

# CAREER ZONE: CONSTRUCTION

Helping High School Students Prepare for a Career in the Construction Sector



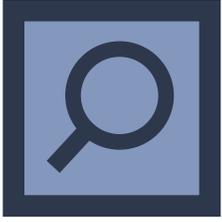
Ministry of  
Education



# CONTENTS



THIS GUIDE. . . . .	.3
What is a Career Zone?. . . . .	.3
What’s included in a Career Zone?. . . . .	.4
Is there only one route within a Career Zone?. . . . .	.4
Is it possible to change a route? . . . . .	.5
Apprenticeship Route. . . . .	.5
Certificate or diploma Route . . . . .	.5
Degree Route. . . . .	.6
Direct-to-Work Route . . . . .	.6
CAREER ZONE MAP . . . . .	.9
CONSTRUCTION CAREERS. . . . .	.10
Job Options . . . . .	.10
Construction Types. . . . .	.11
Forecasts . . . . .	.13
Recommended Core Courses and Electives for Careers in the Construction Sector . . . . .	.13
Core Courses . . . . .	.13
Electives . . . . .	.14
Recommended Career-Preparation Certificates for Careers in the Construction Sector . . . . .	.15
CONSTRUCTION POSSIBILITIES . . . . .	.16
CONSTRUCTION SECTOR CAREER PATHS – SAMPLE BUNDLES . . . . .	.18



Sample Bundle 1: Apprenticeship Route – Carpenter . . . . .18

Sample Bundle 2: Certificate Route – Interior Designer . . . . .20

Sample Bundle 3: Degree Route – Civil Engineer . . . . .22

Sample Bundle 4: Direct-to-Work Route – Class 3 Truck Driver . .24

ACKNOWLEDGEMENTS . . . . .26

# THIS GUIDE

This guide provides general background on the British Columbian and Canadian construction sectors, specific information on the three primary construction sub-sectors and sample bundles of high school and post-secondary courses and training. It illustrates how high schools, post-secondary institutions, industry partners and employers can work together to help students qualify for a career in construction. The guide provides suggestions for pathways students can follow to enter their chosen career

This guide is an *introduction* only to the job and career possibilities within this sector. More detailed information is available from a variety of general and sector-specific sources mentioned throughout this guide.

## WHAT IS A CAREER ZONE?

A Career Zone is a group of courses, certifications and work opportunities that BC high schools can develop to help students in Grades 11 and 12 get ready to pursue a career within a particular industry, while still meeting provincial requirements for graduation.

By working within a Career Zone in high school, students have the opportunity to:

- Select courses that match their specific skills, interests and career goals.
- Complete the pre-requisites they will need to enter the post-secondary certificate, diploma or degree program of their choice.
- Take dual credit courses for a career head start and smooth transition to post secondary learning.
- Obtain industry-recognized career-preparation certifications.
- Acquire work experience relevant to those career goals.





## WHAT'S INCLUDED IN A CAREER ZONE?

A Career Zone includes a broad range of core courses and career-specific electives, industry-recognized certifications and work experience placements intended to prepare students for the careers they want, while they are still in high school.

Individual BC School Districts are encouraged to develop their own Career Zones, based on local labour market needs, student interests, industry and post-secondary partnerships, and local work experience opportunities.

Career Zones should include:

- Mathematics, Language Arts and Science courses at the Grade 11 and Grade 12 levels.
- An Applied Skills elective at the Grade 11 or Grade 12 level.
- Where available, a variety of transition opportunities, including:
  - « dual credit courses
  - « Board/Authority Authorized (BAA) courses
  - « Independent Directed Studies
  - « Advanced Placement courses
  - « Work Experience 12A and 12B, and other workplace training opportunities, including volunteering, co-op placements and summer internships.
- Industry-recognized career preparation certifications, such as CPR, First Aid or Workplace Hazardous Materials Information System (WHMIS).

