

Architectural Technology

Humber's Architectural Technology program prepares students for a career in the architectural field or construction industry. The 4 month Work Term occurs in the summer after 2 years of study.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- Architectural CADD (AutoCAD, Revit)
- Preparation of Working Drawings
- Design & Presentation Drawings
- Materials & Methods of Construction
- Ontario Building Code Standards
- Building Science Principles
- Model Building
- Site Planning
- WHMIS

Employers Hire Students to:

- Assist in design / detailing / estimating / inspection, job coordination or project management
- Work in construction and gain hands-on experience with methods of construction and the building envelope
- Work in production roles related to the manufacture of architectural products (eg windows, doors, millwork, kitchen & bath)
- Perform administrative roles related to this field

Typical Employers / Job Types

- Architect/Architectural Offices (producing design and construction documents)
- Contracting Firms/Builders/Construction Firms (as project coordinators, estimators)
- Residential Design Firms
- Municipal Building Departments
- Building Product Manufacturers (Window/Door Manufacturers, Kitchen & Bath Cabinets/Granite)

Common Student Job Titles

- Architectural Assistant, Design Assistant, Office Assistant
- Project Assistant, Jr Project Coordinator, Assistant to Project Manager
- CAD Draftsperson/Operator/Technician/Detailer
- Jr Estimator
- Drawings Coordinator
- Building/Field Inspector, Site Supervisor
- Construction Help, Production Help
- Administrative Assistant in a company/department related to the architectural field

Additional Resources

AATO - Assoc. of Architectural Technologists of Ontario www.aato.on.ca

BOMA - Building Owners & Managers Assoc. of Toronto www.bomatoronto.org

ElectroMechanical Engineering Technician/Technology: Automation & Robotics

The ElectroMechanical program prepares students to support the engineering activities of companies that are relying increasingly on automation technology to compete in a global economy. The 4 month Work Term occurs in the summer after 2 years of study.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- Engineering Graphics
- Industrial automation
- Robotics (Motoman, Fanuc, Wittmann, Kuka, Panasonic)
- Electrical controls, PLC applications
- Pneumatics and industrial hydraulics
- Automated manufacturing processes
- Lockout/Tagout, Shop Safety
- WHMIS

Employers Hire Students to

- Install / troubleshoot / maintain control systems and automated equipment, using mechanical and electrical diagnostic tools, and robotic programming
- Work in entry level opportunities in manufacturing support or production, to gain practical hands-on manufacturing experience and exposure to quality and health & safety standards
- Work in sales, technical support or administration in companies related to this industry

Typical Employers

- Packaging, Food & Pharmaceutical companies
- Power Generation, Electrical Contractors
- Building Systems Automation
- Manufacturing in general, Automotive Parts Manufacturing
- Systems Integrators/Consulting Firms/Suppliers to the automation industry

Common Student Job Titles

- Technician or Assistant - Mechanical, Electrical, ElectroMechanical, Automation, Maintenance
- Packaging Technician
- Robotics Technician, Robotic Welding Technician
- Building Systems Automation Technician
- Production Worker, Machine Operator

Additional Resources

Automotive Parts Manufacturers' Association www.apma.ca

Canadian Plastics Industry Association www.plastics.ca

Food & Consumer Products of Canada www.fcPMC.com

Mechanical Engineering Technician/Technology

Humber's Mechanical program provides broad preparation in mechanical design and manufacturing processes. The 4 month Work Term occurs in the summer after 2 years of study.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- Technical drafting and drawing, 3-d modelling (AutoCAD, SolidWorks)
- Understanding of engineering drawings, blueprints
- Operation & programming of CNC machines, HAAS Machining Centres, HAAS Turning Centre, and software (MASTERCAM)
- Machining skills - Operation of conventional mills, drill presses, lathes, surface grinders
- Pneumatics, hydraulics & PLC's, Electromechanical controls
- Manufacturing processes & planning
- Engineering materials
- Tool & fixture design
- WHMIS

Employers Hire Students to

- Assist in the design and/or manufacture of mechanical parts and assemblies and mechanical systems
- Work in entry level opportunities in manufacturing support or production, to gain practical hands-on manufacturing experience and exposure to quality and health & safety standards

