

Advanced Manufacturing Technologies (AMTs)

A new dimension in manufacturing

At NRC's Integrated Manufacturing Technologies Institute in London, Ontario, you can get more than a glimpse of the future. You can go on a special tour in the Virtual Environment Technologies Centre. The most advanced research and design facility of its kind, the Centre explores a new dimension in manufacturing. Using the world's most comprehensive array of virtual environment facilities and Canada's fastest graphics computer, users can see—in 3D—environments and objects that don't exist anywhere except in a computer. Already, General Motors Diesel Division has found the Centre fills a critical gap in the product development process by allowing them to identify problems with their vehicles before they begin production. NRC's collaborators on the Centre include the University of Western Ontario, General Motors Diesel Division, Electrohome Ltd./Fakespace and SGI Canada.

"Time-to-market" has become crucial as many manufacturers shift from mass to customized production. AMTs shorten design and production cycles. They improve timeliness, flexibility and quality, save money and show exactly what Canadian innovation can achieve.

Canadian universities and research institutes have a great track record for creating new technologies that have helped Canadian producers become the fourth-largest suppliers of AMTs in the world. These technologies include integrated manufacturing software, intelligent processing equipment, net shape processing, multi-use equipment, continuous materials processing, surface treatment and micro-fabrication.

For example, researchers at the University of British Columbia in Vancouver, McMaster University in Hamilton, Ontario, and Université Laval in Québec City are conducting leading-edge research in machining and metal-forming AMTs, while researchers at the University of Windsor in Ontario are partners with major automakers in developing casting technologies.

Also in the automotive sector, DaimlerChrysler and the University of Windsor have partnered on a \$500 million automotive research centre, focusing research attention on alternative fuels, automotive materials, vehicle durability, mechanical engineering design, vehicle safety, and fuel economy and emissions.

Three National Research Council Canada institutes also focus their work on and create AMTs: the Industrial Materials Institute, Montréal; the Integrated Manufacturing Technologies Institute, London, Ontario; and the Institute for Chemical Process and Environmental Technologies, Ottawa.

Canada concentrates on training more design engineers

Design engineers are the enablers of innovation in the global knowledge-based economy. They're in high demand these days but also in short supply, which is why Canada's Natural Sciences and Engineering Research Council (NSERC) will establish 16 Chairs in Design Engineering over the next three years. This program will help Canadian universities meet the growing demand for design engineering talent, while creating and developing the new and innovative designs, design concepts and design tools needed to train them. Each chair will have a duration of five years and may be renewed for an additional five-year term. NSERC provides up to \$1 million over the first term of a chair. An equivalent amount is to be contributed by any source other than the federal granting councils, including the university itself, industry, government or any other public- or private-sector organization.

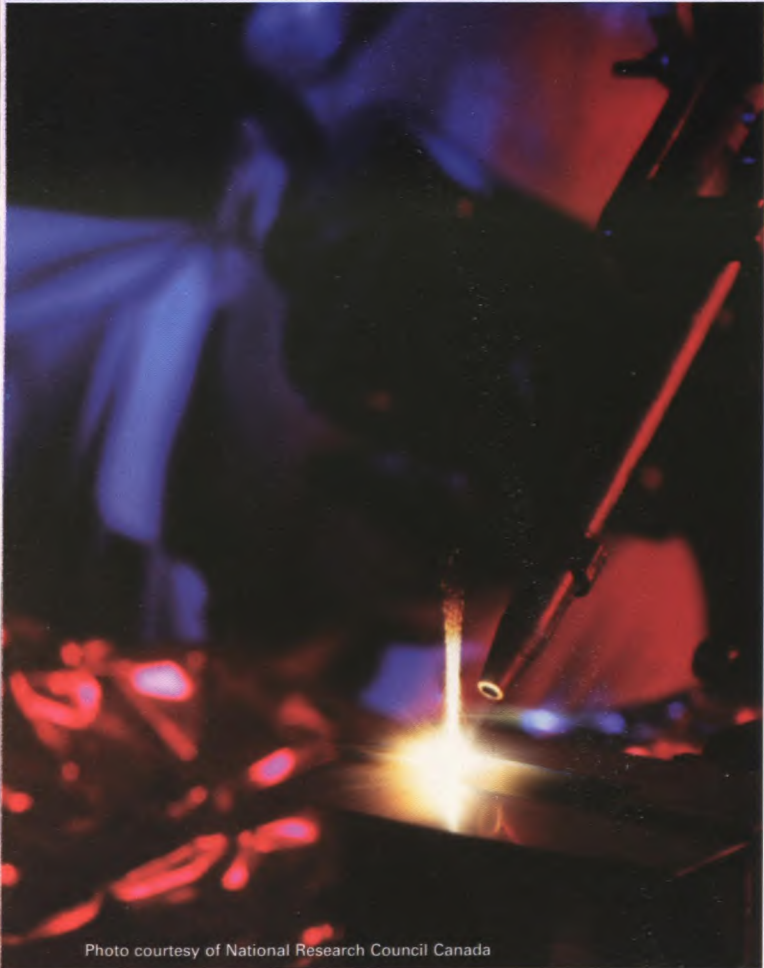


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