## IS THERE ONLY ONE ROUTE WITHIN A CAREER ZONE?

Depending on their specific career goals, students have four basic routes to choose from after graduation:

- Apprenticeship route
- Certificate or diploma route
- Degree route
- Direct-to-work route

## Apprenticeship Route

This route prepares students to apprentice in a trade as soon as they graduate.

### INDUSTRY TRAINING AUTHORITY PROGRAMS

The **ACE-IT PROGRAM** allows high school students to take first level (classroom) technical training in a trade that gives them credit for both high school and apprenticeship or industry training programs. Technical training classes are most often taught at post-secondary institutions, but can also be offered at school district facilities.

The **SECONDARY SCHOOL APPRENTICESHIP (SSA)** lets students begin the work-based training component of an apprenticeship program while still in high school. Students “earn while they learn,” getting credits toward both their high school diploma and apprenticeship on-the-job training. SSA students earn 16 graduation credits and complete up to 480 hours of work experience that counts toward their apprenticeship.

An apprenticeship is a combination of:

- Work-based training:
  - « 20 percent in school
  - « 80 percent on a work site, with an employer sponsor
- Classroom learning at a college, institute, university or private trades training institution.

All apprenticeship training is delivered by skilled, certified trades people with experience in the field.

In BC, successful apprenticeship training leads to a Certificate of Qualification (CoQ) awarded by the **INDUSTRY TRAINING AUTHORITY**, which is recognized across the province. About 50 trades also offer the Interprovincial (IP) Red Seal certificate, which is recognized across Canada.

### Certificate or Diploma Route

The certificate or diploma route helps prepare students who have decided to pursue a career that requires fairly extensive additional training after high school graduation. This training requires a minimum of 13 weeks or may take one to two years, depending on the structure of the program and the institution offering the instruction.

Many certificate or diploma programs in BC may lead to advanced entry into a degree program in the same subject area at a later date.





## **Degree Route**

The degree route helps prepare students for a career that requires a four or five year degree from a post-secondary institution.

Some degree programs begin in one institution and are completed at another.

## **Direct-to-Work Route**

Graduates who have the right preparation in high school have many direct-to-work job opportunities in construction. These jobs require only on-the-job training and the appropriate career preparation certifications such as CPR. These can be acquired while still in school or within a short time after graduation.

For some jobs, students might require an additional certificate that takes longer to complete. This type of certificate increases their chance of getting a better job.

This direct-to-work route eases the transition from high school to work.

## **NOT ALL JOBS ARE IN THE FIELD**

In addition to skilled and experienced people who work in the field, every industry needs people who work in the office, in such areas as IT, accounting, health and safety, human resources, communications, investor relations and customer relations. General certificates and degrees are available in these fields, but it helps if students have courses, certifications and work experience relevant to the industry sector.

Every industry also needs leaders as business managers, supervisors, and executives. Many people occupying these leadership roles start by gaining relevant work experience then adding further on-the-job training, additional certifications or advanced degrees.

## **IS IT POSSIBLE TO CHANGE A ROUTE?**

It is always possible to change a route.

A Career Zone provides students with a solid foundation of core courses, electives, career-preparation certificates and work experience relevant to a particular industry that can be adapted to different routes as required.

For example, a student may start on the apprenticeship route, then realize that the post-secondary certificate or degree route would be better. The student can then add the additional courses, career-preparation certificates or work experience needed for that route.

A Career Zone enables students to make changes later when they are in a training program or the workforce. With the broad-based, career focused foundation they received in high school, students will find it easier to upgrade their qualifications.

For example, someone who decided to go direct-to-work may later choose to train as an apprentice, or take a diploma or degree program, without having to make up missing courses or credits.

Students and their parents should be open to the possibility that an inspiring course or stimulating work experience may lead them to change the focus of their career path.





## USEFUL CAREER PLANNING RESOURCES

**WORKBC** provides profiles of more than 500 different occupations, with details on job duties, required education and training, employment outlook and average salaries or wages. The site offers a comprehensive database of BC job postings, and a blog featuring trends, job-search tips and employment programs.