Typical Employers

- Manufacturing & Fabrication – all types of products (Automotive Parts, Food Processing, Metal Forming)
- Plastics Manufacturing/Processing
- Consulting Engineering
- Mechanical Services, Mechanical Contractors, Design/Build/Construction Companies
- Tool & Die and Machine Shops, CNC Shops

Common Student Job Titles

- Assembly/Manufacturing/Test/Production Technician or Assistant
- CAD Draftsperson/Operator/Technician/ Assistant Designer
- CNC Programmer/Operator
- Engineering Assistant, Design Engineering Assistant, Mechanical Designer
- Production Worker, Machine Operator, Packaging Technician

Additional Resources

Consulting Engineers of Ontario www.ceo.on.ca

OACETT - The Ontario Association of Certified Engineering Technicians and Technologists www.oacett.org

The Canadian Society for Mechanical Engineering www.csme-scgm.ca

Computer Engineering Technology

The Computer Engineering Technology program provides students with skills in hardware, software, operating systems and networking.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- Java, JavaScript, C, desktop and web applications
- Applications development in C, Assembly language programming using HCS-12 microcontroller, Java Object Oriented applications
- Electronics and circuit interfacing and troubleshooting electronic circuits
- Integration of C programming with Unix/Linux
- Digital Electronic circuits and integration with embedded microcontrollers
- Microcontroller based applications including sensor applications
- Setting up desktop computer hardware and the installation of operating systems and drivers

Employers Hire Students to

- Operate/back-up equipment and support users (eg help desk)
- Test and troubleshoot electronic circuits, take measurements
- Repair PCs – disassemble, change/replace components, rebuild
- Install and configure Operating Systems eg Linux/UNIX on Windows servers and work stations
- Test and troubleshoot network connectivity and network cables
- Develop applications and trouble shoot in C programming, develop basic Java applications in Object Oriented Java environment, write simple assembly language applications (using HCS-12); Write simple applications with a database back end; Write simple web applications; Write scripts and queries

Typical Employers

- Large organizations with IT departments
- Organizations that purchase/use/sell/repair computer products
- Developers, vendors

Common Student Job Titles

- Computer Support Technician
- Help Desk Technician
- Computer Engineering Technologist
- Systems Technologist (Linux systems)
- Technical Support
- Network Administration/Technician/Technologist

Civil Engineering Technology

Humber's Civil program prepares students to work on infrastructure development, including the design and construction of buildings, roads, highways and bridges as well as water supply and sewage treatment systems.

Skills and Knowledge

A work term occurs after 2 year of study, when students have skills and knowledge in

- Surveying in A/E/C (Architect/Engineer/Contractor) projects: Electronic Data Collection (Leica and Sokkia Total Stations, Sokkia SDR33, Garmin GPS). Digital Data Transfer. Coordinate geometry calculations and analysis. Digital Plan and Digital Terrain Model (DTM) preparation. MicroSurvey CAD.)
- AutoCAD Applications: survey drawings, structural steel drafting, reinforced concrete detailing
- REVIT Applications: Structural Detailing, Estimating, Methods of Construction
- Strength of Materials, Fluid Mechanics, Soil Mechanics & Material Testing Labs
- WHMIS

Employers Hire Students to:

- Assist in design / detailing / estimating / inspection, job coordination or project management.
- Work in construction and gain hands-on experience with methods of construction, the building envelope and structural components, roadworks (eg paving, road maintenance)
- Work in production/testing roles related to the manufacture of construction materials (eg building materials, aggregates, asphalt)
- Perform administrative roles related to this field, document management, etc

Typical Employers

- Municipalities, Provincial/Federal Government Departments
- Consulting Engineering Firms
- General Contractors, Developers/Builders
- Suppliers to the Construction/Infrastructure Industry

Common Student Job Titles

- Assistant Construction Inspector, Site Coordinator, Estimator
- Municipal Works – Assistant Operations Technician, Road Operations Technician, Crew Leader
- Project Assistant, Jr Project Coordinator, Assistant to Project Manager
- CAD Draftsperson/Operator/Technician
- Field Technician/Field Inspector, Infrastructure Planning – Field Technician
- Jr Truss Designer, BIM Technician
- Surveyor, Surveying Assistant
- Testing, Production Worker
- Utility Locator, Damage Prevention Technician

Additional Resources

BOMA - Building Owners & Managers Assoc. of Toronto www.bomatoronto.org

Consulting Engineers of Ontario www.ceo.on.ca

Toronto Construction Association www.tcaconnect.com

OACETT - The Ontario Association of Certified Engineering Technicians and Technologists www.oacett.org

Interior Decorating

Humber's Interior Decorating program prepares students to develop spaces that reflect the style and expectations of their clients.

