

# Civil Engineering Technology

Co-operative Education Program



- Architectural/Engineering Technology
- Environmental Engineering Technology
- Geomatics Technology
- Municipal Engineering Technology
- Structural Engineering Technology
- Building Design Technology



**Red River College has been recognized for this award winning co-operative education program.**

### **Free Job Bank Service!**

To hire a student, contact the Civil Engineering Technology department. Your job offer will be posted exclusively to our students in total confidence, not revealing your company name. Resumes will be collected and forwarded to you. If requested, an interview room will be reserved at the College. **Students are hired quickly, so act early to avoid disappointment. This job bank service is provided at no cost to you!**

### **Employer Advantages in Hiring Our Students**

- Our students are productive immediately in such areas as CAD and manual drafting, codes and specifications, communications, mathematics, quantity take-off and surveying.
- Students may provide their own laptop computers with the latest versions of AutoCAD, related

software applications and word processing software installed ready for use in your company.

- Students will fill in for employees on vacation.
- Employers have the opportunity to train students as potential future employees. Upon the student's graduation the employer is in an excellent position, based on the student's performance during the work terms, to ascertain whether to hire the student as a permanent employee.

### **Student Work Terms**

Each year, prior to returning to class, the students are required to work a minimum of 16 weeks during the six-month work term (May to October). This work may be completed with more than one employer. The work should be in an area that will complement their programs with relevant "real world" experience. Positions must be paid employment, not work shadowing or volunteer work.

**To place a co-operative education job offer, please contact the Co-operative Coordinator at:**

- 204.632.2585, or
- [CivilCo-op@rrc.ca](mailto:CivilCo-op@rrc.ca), or
- by completing the electronic form at [JobCentral.rrc.ca](http://JobCentral.rrc.ca)

## Wage Incentives & Tax Credits for Manitoba Co-op Employers

### Paid Work Experience Tax Credit

Manitoba employers can receive a Paid Work Experience Tax Credit when hiring our Co-op students and graduates. The benefits are as follows:

Co-op Students: 15% of wages/salaries, up to a lifetime of \$5,000/student

New Graduates: 15% of wages/salaries, up to a maximum of \$2,500/student for each of the first two years of employment

For more information please contact us at **204.632.2585** or [CivilCo-op@rrc.ca](mailto:CivilCo-op@rrc.ca), or contact the Manitoba Tax Office at **204.948.2115** or toll free at **1.800.782.0771**

### Canada Summer Jobs

Canada Summer Jobs is an initiative of the Summer Work Experience program. It provides funding for not-for-profit organizations, public sector employers, and small businesses with 50 or fewer employees to create summer job opportunities for students between the ages of 15 and 30. For more information call **1.800.935.5555** or go to [servicecanada.gc.ca](http://servicecanada.gc.ca), or visit any Service Canada Centre.

## Civil Engineering Technology Program Descriptions

### Three-Year Technologist Program

**Architectural/Engineering Technology** - Principles and applications of architectural, structural, mechanical, plumbing and electrical systems for building design and construction. Estimating, scheduling, and supervision skills for project management.

**Environmental Engineering Technology** - Principles and applications of environmental technology in environmental analyses, water stewardship, waste management, workplace health and safety, and geographic information systems and environmental management. Graduates can manage environmental and municipal infrastructure projects, and develop skills for the analysis and remediation of urban environments through coursework and applied research.

**Geomatics Technology** - Legal and engineering surveying, computer-assisted surveying/drafting, mapping, photogrammetry, cartography, design, construction, project inspection, layout and supervision of civil works, technical sales and support.

**Municipal Engineering Technology** - Roadway and municipal services (sewer and water) design and construction, soil mechanics, materials testing, hydraulics and surveying.

**Structural Engineering Technology** - Concrete, masonry, timber and steel design, detailing, drafting and inspection of structural systems for commercial buildings, including soil investigations and foundation design.

### Two-Year Technical Program

**Building Design Technology** - Production and development of working drawings necessary to the architectural, structural and mechanical industries as they pertain to building design and construction.





