



# Christian Brothers University

*Need packaging background to improve your product design?*

*Want to make a transition into packaging industry?*

*Want to prepare yourself to become a CPP?*

*Desire to get a Master's Degree?*

*Want to enhance your career?*

## **PACKAGING GRADUATE CERTIFICATE** or **MASTER OF SCIENCE IN ENGINEERING MANAGEMENT** **WITH PACKAGING CONCENTRATION**

may be for you!

- **Take three packaging classes to get Packaging Graduate Certificate**
  - Principles of Packaging
  - Distribution & Medical-Device Packaging
  - Sustainability
- **Take eight additional engineering management courses to complete MSEM degree.**
  - **Courses are available on-line.**

For more info:

Contact Dr. Pong Malasri at [pong@cbu.edu](mailto:pong@cbu.edu) or (901) 341-3419

or visit [www.cbu.edu/engineering/packaging](http://www.cbu.edu/engineering/packaging)





# Christian Brothers University

## Master of Science in Engineering Management Packaging Concentration

### Program Requirements

#### Eight Engineering Management Core Courses:

- ENGM 600 Engineering Management Theory (3 crs.)
- ENGM 602 Engineering Accounting (3 crs.)
- **ENGM 603 Engineering Finance (3 crs.) - Spring 2010**
- **ENGM 604 Social/Legal/Ethical Considerations for Engineering Managers (3 crs.) - Spring 2010**
- **ENGM 605 Quality Assurance (3 crs.) - Spring 2010**
- ENGM 607 Operations Research (3 crs.)
- ENGM 695 Research Methods in Engineering Management (3 crs.)
- ENGM 696 Thesis (3 crs.)

#### Three Packaging Courses for Packaging Concentration (also required for *Packaging Graduate Certificate*):

- ENGM 640 Principles of Packaging (3 crs.)
- **ENGM 641 Distribution & Medical Device Packaging (3 crs.) - Spring 2010**
- ENGM 642 Sustainability (3 crs.)

## Packaging Course Descriptions:

- **ENGM 640 Principles of Packaging**  
Packaging materials, container types, processes, technology, and equipment. Packaging development process, testing and evaluation methods, standards, and equipment. Government regulations. Special projects. Three credits. (Instructors: A. Ray & Y. Zhou)
- **ENGM 641 Distribution and Medical Device Packaging**  
Physical distribution systems and distribution hazards. Rules and regulations governing distribution packaging and industry guidelines and practices. Basics of packaging materials, forms and sterilization methods used in biomedical industry. Packaging design, development, and validation. Special projects. Three credits. (Instructors: A. Ray & Y. Zhou)
- **ENGM 642 Sustainability**  
Sustainability criteria and sustainable packaging. Steps to sustainable packaging. Design for optimizing materials and energy. Real-life design and material innovations. Life cycle assessment, examples and carbon footprints. Current state of implementations of sustainable packaging. Special projects. Three credits. (Instructors: A. Ray & M. Tune)

## Instructors:

- **Asit K. Ray** is a professor of chemical engineering at CBU. He earned his Ph.D. from Lehigh University and has over 20 years of teaching/research experience at Auburn and CBU. Dr. Ray spent seven years in the polymer industry, and was four times a NASA/ASEE Summer Faculty Fellow engaging in polymer research at NASA Kennedy Space Center and Langley Research Center. He is actively engaged in laboratory research in polymeric and biomaterials and has published over fifteen refereed papers. Dr. Ray also serves as the Coordinator of the Packaging Engineering Certificates and Lab at CBU and is a member of IoPP and AIChE. He used his sabbatical leave in 2006 to gain hands-on experiences in different facets of medical device packaging. He was awarded a faculty development grant from CBU to develop the Medical Device Packaging laboratory. He is a member of the AIChE Sustainability committee.
- **Yongquan Zhou** is a project engineer in Packaging Design and Development at FedEx Corp. He received his B.E. in packaging engineering and M.E. in mechanical engineering from the Wuxi Institute of Light Industry (now Southern Yangtze University) in China, and his M.S. in packaging science from the Rochester Institute of Technology. Mr. Zhou is a Certified Packaging Professional (CPP) with more than 20 years of experience in the packaging industry, academic classrooms, and research and testing laboratories. He specializes in packaging dynamics, distribution environments, transport packaging development, package testing standards, equipment and systems, and computer simulation. Mr. Zhou serves on various IoPP, ASTM, and ISTA technical committees, and was an IoPP AmeriStar Packaging Competition judge from 1997 to 2001. He has published articles in Packaging Technology and Engineering and other magazines.
- **Michael P. Tune** is currently the Director of Packaging Science & Technology at Schering-Plough Consumer HealthCare in Memphis, Tennessee. He is responsible for the design and technical development of primary and secondary packaging systems for various over the counter pharmaceutical, cosmetic and device products. He has a B.S. in Packaging from Michigan State University, and is a Certified Packaging Professional (CPP). He has a diverse background in quality management, primary package manufacturing and consumer products. He also holds several utility and design patents in primary packaging.