Francis College of Engineering

Materials Engineering

"Form the Future” with Plastics

For more information on Plastics Engineering Academic Programs or Research Opportunities at UMass Lowell, visit our website at:

http://plastics.uml.edu

ALUMNI ENDORSEMENTS

"I transferred to UMass Lowell’s Plastics Engineering program from a general engineering program at an Ivy League university. I consider it the best decision I had made within my four years of undergraduate study. The specialized education and the Plastics Department’s amazing reputation allowed me to earn several excellent job opportunities and opened doors for further academic endeavors. I feel that my experience at UMass Lowell provided me with the knowledge base I need to flourish in my current and future roles”.

Jessica Bielawski, BS ’05, MS ’08

"The Plastics Engineering program at UMass Lowell is a well-respected and rigorous engineering program. I had numerous job opportunities but decided to continue my education by pursuing my PhD once I completed the five-year BS/MS degree. The background in applied chemistry, plastics materials science, and design and processing I gained at UMass Lowell was essential in preparing me for the prestigious doctoral program at MIT, in which I recently enrolled to pursue further research in polymers and materials science."

Matthew Mannarino, BS ’07, MS ’08

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FACULTY RESEARCH INTERESTS

Robert A. Malloy, Department Chair: Plastics product design, polymer processing, recycling of thermoplastics.

Stephen A. Orroth, Executive Officer: Extrusion, die design, processing, thermoforming, blow molding, and rotational molding.

Gonca Altuger-Genc: Lecturer; Design and manufacturing, production, systems design, decision making, engineering education: lifelong learning and self-directed learning, virtual learning systems design and development

Carol F. Barry: Extrusion, injection molding, electrorheology, novel processing techniques, coatings, CAE and nano plastics processing.

Bridgette Busch: Surface Interface properties, coatings & adhesives, nanomanufacturing.

Aldo M. Crugnola: Mechanical-physical properties, process-induced changes in physical molecular structure; use of plastics in prostheses and other implants.

Stephen B. Driscoll, Coop Coordinator: New polymeric materials, additives, fillers, economic evaluations, elastomers, and rheology.

Steven J. Grossman: Structure-property relationships of plastics, reactive processing of polymers, polyblends and additives, and new polymerization reactions.

Jan Huang, Doctoral Coordinator: Physical properties of polymers, biopolymers, bioapplications of polymers, computer applications and absorption GPC.


David O. Kazmer: Plastics process design and control, process simulation, part design, mold engineering.

Fang S. Lai: Plastics processing, process control and instrumentation, powder technology, industrial hazard assessment, SQC/SPC, and statistical methods.

Stephen P. McCarthy, M.S. Coordinator: Biodegradable polymers, mechanical behavior, applications of CAD/CAM. Director of the UML Institute of Plastics Innovation.

Joey L. Mead: Rubber technology, thermoplastic elastomers, design, properties and processing of elastomers, nano materials.

Ramaseswamy Nagarajan: Biocatalysis, sustainable & greener routes to advanced materials (electronic, photo-responsive polymers, molecularly integrated hybrid nanomaterials, materials for energy conversion/storage), elastomers, thermal and morphological characterization of materials.

Daniel Schmidt: Nanoporous polymeric materials and foams, nanocomposites, water soluble polymers, silicone polymers, and polymer characterization.

Margaret Sobkowicz-Kline: Renewable polymer blends and composites; polymer photovoltaics; green chemistry and engineering.

Ross G. Stacer: Elastomers, adhesion and adhesives, fracture and failure analysis, time-dependent phenomena, viscoelasticity, electrorheological materials, and solid rocket propellants.

