Computer Eng. Info:  
Web: [www.uml.edu/ece](http://www.uml.edu/ece)  
Dept. Office: 978-934-3300

Prof. Craig Armiento  
Department Chair  
[Craig\\_Armiento@uml.edu](mailto:Craig_Armiento@uml.edu)

Graduate School Info:  
[www.uml.edu/grad](http://www.uml.edu/grad)  
978-934-2390

Prof. Anh Tran  
ECE Graduate Coordinator  
[Anh\\_Tran@uml.edu](mailto:Anh_Tran@uml.edu)

Continuing Education Info:  
[Continuinged.uml.edu](http://Continuinged.uml.edu)  
978-934-2474

Prof. Dik Kalluri  
ECE Doctoral Coordinator  
[Dikshitulu\\_kalluri@uml.edu](mailto:Dikshitulu_kalluri@uml.edu)

Electrical & Computer Engineering  
University of Massachusetts Lowell  
One University Avenue  
Lowell, Massachusetts 01854  
web: [electrical.uml.edu](http://electrical.uml.edu)



## Electrical & Computer Engineering

Courses are scheduled in the late afternoon and evening to provide study opportunities for students with full-time employment.

### Fall 2009 Graduate Classes

All courses 6pm-8:50pm unless noted in blue

Day	Course Title	Instructor
<b>Monday</b>		
16.521.201	Real Time Digital Signal Processing	Mahd
16.515.201	Power Electronics 11:30am-12:20 MW	Salameh
16.550.201	Advanced Digital System Design 2:30pm-3:45pm MW	Megherbi
16.556.201	Robotics	Parkin
16.561.201	Computer Architecture and Design	Margala
16.584.201	Probability and Random Processes	Chandra
16.590.201	Fiber Optic Communication	Armiento
16.660.201	Mobile Communication Networks	Ibe
<b>Tuesday</b>		
16.502.201	VLSI Design 3:00pm-5:40pm	Prasad
16.506.201	Antenna Theory and Design	Best
16.534.201	Microwave Laboratory	Rao
16.574.201	Advanced Logic Design	Tran
16.669.201	Opto Electronic Devices	Lu
16.710.206	Prog. Arch./Next Gen. Networks	Luo
16.722.201	Mixed Signal Int. Ckt. Design	Margala
<b>Wednesday</b>		
16.507.201	Electromagnetic Materials & Waves	Kalluri
16.523.201	Introduction to Solid State Electronics	Mil'shtein
16.543.201	Theory of Communication	Weitzen
16.552.201	Microprocessor Syst. II & Embedded Syst	Luo
16.565.201	Analog Devices and Techniques	Cheney
16.710.201	Nanoelectronics	Therrien
<b>Thursday</b>		
16.505.201	Microwave Electronics	TRao
16.509.201	Linear Systems Analysis	Thompson
*16.562.291	VHDL/Verilog Synthesis & Design	Kelly
16.573.201	Operating Systems 2:30pm-5:20pm	Megherbi
16.582.201	Wireless Communications	Weitzen
16.575.201	FPGA Design Techniques	Moran
25.550.201	Introduction to Nanotechnology	Mead

### Online Courses

*16.576	Principles of Solid State Devices	Armiento
*16.508	Quantum Electronics for Engineers	Therrien
*16.511	Medical Diagnostic Imaging	Mahd
*16.517	MMIC Design	Prasad

\* offered through Continuing Education

## Graduate Programs

### M.S. in Electrical Engineering & in Computer Engineering

**Requirements:** 30 credit hours for a 6 credit thesis-based degree OR 33 credits for the coursework only or project option

**Concentration Areas (C=Computer; E=Electrical)**

- Information Systems - Telecommunications E
- Information Systems - Communications Engineering E
- Power & Energy Engineering E
- Opto-Electronics E
- Computer Networking & Distributed Systems C
- Computing & Embedded Systems Hardware & Architecture C
- Artificial & Machine Intelligence C
- Multimedia Digital Signal and Image Processing & Applications C

### Graduate Certificate Programs: (E=ECE; I=interdisciplinary)

- Biomedical Engineering I
- Communications Engineering E
- Energy Conversion I
- Integrated Engineering Systems I
- Microwave & Wireless Engineering E
- Nanotechnology I
- Photonics & Optoelectronics I
- Stochastic Systems E
- Telecommunications I
- VLSI & Microelectronics E

### Ph.D. & D.Eng. in Electrical Engineering

### Ph.D. & D.Eng. in Computer Engineering

**Requirements:**

- 63 credit hours of graduate level courses total
- 42 credit hours of graduate course work
- 21 credit hours of doctoral dissertation
- For the DEng degree, 9 of the 42 coursework credits are Management courses.

