

**Department of Paper Engineering, Chemical Engineering, and Imaging
College of Engineering and Applied Sciences**

History: The Paper Engineering program, which is a chemical engineering applied to the paper industry, was established in 1948 as the Pulp and Paper Technology program within the Department of Chemistry. In 1953, the program became an independent department and was named Paper Science and Engineering. The paper program is unique in the State of Michigan and one of only ten in the nation. The printing (imaging) program was established in 1950 as Printing Marketing and Management, but merged with the Paper Science and Engineering Department in 1989 to form the Department of Paper and Printing Science and Engineering. The Chemical Engineering program has its genesis in a decision by WMU in 1998 to expand engineering programs to include all the “classical” engineering disciplines. In 2001, the faculty voted and the WMU Board of Trustees approved a name change to the Department of Paper Engineering, Chemical Engineering, and Imaging (PCI), making it the only department in the US that combines papermaking, printing and chemical engineering.

Profile: In addition to the chair, the department has ten faculty members, three faculty specialists, six staff members, and approximately 2400 alumni. There are three industry advisory boards that meet six times annually to help the department to stay current: The Paper Technology Foundation with about \$6M in endowments, the Printing Advisory Committee, and the Chemical Engineering Advisory Board. The paper engineering and chemical engineering programs are ABET accredited. Of the ten paper programs in the US, only WMU and three others are accredited. Graduates are highly sought after by industry, and receive multiple job offers.

A Barrier Coating Symposium, that attracts hundreds of professionals from around the world working in the area of barrier coatings, is offered each year under the direction of Dr. Margaret Joyce.

Programs: PCI offers the following degrees and options:

B.S. in Chemical Engineering

-Options: Energy Management, Inks and Imaging, Life Sciences, Pollution Prevention, and Pulp and Paper

B.S. in Imaging

-Options: Business, Computer, Multimedia, and Substrate

B.S. in Engineering (Paper)

-Options: Process and Environmental

B.S. in Paper Science

M.S. and Ph.D. in Paper and Imaging Science and Engineering

Cooperative Offerings:

IMAG 2510 – Multimedia Publication and Design: Proficiency 4f /Computer Science

IMAG 1500 – Introduction to Imaging: General Education Area VI/Natural Science with Lab

PAPR 1600 – Introduction to Environmental Technology: General Education Area VII/Natural Science and Technology: Applications and Implications

Distinctions: Our undergraduate students receive about \$300,000 in scholarships annually from the Paper Technology Foundation, various endowed Printing Scholarships, OMNOVA Foundation, Ann Arbor Graphic Arts Foundation and many others. These scholarships cover an average of 65% of tuition and fees.

The department has three TAPPI Fellows, which is the highest among any academic department in the world. PCI is the only department in the world that is supported by four industry-type pilot plants in the areas of papermaking, recycling, coating and printing. In addition, the department oversees a print shop that employs many of our students and has numerous on-campus clients, as well as the contract for letterhead and business cards. Our students enjoy paid co-ops and summer jobs, as well as multiple job offers upon graduation with high starting salaries.

Major Challenges: Recruitment of high quality students is the department’s highest priority and major challenge. Almost all our department faculty and staff are involved in recruiting.

Research: Many of our faculty members are world leaders in the areas of paper coating, paper recycling, printed electronics, color management and energy. Current research activities include:

1. Development of RFID Technology for Packaging Materials - Dr. Margaret Joyce, Dr. Dan Fleming, Dr. Sasha Pekarovicova and Dr. Valery Bliznyuk
2. Surface Modified Nano Pigment-Based Sustainable Barrier Coatings - Dr. Margaret Joyce
3. Direct Simulation of Interactions of Flexible Particles/Polymers with Flows - Dr. Dewei Qi
4. Materials and Processes for Printed Electronics - Dr. Sasha Pekarovicova
5. Paper Dewatering and Kraft Chemical Recovery - Dr. John Cameron
6. Scanning Probe Microscopy of Polymers and Nanocomposites, Physical Properties of Materials at Nanoscale - Dr. Valery Bliznyuk

Centers: PCI has three centers:

Center for Ink and Printability, Dr. Alexandra Pekarovicova, Director
 Center for Recycling Technology, Dr. John Cameron, Director
 Center for Coating Development, Dr. Margaret Joyce, Director

Data: Department research performance and recruitment over the past six years:

<u>Year</u>	<u>External Cash Research Award</u>	<u>UG Enrollment</u>	<u>Grad Enrollment PhD/MS</u>
01/02	\$247,600	142	5/19
02/03	\$183,200	164	5/20
03/04	\$1,512,000	171	9/20
04/05	\$521,200	174	10/13
05/06	\$951,600	209	10/11
06/07	\$874,400	262	11/8