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ABOUT PLASTICS ENGINEERING

The Plastics Engineering Department at UMass Lowell has a long history as a leader in Plastics Engineering education. The department was founded in 1954 by Russell W. Ehlers. Dr. Ehlers was the very first educator to recognize that there was a need for engineers trained in the emerging field of “PLASTICS”. His vision was to create a program that would give students a “hands-on” education that was backed up by engineering and chemistry theory. This is still the case today. The program combines hands-on laboratory experiences relevant to the industry, with the fundamental theory found in courses of mathematics, science and engineering. Constant feedback from industry and alumni enable us to stay on the cutting edge of technology. The department has a world class faculty and a 20,000 square foot "state of the art" lab facility. In fact, the Plastics Engineering Program at UMass Lowell is the only ABET* accredited undergraduate Plastics Engineering program in the United States.

* ABET is the Accreditation Board for Engineering and Technology programs in the United States.

Plastics are said to be the most versatile materials on earth. Almost all of the products we use in our daily lives contain plastics - yet there are few academic institutions that specialize in this growing materials field. Plastics are used in the manufacturing of products such as automobiles, medical products, appliances, consumer goods, packaging, building materials and electronics. “Plastics Engineers” help companies develop new products by applying their knowledge of materials, design and manufacturing. UMass Lowell is recognized as the global leader in Plastics Engineering education.

ACADEMIC PROGRAMS

- Bachelor of Science in Plastics Engineering
- Masters of Science in Plastics Engineering
- 5 Year Bachelor - Masters Program
- Doctor of Engineering, Plastics Engineering
- Ph.D in Plastics Engineering
- Joint Ph.D. Program with Polymer Science
- Undergraduate Certificate Program – Plastics
- Graduate Certificates in Medical Plastics, Plastics Materials, Plastics Design, Plastics Processing and Elastomers, Commercial Development & Sustainable Polymeric materials & Additives

CO-OPS & INTERNSHIPS

The faculty in the Plastics Engineering Department enthusiastically supports the Cooperative Education program at UMass Lowell. Our undergraduate and graduate students are strongly encouraged to incorporate professional industry experience into their academic program of study.

Cooperative Education (better know as co-op) is a unique and mutually beneficial partnership between you, an employer, the Plastics Department, and the Office of Career Services. Through a combination of classroom study and a minimum of two approved engineering-related work experiences, you will gain critically important skills related to your educational and career goals and your employer will gain your valuable contributions to their organization. With the department’s exceptionally strong industry connections, qualified students are able to obtain co-op positions at a diverse array of companies.

SCHOLARSHIPS

There are a number of scholarship opportunities available to Plastics Engineering students, including several company supported opportunities available to students in the department. In addition, the department awards a number of other scholarships that are sponsored by corporate or alumni endowments.

CAREER OPPORTUNITIES FOR GRADUATES

What can you do with a degree in Plastics Engineering? A lot, actually. The companies that market the products we use in our daily lives need engineers to develop, design, test and manufacture the products. Companies that manufacture plastics materials also hire Plastics Engineering graduates.

Job placement for our students has always been and continues to be very good. Companies that have hired UMass Lowell Plastics Engineering graduates include:


INSTRUCTIONAL & RESEARCH ACTIVITIES

The Department of Plastics Engineering has an internationally renowned faculty of seventeen (21) full time professors that are all active researchers. Instructional and research areas include:

- Plastics Materials and Additives
- Plastics Product Design
- Plastics Mold and Die Design
- Plastics Processing
- Testing and Characterization
- Computer Aided Engineering
- Coatings and Adhesives
- Plastics Recycling
- Elastomers and Rubber
- Polymeric Biomaterials

STATE OF THE ART LAB FACILITIES

Hands-on laboratory experiences have always been an important part of the Plastics Engineering Program at UMass Lowell. The department’s lab facilities are second to none. Most labs are sponsored by leading industry partners and are stocked with very new “state or the art” plastics processing, design, or testing equipment.

The Milacron Injection Molding Lab
The NYPRO Precision Injection Molding Lab
The Moldflow Process Simulation Lab
SJ Chen/Putnam Plastics Extrusion Lab
The Rocheleau Blow Molding Lab
Plastics Recycling and Compounding Lab
The Battenfeld Gloucester Film Extrusion Lab
Advanced Polymers Properties Testing Lab
Freudenberg-NOK Elastomer Materials Lab
Rheological Properties Lab

7/26/11