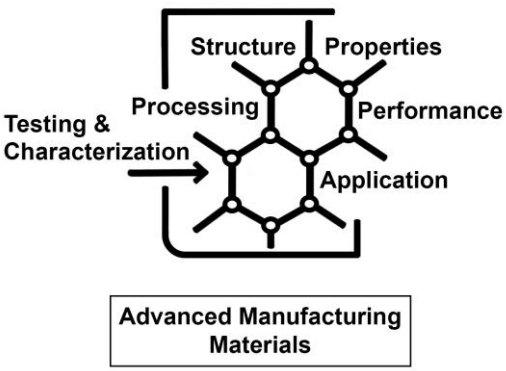
THE MMRI INDUSTRIAL TRAINING PROGRAM

With more than 20 years of experience in teaching, research and industrial activities, the MMRI at McMaster University is offering a problem-based educational program in the area of advanced manufacturing, using all its resources including facilities, industry scale equipment and experts in the field.

The MMRI Industrial Training Program offers 20+ short courses (micro-credentials) in three core streams in the field of advanced manufacturing, as listed below:

1. Advanced Manufacturing Processes
2. Advanced Manufacturing Materials
3. Advanced Manufacturing Industry 4.0

Advanced Manufacturing Materials Stream



Advanced Manufacturing Materials

The courses offered in the **Advanced Manufacturing Materials** stream are designed to provide practical knowledge and experiences on mechanical properties of materials, material characterization, and failure analysis.

Fundamentals of important characterization techniques such as micro and nanoindentation, scratch testing, high-resolution imaging, and tribometry will be covered in the courses. Participants will receive technical training on the various cutting edge, high tech instrumentations currently used for material characterization in the industry.

Format

Courses will consist of lectures, combined with hands-on demos and projects. Earn a certificate in one stream by completing 4 required courses, 4 elective courses, and 1 industry relevant project.

Audience

All team members involved in quality control, material characterization, and failure analysis.

Project Support

The MMRI will provide some financial support to cover time with MMRI staff and the use of MMRI instruments and equipment to work on industry relevant projects.

The MMRI Industrial Training Program: Course List			
Required: R/ Elective: E	**Advanced Manufacturing**		
	Processes	**Materials**	**Industry 4.0**
Metal Cutting I (Introduction)	**R**	E	E
Metal Cutting II (Intermediate)	**R**	E	E
Metal Cutting III (Advanced)	**R**	E	E
Dynamics of Machining Operations I	**R**	E	E
Dynamics of Machining Operations II	**R**	E	E
Vibration Condition Monitoring (IOT for Smart Maintenance)	**R**	E	E
Introduction to Metal Forming Processes: Metals and Polymers	**R**	E	E
Cutting Tool Selection (Geometry, Material & Coating)	**R**	E	E
Design for Reliability and Manufacturability	**R**	E	E
Introduction to Mechanical Properties of Materials	E	**R**	E
Material Testing and Characterization I (Micro/Nano-Mechanical Testing)	E	**R**	E
Material Testing and Characterization II (Scratch Testing)	E	**R**	E
High Resolution Imaging - Atomic Force Microscopy (AFM)	E	**R**	E
Tribology (Friction and Wear)	E	**R**	E
Introduction to Finite Element Modeling of Manufacturing Processes	E	E	**R**
Finite Element Modeling of Machining Processes I (Introduction)	E	E	**R**
Finite Element Modeling of Machining Processes II (Application)	E	E	**R**
Finite Element Modeling of Machining Tool Design	E	E	**R**
Finite Element Modeling of Additive Manufacturing Operations	E	E	**R**
Lean Manufacturing I (Basics)	E	E	**R**
Lean Manufacturing II (Toolbox)	E	E	**R**

Duration: 6-8 hours/course

The courses are conveniently designed to take one day, so that by taking one course per week, participants can earn a certificate in approximately 3 months.

Normal Certificate Cost: $4,500
NGen Member Price: $3,600
AmpUp Participants Pay: **$1,800**

Participants will select required and elective courses according to their interests and will earn a McMaster Certificate of Completion.

Prerequisites

A degree, diploma or considerable practical experience in material science.

McMaster University

For more Info and to Apply Today

NGen AMP UP
Accelerating Manufacturing Productivity Upskilling Program