# Civil Engineering

## Technology Program

### Content

#### CIVIL ENGINEERING TECHNOLOGY (First Year Common to all Disciplines)

Revised November 2017

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| <p><b>Semester 1</b></p> <ul style="list-style-type: none"> <li>Technical Communication 1</li> <li>Algebra &amp; Trigonometry 1</li> <li>Computer Applications 1</li> <li>Technical Graphics</li> <li>Chemistry or Professional Ethics</li> <li>Statics and Strength of Materials 1</li> <li>Surveying 1</li> <li>College Expectations and Survival Skills</li> <li>General Safety Training</li> </ul> | <p>WHMIS Workshop</p> <p><b>Semester 2</b></p> <ul style="list-style-type: none"> <li>Technical Communication 2</li> <li>Algebra &amp; Trigonometry 2</li> <li>Computer Applications 2</li> <li>Applied Technical Graphics</li> <li>Chemistry or Professional Ethics</li> <li>Statics and Strength of Materials 2</li> <li>Surveying 2</li> </ul> |
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➔ **Civil Technician Certificate**  
(contact Continuing Education for further details)

FIRST CO-OP ED WORK TERM: Students are available for employment for up to 6 months, from May to October (16 weeks minimum).

### Second Year

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| <p><b>Architectural/Engineering Technology</b></p> <ul style="list-style-type: none"> <li>Project Administration</li> <li>Calculus and Statistics</li> <li>Building Science</li> <li>Structural Design 1</li> <li>Architectural Technology 1</li> <li>Advanced CAD</li> <li>AEC Industry in Practice</li> </ul> | <p><b>Environmental Engineering Technology</b></p> <ul style="list-style-type: none"> <li>Project Administration</li> <li>Environmental Sciences</li> <li>Geo-Enviro Fundamentals</li> <li>Fundamentals of GIS</li> <li>Environmental Analysis</li> <li>Calculus and Statistics</li> <li>Chemistry 2</li> <li>Health and Safety</li> </ul> | <p><b>Geomatics Technology</b></p> <ul style="list-style-type: none"> <li>Project Administration</li> <li>Calculus and Statistics</li> <li>Theory and Use</li> <li>Fundamentals of GIS</li> <li>Survey Computations</li> <li>Geomatics Computer Apps.</li> <li>Roadway Design 1</li> </ul> | <p><b>Municipal Engineering Technology</b></p> <ul style="list-style-type: none"> <li>Project Administration</li> <li>Calculus and Statistics</li> <li>Terrain Analysis</li> <li>Hydromatics</li> <li>Geotechnical Materials 1</li> <li>Municipal Computer Apps.</li> <li>Roadway Design 1</li> </ul> | <p><b>Structural Engineering Technology</b></p> <ul style="list-style-type: none"> <li>Project Administration</li> <li>Calculus and Statistics</li> <li>Timber Design</li> <li>Geotechnical Fundamentals</li> <li>Reinf. Concrete Design 1</li> <li>Structural Analysis 1</li> <li>Structural Detailing Practices</li> </ul> | <p><b>Building Design Technology</b></p> <ul style="list-style-type: none"> <li>Project Administration</li> <li>Advanced CAD</li> <li>Architectural Detailing</li> <li>Structural Detailing</li> <li>Building Standards</li> <li>Building Science</li> <li>Applied Technical Project</li> </ul> |
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SECOND CO-OP ED WORK TERM: Students are available for employment for up to 6 months, from May to October (16 weeks minimum).

### Third Year

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| <p>Engineering Economics</p> <p>Supervisors Management</p> <p>Applied Research Project</p> <p>Thermal and Energy Efficient Systems</p> <p>Environmental Systems</p> <p>Structural Design 2</p> <p>Architectural Technology 2</p> <p>Materials Testing</p> | <p>Environmental Management</p> <p>Engineering Economics</p> <p>Supervisors Management</p> <p>Applied Research Project</p> <p>Waste Management</p> <p>Water and Wastewater</p> <p>Remote Sensing &amp; Digital Photogrammetry</p> <p>Hydrology</p> | <p>Engineering Economics</p> <p>Supervisors Management</p> <p>Applied Technical Project</p> <p>Legal Surveys</p> <p>Remote Sensing &amp; Digital Photogrammetry</p> <p>Adv. Survey Computations</p> <p>Control Surveys</p> <p>Roadway Design 2</p> | <p>Engineering Economics</p> <p>Supervisors Management</p> <p>Applied Research Project</p> <p>Water and Wastewater</p> <p>Geotechnical Materials 2</p> <p>Pavement Mix Design</p> <p>Hydrology</p> <p>Roadway Design 2</p> | <p>Engineering Economics</p> <p>Supervisors Management</p> <p>Applied Research Project</p> <p>Steel Design</p> <p>Foundation Design</p> <p>Reinf. Concrete Design 2</p> <p>Structural Analysis 2</p> <p>Materials Testing</p> |
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