

Technology Access Centre

AEROSPACE & MANUFACTURING

TACAM supports Manitoba's aerospace and manufacturing sectors by providing access to Red River College's technological assets, specialized facilities and equipment, and subject matter expertise. Industry benefits through applied research, support for product development, technology evaluation and demonstration, technical support, knowledge and technology transfer, and specialized training.

SERVICES OFFERED IN:

English

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POINT OF CONTACT:

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AREAS OF INNOVATION EXPERTISE

- Advanced manufacturing and materials
- Smart Factory / Learning Factory
- Manufacturing Automation and Robotics
- Rapid prototyping technologies
- Non-destructive inspection
- Physical and computer-based simulations

TECHNICAL AND BUSINESS SERVICES

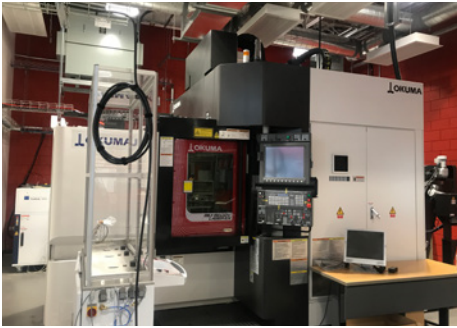
- Assistance with product development and commercialization
- Components/parts fabrication
- Manufacturing process review
- Reverse engineering
- Concept ideation and design review
- Customized machining (including CNC and laser machining)
- Design services
- Mechanical testing
- Facilitation service (introduction)
- Field trials/simulation
- Non-destructive inspection (NDI)
- Performance monitoring and management
- Printability testing and analysis
- Proof of concept
- Scientific and technological monitoring
- Scientific report writing
- Technology and workflow consultation
- Technology evaluation/validation
- Provincial and federal grant proposal development
- Report preparation on R&D results

APPLIED RESEARCH AND DEVELOPMENT

- 3D design, modeling and simulation
- Additive manufacturing (metals, polymers and composites)
- Advanced welding (laser and arc processes)
- Manufacturing automation and robotics
- Manufacturing systems control, sensors and electromechanical systems
- Composite part manufacturing
- Composite tooling design and manufacturing
- Design of experiment and process optimization
- Computational Fluid Dynamics
- Industrial scale prototyping
- Laboratory/pilot scale prototyping
- Manufacturing process design and development
- Measurement, inspection and alignment
- Non-destructive inspection
- Performance monitoring and analysis
- Product design and development
- Reverse engineering
- Technology validation and transfer

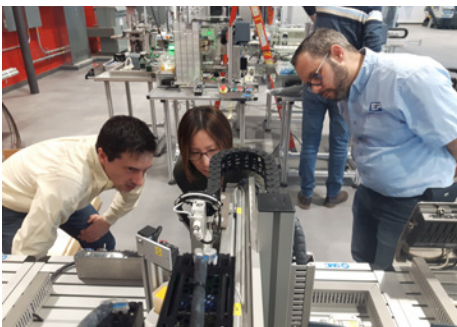
PROUD MEMBER OF:

Tech-Access  Canada



TRAINING

- Connections to co-op placement opportunities
- Corporate on-site and in-house training
- Curriculum development
- Design, development and delivery of customized training
- Interactive workshop sessions
- Needs assessment and gap analysis
- Training planning
- Train the trainer



TECHNOLOGY DIFFUSION

- Customized technology demonstrations
- Field site product demonstration
- Industry-specific events and symposia
- Networking events
- Open houses - testing facility and personnel
- Participation at trade shows and other venues with or on behalf of partners
- Presentation of results at conferences
- Publishing in peer-reviewed literature
- Rental of space and equipment
- Seminars and workshops

INVENTORY OF SPECIALIZED EQUIPMENT

- **Smart Factory:**
 - Okuma Laser Ex Series MU 5000V Hybrid Additive Manufacturing System
 - Creafom 3D Metrology High-Speed Laser Scanning System
 - AON-M2 High Temperature Polymer and Composite 3D Printer
 - Automation Systems (FMS 200, HAS 200 and ITS 200)
 - Sawyer Collaborative Robot
 - Universal Robots - UR10
 - Ridgeback Omnidirectional Platform
 - Boxer Autonomous Factory Vehicle
 - Industrial networking system
 - Data acquisition and control systems
 - ABB Flex Robotic Training Work Cells
 - Motoman MH5 (training robots)
 - Fanuc LR Mate 200iC
 - Motoman Dual-Arm SDA 10D
 - Motoman MH6 (welding robot),
 - ABB IRB 120
 - Research robots: Baxter, Eddie - Robot Platform
 - MIG robotic welding training cell
 - High-speed imaging systems
- **Model Factory Machine Shop:**
 - Haas Vertical CNC Mill: Mini Mill, vf1, vf2, Horizontal
 - Computer numerical control (CNC): TL Lathes, SL20 Bar Feeder, SL20 APL, SL20, SL10
 - Manual machining: lathes, milling machines, surface grinders, cylindrical grinders
 - Gas high heat furnace, gas tempering furnace
 - Inspection: coordinate measuring machines (CMM): Mitutoyo CMM & Profile Projector, Brown & Share CMM Optical Comparator
- **Centre for Aerospace Technology & Training**
 - Advanced robotic CMT welder
 - Lasers: Manual Nd: YAG laser, robotic CO2 laser, laser-MIG hybrid welder, diode laser, plastic laser welding system
 - Micro TIG welder
 - Industrial cold spray system
 - Industrial robots
 - Leading and trailing edge robotic compressor blade profiling system
 - Robotic welding seam tracking
 - Digital X-ray tomography
 - Fortus 400 mc 3D Printer
 - Chemical vapour deposition/ fluoride ion cleaning
 - Metallurgy lab
- **Centre for Non-Destructive Inspection**
 - 5-axis Gantry LaserUT NDI System
- **Composites Model Factory:**
 - Contamination controlled area shop
 - AGFM CNC Cloth Cutter
 - CNC 5-axis router
 - Ovens (curing composite parts)
 - Heated platen press
 - Environmental booth
 - Paint booth for all paint applications
 - Non-destructive inspection: ultrasonic, liquid penetrant inspection (LPI), magnetic penetrant inspection (MPI), and laser ultrasonic testing (LaserUT)
 - Optical layup template projector (OLT)
 - Metal/engine-specific: sheet metal shop, gas turbine repair and overhaul shop, avionics Shop, large aircraft hangar, stores, etc.