



# LE BULLETIN CAD/CAM

April 1987

Information Compiled by the Canadian CAD/CAM Council  
for the Advancement of Computer Integrated Manufacturing \*

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### 1. National Policy Announced for Science and Technology

The federal government of Canada has recently reached agreement and signed Canada's first National Science and Technology Policy in conjunction with federal, provincial and territorial ministers responsible for science and technology. Recognizing the critical importance of research and development to economic, social, cultural and regional development, a collective commitment is being made to research, development and innovation activities.

Strategic technologies selected for concentrated effort are (1) the information technologies; (2) advanced industrial materials and (3) biotechnology. This includes their various applications in robotics, artificial intelligence, systems integration and their utilization in our manufacturing and service industries.

Much of this will be undertaken under the program or topic heading of "Innovation - The Canadian Strategy for Science and Technology". Innovation is described as a five-track strategy including:

- 1 - Industrial Innovation and Technology Diffusion
- 2 - Strategic Technologies (as noted above)
- 3 - Management of Federal Resources
- 4 - Human Resources
- 5 - Public Education



It is expected that future announcements will likely be made under the Innovaction heading which may therefore be watched for further information. For example, the announcement April 24 by the federal government that \$90 million will be allocated for microelectronics including \$60 million over four years under the Industrial Regional Development Program (IRDP), an industrial support program of the Department of Regional Industrial Expansion (DRIE) and \$30 million over three years by the Department of National Defence.

2. New Centre for Computer Aided Engineering Opened in Newfoundland

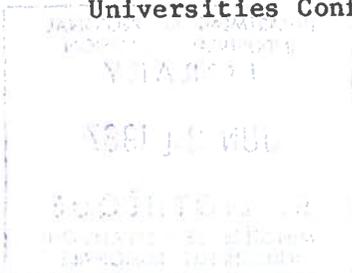
Announcement information received from T.R. Chari, Associate Dean, Faculty of Applied Science, Memorial University of Newfoundland in St. Johns advises that a new centre has been opened as follows.

Memorial University's new Centre for Computer Aided Engineering in the Faculty of Engineering and Applied Science was officially opened on February 13, 1987, a little more than one year after the \$1 million grant for its establishment was announced. The grant was made from the Canada-Newfoundland Offshore Development Fund, and federal, provincial and university representatives were on hand for the opening.

The centre is the first of its kind in Newfoundland and will fulfill the needs of undergraduate and graduate education in computer aided engineering at Memorial. It will also meet the research requirements of ocean engineering and other research areas, as well as provide training opportunities for professional engineers through the faculty's Continuing Engineering Education Centre.

Computer aided engineering (CAE) consists of engineering applications of computer technologies, such as data base and communication, graphics and geometric modelling, simulation and analysis, and data acquisition and control. It is anticipated that joint research and development projects will be undertaken at the centre in cooperation with other institutions and industry. The opening of the centre is seen as another indication of the federal government's commitment to have Newfoundland recognized as a world class centre for ocean engineering and research. Indications are that the centre's work will be oriented to CAE applications in oceanology and petroleum related fields.

An extensive array of computer hardware, workstations, software and network communication products based on the VAX 8500 supermini computer and the I-DEAS package from Structural Dynamics Research Corporation (SDRC) and other simulation packages has been acquired. These will be described in detail in a status report prepared for the Third Canadian Universities Conference on CAD/CAM, University of Ottawa, July 2-3, 1987.



3. Sources of Assistance - CAD/CAM Publications Available

The following publications are available from NRC, the Canadian CAD/CAM Council and the Department of Regional Industrial Expansion. For addresses and availability, see the source listed in each case.

Publications are available without charge except #4 as noted.

<u>Publication</u>	<u>Source</u>
1. <u>"Selected Articles on Advanced Manufacturing Technologies Reprint #3"</u> . Contains reprints of 28 tutorial articles, 178 pp.	1
2. <u>"A Directory of Companies and Organizations Providing CAD/CAM Products &amp; Services in Canada"</u> , 79 pp. Lists approximately 140 companies and other organizations.	1*
3. <u>"An Index and Guide to Robotics R&amp;D in Canada"</u> , NRC Publication 24470. Describes R&D in Canadian universities and industry, 238 pp.	2*
4. <u>"A Reference Guide to CAD/CAM &amp; Robotics Development and Information Centres in Canada and U.S.A."</u> , NRC Publication 24511. Describes 77 centres in Canada and 40 selected centres in the U.S.A., 380 pp. Price \$10.00.	3*
5. <u>"Towards the Factory of the Future"</u> , NRC Publication 24261. Lists and abstracts approximately 1300 references. 200+ pp.	4
6. <u>"CAD/CAM Activities at NRC"</u> , NRC Publication 25719, 24 pp. Provides a brief one page descriptions of projects in various divisions.	2
7. <u>"Advances in CAD/CAM and Robotics: NRC Contributions"</u> , (in preparation). Contains reprints of 37 selected papers from approximately 50 workers in various NRC divisions, and references over 100 published papers by engineers and scientists at NRC.	2
8. <u>"Strategy for Survival"</u> . The 1980 report of the CAD/CAM Council.	5*
9. <u>"Closing the Gap"</u> . The 1983 report of the CAD/CAM Council.	5*
10. <u>"Management in Crisis: Implementing Computer Integrated Manufacturing in Canada"</u> .	5*
11. <u>"CAD/CAM Newsletter"</u> . Distributed monthly. Covers key events and sources of information.	5**

\* Aussi disponible en français.