The Work Term (minimum 240 hours) occurs after the first 2 Semesters of study.

Employers Hire Students to

- Help customers select and make purchasing decisions related to decorating and décor, furniture, colour palette selection, appropriate finishes, materials, textiles, objects d'art and other visual elements
- Provide consultations
- Work with homeowners in new developments to select finishes and colours
- Assist interior designers and interior decorators, including sole proprietors
- Liaise with clients, contractors and consultants
- Produce designs using AutoCAD, hand-drawing and sketching techniques
- Assist with visual merchandising, set up retail displays/window displays

Typical Employers

- Retail and Wholesale Showrooms and Sales Environments, specializing in paint and wall coverings, fabrics, lighting, furniture, floor coverings, fixtures, home décor accessories, kitchen & bath products, etc
- Kitchen & Bath Design Centres
- Interior Decorating Firms, Interior Design Firms
- Developers, New / Model Home Décor Centres and Showrooms
- Home Staging Firms
- Television / Set Design / Design Magazine Publishers

Common Student Job Titles

- Sales Associate
- Showroom Associate
- Decorator/Colour Consultant
- Design Assistant

Additional Resources

CDECA – Canadian Decorator's Association www.cdeca.com

IDRC – Interior Décor Resources Canada www.idrcanada.org

Electrical Engineering Technician/Technology: Control Systems

The Electrical program provides a systems approach to the control of electrical equipment and industrial process instrumentation. The 4 month Work Term occurs in the summer after 2 years of study.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- PLC's and Instrumentation (Omron, Allen-Bradley and GE PLC's)
- Motors and Controls
- Polyphase and AC/DC Circuits, AC/DC equipment & control
- Instrumentation
- Variable frequency drives
- Power generation and distribution, Power system design
- Canadian Electrical Code, AutoCAD Electrical
- WHMIS

Employers Hire Students to

- Install / troubleshoot / maintain control systems and automated equipment
- Perform engineering design/drafting
- Assist electricians
- Work in entry level opportunities in manufacturing support or production, to gain practical hands-on manufacturing experience and exposure to quality and health & safety standards
- Work in sales, technical support or administration in companies related to this industry

Typical Employers

- Power Generation, Power Systems, Hydro Utilities
- Automated Manufacturing/Processing-all types of manufacturers (automotive parts, food processing, etc)
- Electrical Contractors
- Building Systems Automation
- Food and Pharmaceutical industry

Common Student Job Titles

- Technician or Assistant – Electrical, Assembly, Test, Automation, Maintenance, Power Systems
- Electrical Installer, Electrician's Assistant
- Electrical Designer
- Building Systems Automation Technician
- Inside Sales (with Electrical Engineering Equipment Vendors)
- Production Help (entry-level manufacturing experience)
- Field Service Technician/Assistant

Additional Resources

Automotive Parts Manufacturers' Association www.apma.ca

Electrical Generating Systems Association (EGSA) www.egsa.org

Institute of Electrical and Electronics Engineers (IEEE) www.ieee.ca

OACETT - The Ontario Association of Certified Engineering Technicians and Technologists www.oacett.org

Electronics Engineering Technician/Technology

Humber's Electronics program prepares students for employment in a broad range of fields in electronic application. The 4 month Work Term occurs in the summer after 2 years of study.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- Electronic devices and circuits
- AC/DC circuits, Linear/non linear circuits
- Communication circuits
- Radio Frequency circuits
- Embedded microcontrollers, PLC's
- Computer programming & interfacing
- PC system technology, LAN
- Telecommunication systems
- Wired and wireless telephony
- WHMIS

Employers Hire Students to

- Assemble/install/troubleshoot/repair components and electronics equipment
- Test components and new products
- Support broadcasting and telecommunications systems
- Work in entry level opportunities in manufacturing support or production, to gain practical hands-on manufacturing experience and exposure to quality and health & safety standards
- Work in sales, technical support or administration in companies related to this industry