### Teaching & Research Assistantship Stipend/Waiver Information: (for full year, double the amounts shown)

Item	half-time	TA/RA per semester	full-time	TA/RA per semester
	in-state	out-of-state & foreign	in-state	out-of-state & foreign
stipend	\$3252	\$3252	\$6,504	\$6,504
tuition & fees waiver	\$3261	\$5228	\$5761	\$9695
total TA/RA value per semester	\$6513	\$8480	\$12,265	\$16,199

### Education Costs - Full time (9 credits) per semester:

In-state: \$5034, Out of state: \$9365

New England Regional & New England Proximity: \$7380

## Department Faculty Members

- Alkim Akyurtlu**, Associate Professor  
B.S. Virginia Polytechnic Institute,  
M.S. Ph.D. Pennsylvania State University
- Craig Armiento**, Professor & Department Chair  
B.S. Manhattan College,  
S.M., E.E., Ph.D. Massachusetts Institute of Technology
- Kavitha Chandra**, Professor  
B.E. Bangalore University, M.S.,  
D.Eng. U. Mass. Lowell
- George P. Cheney**, Professor, Undergrad Coordinator & Exec. Officer  
B.S. MS. Lowell Technological Institute
- Tingshu Hu**, Associate Professor  
B. S., M.S. Shanghai Jiao Tong University, China,  
Ph.D. University of Virginia
- Oliver Ibe**, Associate Professor  
B. Sc. University of Nigeria, M.B.A. Northeastern University, S.M.,  
Sc. D, Massachusetts Institute of Technology
- Dikshitulu Kalluri**, Professor & Doctoral Coordinator  
B. E. Andhra University, M.S. University of Wisconsin,  
D.I.I.Sc., Indian Institute of Science, Ph.D. University of Kansas
- Xuejun Lu**, Associate Professor  
B. S. Peking University,  
M.S., Ph.D. University of Texas Austin
- Yan Luo**, Assistant Professor  
B.E., M.E., Huazhong University of Science & Technology, China,  
Ph.D. University of California Riverside
- Mufeed Mah'd**, Associate Professor  
B. S. Kuwait University, M.S. University of Jordan,  
Ph.D. University of Western Ontario, Canada
- Martin Margala**, Associate Professor  
Dipl. Ing. Slovak Technical University, Slovakia,  
Ph.D. University of Alberta, Canada
- Dalila B. Megherbi**, Associate Professor  
Dipl. Ecole Nationale Polytechnique,  
M.S.(2), Ph.D. Brown Univ.
- Samson Mil'shtein**, Professor  
B. S. , M.S. State University of Odessa,  
Ph.D., University of Jerusalem, Israel
- Kanti Prasad**, Professor  
B. Sc. Agra University, B.E. University of Roorkee, India,  
Ph.D. University of South Carolina, PE
- Tenneti C. Rao**, Professor  
B. Sc. Andhra University,  
B.E., M.E., Ph.D. Indian Institute of Science, Bangalore
- Ziyad M. Salameh**, Professor  
Dipl. EE, Moscow Power Engineering Institute,  
M.S., Ph.D. University of Michigan
- Joel Therrien**, Assistant Professor  
B.S. , M.S. U. Mass-Lowell;  
Ph.D. U. Illinois Urbana-Champaign
- Charles Thompson**, Professor  
B. S. New York University, M. S. Polytechnic Inst. of New York,  
Ph. D. Massachusetts Institute of Technology
- Anh Tran**, Professor & Graduate Coordinator  
B. Sc. National Taiwan University,  
M. S., Ph.D. Univ. Rhode Island
- Fahd G. Wakim**, Associate Professor  
B. S. American University of Beirut, M. A., Ph.D. Univ. of Texas
- Xingwei Wang**, Assistant Professor  
B.S. Zhongshan (Sun Yat-sen) University, China,  
M.S., Ph.D. Virginia Polytechnic Institute
- Jay A. Weitzen**, Professor  
B. S. , M.S., Ph. D. University of Wisconsin