\*\* Bilingual

Sources

1. Office of Industrial Innovation,  
5th Floor East,  
Department of Regional Industrial Expansion,  
235 Queen Street,  
OTTAWA, Ontario.  
K1A 0H5
2. Editorial Office,  
Room 301,  
Division of Electrical Engineering,  
National Research Council,  
OTTAWA, Ontario.  
K1A 0R8
3. Publications,  
National Research Council,  
OTTAWA, Ontario.  
K1A 0R6  
\$10.00 pre-paid orders only
4. J. Scrimgeour,  
Division of Electrical Engineering,  
National Research Council,  
OTTAWA, Ontario.  
K1A 0R8
5. \*Secretariat,  
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Office of Industrial Innovation,  
5th Floor East,  
Department of Regional Industrial Expansion,  
235 Queen Street,  
OTTAWA, Ontario.  
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4. CAD/CAM Conferences

- "Manufacturing Automation Protocol (MAP)"  
Plant-Wide Design and Planning  
June 15-17, 1987, Hyatt Regency Woodfield, Schaumburg (Chicago)  
Illinois.

A three day course presented by B. Thacker, founder of Universal Computer Applications. Sponsored by the Society of Manufacturing Engineers (SME). SME members and affiliate members \$545 (U.S.), non-members \$645 (U.S.).

Contact: Society of Manufacturing Engineers (SME)  
Special Programs Division  
One SME Drive, P.O. Box 930  
Dearborn, MI 48121, U.S.A.  
Telephone: (313) 271-0039 (8:00 a.m. - 4:30 p.m. EDT)

- "Sixth Canadian CAD/CAM, Robotics and Automation Conference"  
June 16-17, Skyline Hotel, Toronto, Ontario.

"Profiting with Practical Automation" is the theme for the 1987 conference as listed above, which this year has more than 40 Canadian industry associations as participating sponsors, supporters and registration discounts for their members. Many senior managers and engineers will relate their experiences, with advice on how to efficiently plan for and apply advanced technologies for design and automation.

A special feature for 1987, in addition to the exposition at the nearby International Centre, will be a cross Canada review of CAD/CAM from 7:00 - 9:30 p.m., Tuesday, June 17 (not 6:00 p.m. as indicated in the conference brochure). Speakers representing all provinces and national interests will provide up-to-the-minute review of status and progress in a unique opportunity to learn what is happening in CIM across Canada.

Registration fees are \$300 for the full conference, \$175 for individual days for members, \$350 and \$195 respectively for non-members.

Contact: Ontario Centre for Advanced Manufacturing  
190 Attwell Drive, Suite 402  
Rexdale, Ontario M9W 6H8

For instant registration and conference information, contact:

Brenda Bowie, Ontario CAD/CAM Centre, Cambridge  
Telephone: (519) 622-3100

or Craig Coleman, OCAM Marketing, Toronto  
Telephone: (416) 675-4363

- "4th International Forum on Micro-Based CAD"  
Sept. 23-25, 1987, North Carolina State Campus, Raleigh, NC.

Colorado State University and North Carolina State University have announced a cooperative agreement whereby this conference, previously held in Colorado since 1984, will alternate between their East Coast and Western U.S.A. locations.

Contact: Sylvia Parker  
Colorado State University  
Telephone: (303) 491-5278

or Gene Fornaro  
North Carolina State University  
Telephone: (919) 737-2356

- "IFAC 87 - 10th World Congress on Automatic Control"  
July 27-31, Munich, Federal Republic of Germany.

The IFAC World Congress is held every third year, in addition to many specialized conferences and workshops during the intervening two years. For 1987 more than 500 technical papers and 36 survey papers will be presented in 119 technical sessions in addition to other plenary, case study and discussion sessions.

Technical sessions cover a wide range of automatic control topics including mobile robots, robotics control, advanced CAD, automatic control in manufacturing systems, and flexible manufacturing systems in addition to chemical plant control, adaptive control, linear systems and other automatic control topics. Registration fee DM 900.