Typical Employers

- Television and Radio Broadcasters, Telecommunications firms
- Consumer Electronics – manufacturing/installation/repair
- Aerospace/Defence
- Alarm Systems, Fibre Optics, Signal Processing
- Process Control and Automation
- Manufacturers of Electronic Equipment, Computers, Automotive Parts, and, Scientific, Medical and Industrial Instrumentation
- PC Support

Common Student Job Titles

- Electronics Technician
- Audio/Visual Technician
- Broadcasting Technician
- Instrumentation Technician/Operator
- Technician – Electronics Assembly/Test, Manufacturing, Installation & Repair

Additional Resources

Institute of Electrical and Electronics Engineers (IEEE) www.ieee.ca

Surface Mount Technology Association www.smta.org

OACETT - The Ontario Association of Certified Engineering Technicians and Technologists www.oacett.org

Sustainable Energy & Building Technology

Humber's Sustainable Energy program prepares students for careers in the energy conservation, efficiency and management; green building and renewable energy sectors. The 4 month Work Term occurs in the summer after 2 years of study.

Skills and Knowledge

After 2 year of study, students have skills and knowledge in

- Fundamentals of building science and building mechanical systems, including low energy systems
- Electrical fundamentals - AC and DC Circuits
- Fundamentals of Sustainable Building Design
- Renewable technologies - solar PV and thermal, wind and earth energy
- Energy efficiency, conservation and renewable energy policies and programs
- Energy Auditing, Energy modelling
- AutoCAD, Revit, HOT 2000, RETScreen, eQUEST, MS Office (Word, Excel, PowerPoint)
- WHMIS

Employers Hire Students to

- Assist in performing energy audits, utility analysis
- Work in product installation/service (eg solar panels), system design, estimating, job coordination, project management and administrative roles
- Work in construction/product installation to gain hands-on experience with the building envelope

Typical Employers

- Consulting Engineering, General Contractors, HVAC Systems Firms
- Municipalities, Provincial Government Agencies
- Building Systems Automation
- Energy Conservation/Renewable Energy Equipment Manufacturers, Dealers and Installation Service Providers (solar panel contractors)

Common Student Job Titles

- Energy Analyst, Energy Efficiency Designer/Analyst
- Energy Auditing Assistant
- Energy Program Management Assistant
- Jr. Sustainable Building Analyst/Specialist
- Market & Research Analyst
- PV/Solar Panel Installer
- Renewable Energy Support Associate
- Environmental/Energy Office Assistant

Additional Resources

BOMA - Building Owners & Managers Assoc. of Toronto www.bomatoronto.org

Canada Green Building Council www.cagbc.org

OACETT - The Ontario Association of Certified Engineering Technicians and Technologists www.oacett.org

Heating, Refrigeration & Air Conditioning Technician (HVAC)

In this program, students acquire broad skills and knowledge in the design, installation & service of HVAC systems in residential, commercial & industrial buildings.

**After 2 years of study, students can graduate, or complete a 4 month Work Term.
The School provides job leads for both returning and graduating HVAC Technician students.**

Skills and Knowledge

After 2 years of study, students have had the opportunity to obtain the following credentials:

- Gas Technician 3 (G.3 Certification – TSSA), Gas Technician 2 in progress
- Oil Burner Technician 3 Certificate of Qualification
- Ozone Depletion Prevention Card (Ministry of the Environment)
- Residential Air System Design Technician designation (issued by HRAI)

Students also have skills and knowledge in the following:

- HVAC Controls and Software Applications
- Residential and Commercial Load Estimating and Duct Design, Residential Heat Loss / Heat Gain
- Electrical Troubleshooting
- AutoCAD
- WHMIS

Employers Hire Students to

- Size, select and maintain equipment for building comfort utilizing various industry standards
- Install and service residential equipment
- Work in parts and inventory departments

Typical Employers

- General Contractors, HVAC Systems Firms (Residential and Commercial)
- HVAC Service Firms, Dealers and Installation Service Providers
- Wholesalers/Parts Suppliers
- Municipalities, Provincial Government Agencies, Property Managers, Building Systems Automation Firms
- Equipment Manufacturers, Dealers and Installation Service Providers

Common Student Job Titles

- HVAC Technician/Installer, HVAC Technician Assistant, Facilities Maintenance Technician/Assistant.

Additional Resources

HRAI – The Heating, Refrigeration and Air Conditioning Institute of Canada www.hrai.ca