Contact: IFAC '87 Secretariat  
c/o Verein Deutscher Ingenieure (VDI)  
Abt. Tagungsorganisation  
P.O. Box 1139  
D-4000 Duesseldorf 1  
Telephone: (0211) 6214-280; Telex: 8586525 vdi d.

- "APMS-87 - Third International Conference on Advances in Production Management Systems"  
August 11-14, 1987, Holiday Inn (Downtown), Winnipeg, Manitoba.

APMS 82, the first in this series of conferences, was held in Bordeaux, France and APMS 85 in Budapest, Hungary. The purpose of APMS 87 is to present new results in the area of production management and information systems for the factory of the future. More than sixty papers will be presented dealing with factory and FMS scheduling, process planning, inventory management and artificial intelligence systems in manufacturing.

Contact: APMS-87 Conference  
356 Engineering Building  
Dept. of Mechanical & Industrial Engineering  
University of Manitoba  
Winnipeg, Manitoba  
R3T 2N2

- "Symposium for International Co-operation on Industrial Robots '87"  
Sept. 29-30, 1987, Tokyo, Japan.

A call for papers has been issued for this symposium sponsored by the Japan Industrial Robot Association (JIRA). The above symposium SICIR 87 is being organized to address measures to encourage international cooperation among private enterprises. Papers are planned to deal with aspects of international cooperation at the industrial level, overviews of robot markets in different nations, government support measures and related factors.

The deadline for submission of papers has passed, as of May 15, 1987 but Canadian organizations may be interested in attending.

Languages for the symposium are English and Japanese, with all papers to be published in the SICIR-87 proceedings by JIRA. Registration fee, before August 31 is 50,000 yen, and 60,000 yen, September 1 and after. For symposium registration information for exhibitors, Post Conference Tour, October 1-4, 1987 or International Robot Exhibition, October 5-8, 1987.

Contact: Working Committee of SICIR '87  
c/o Japan Industrial Robot Association  
Kikai Shinko Bldg.  
3-5-8, Shiba Koen, Minato-ku, Tokyo 105, Japan  
Tel: (03) 434-2919  
Telex: JIRA J34286  
Facsimile: (03) 434-0217

- "DIGICOM '87"  
October 21-22, 1987, Montreal, Quebec.

The Instrument Society of America (ISA) and several of its participating divisions are sponsors for the above conference under the theme "Mapping the Course Between Automation Technologies".

Contact: Steve Zakaib  
Program Chairman  
DIGICOM '87  
c/o 3300 Cavendish Blvd., Suite 220  
Montreal, Quebec  
H4B 2M8  
Telephone: (514) 288-6454

- "MAPL - Symposium on Manufacturing Application Languages"  
June 20-21, 1988, NRC, Winnipeg, Manitoba.

Call for papers has been issued for this symposium organized by the International Standards Organization (ISO) Technical Committee 184/SC3.

Topics of interest would include languages for:

- Orchestration of production plans
- Orchestration of the execution of jobs and tasks
- Initiation of operations and sub-operations
- Specifications for parts and material routing
- Specification of machine tool motions and actions
- Distributed Control
- Material handling
- Programmable Controllers
- Line Controllers
- Robots
- Inspection
- Status query
- Automatic Storage and retrieval

Abstracts of papers proposed, 200-300 words in length and should be submitted prior to November 5, 1987 for consideration.

Contact: MAPL '88  
c/o Mrs. H. Lacoste  
National Research Council Canada  
Conference Services Office  
Montreal Road, M-58  
Ottawa, Ontario  
Canada K1A 0R6  
Telephone: (613) 993-9009  
Telex: 053-3145  
Fasc. (613) 993-0603

5. CAD/CAM Quotes

- "If managers resist change it may be devastating"

Commentator in "Coming to a Factory Near You", a four part series by TV Ontario on CAD, CAM, FMS and CIM, April 1987.

- "We have to train or educate the existing management because we can't wait for the new management with the young people to come on-line".

P. Urban as President of the CIM in "Coming to a Factory Near You" (see above)

- "The technology is here now or just around the corner. U.S. manufacturing needs far-sighted management and trained manufacturing engineers to put the pieces together"

"Toward a New Era in U.S. Manufacturing - The Need for a National Vision", Manufacturing Studies Board Report, National Academy Press, U.S.A. 1986.

- "If you think an automated factory is still out of reach, you're living in the past"

L.M. Papp, Kendan Manufacturing Ltd., Windsor, Ontario.

6. Twenty Selected Abstracts Provide a World View on CAD

Last, but not least, for a review of CAD/CAM developments around the world, please refer to the selection of twenty abstracts in the section attached.

By obtaining and using some of the references cited it is possible for industrial companies to save valuable management and engineering time in project planning and responding to the challenges of computer integrated manufacturing.

7. This newsletter may be reproduced in whole or in part. Reprinting in other Canadian publications is encouraged. Acknowledgement to the Canadian CAD/CAM Council would be appreciated.

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