**EDUCATION PLANNER** allows users to compare BC post-secondary programs.

**TRADES TRAINING BC** helps both students and employers find trades programs offered at 14 post-secondary institutions throughout BC.

**ITABC** works with employers, employees, industry, labour, training providers and government to issue credentials, manage apprenticeships, set program standards and increase employment opportunities in the trades.

**DISCOVERSKILLSBC** helps link high school students with educational opportunities in trades and technology.

## CAREER ZONE MAP

Like a transit map, the chart on the next page shows four possible routes from high school to a range of the most in-demand careers in the ICT industry.

# Career Zone Map: Construction

This map shows the various routes high school students can take to achieve high-demand jobs in the construction sector.

Routes start from the centre, with core high school courses, followed by options that help prepare students for the next steps along the route of their choice.

At any point, students may decide to switch their direction of travel and try a different route.

**Bold** indicates a high-demand job (BC 2024 Labour Market Outlook)





# CONSTRUCTION CAREERS

*The construction industry builds, repairs and renovates:*

- Houses
- Apartments
- Offices
- Hospitals
- Schools
- Recreation centres
- Shopping malls



*The sector is also responsible for constructing, repairing and renovating:*

- Industrial factories
- Public transit
- Infrastructure projects including highways, roads and bridges
- Production facilities for mining, energy, oil and gas industries

## JOB OPTIONS

The construction industry employs people in hundreds of different occupations.

All construction projects begin with a plan for a piece of property and an architectural or engineering design. The project ends when the product—the road or house, for example—is ready for use. Along the way, the project will need people for design, planning and management, plus an extensive range of skilled tradespeople and technicians.

Anyone thinking of a job in construction should be prepared to work in a variety of different environments: indoors or outdoors, very large or small spaces, at heights or underground.

## CONSTRUCTION TYPES

Some construction workers are generalists who can work on just about any kind of construction project. Others choose one type of construction from the beginning, or develop a specialized skill set as they gain experience. For example, one electrician may choose to focus on residential electrical work, while another develops expertise doing industrial electrical jobs.

*The three major types are:*

- **Residential construction:** British Columbia's population continues to increase, and all those new residents need places to live.

Residential construction includes:

- « detached houses
- « row houses
- « duplexes
- « assisted living homes
- « condominiums
- « apartment buildings

### FOR MORE INFORMATION:

[BC CONSTRUCTION ASSOCIATION](#)

[BC CONSTRUCTION ASSOCIATION NORTH](#)

[BRITISH COLUMBIA 2024 LABOUR MARKET OUTLOOK](#)

[BUILDFORCE CANADA](#)

[CANADIAN CONSTRUCTION ASSOCIATION](#)

[CANADIAN HOME BUILDERS' ASSOCIATION](#)

[DISCOVER SKILLS BC](#)

[SKILLS CANADA](#)

[SOUTHERN INTERIOR CONSTRUCTION ASSOCIATION](#)

[VANCOUVER ISLAND REGIONAL CONSTRUCTION ASSOCIATION](#)

[VANCOUVER REGIONAL CONSTRUCTION ASSOCIATION](#)





- **Non-residential construction:**

Non-residential construction includes institutional, commercial and industrial (known as ICI) building projects, such as:

- « schools
- « hospitals
- « shopping malls
- « museums
- « theatres
- « recreational facilities
- « office towers
- « factories
- « mills
- « mines



As in residential construction, non-residential construction includes an active market for the repair and renovation of existing properties.

- **Infrastructure construction:**

Infrastructure means the fundamental facilities and systems serving a community. Infrastructure construction includes such projects as:

- « highways
- « roads
- « bridges
- « railways
- « airports
- « ports
- « hydroelectric facilities
- « pipelines

## FORECASTS

The construction industry is very active in British Columbia. There are opportunities for careers at all levels which offer students to grow and develop while working in the industry.

Over the past decade, construction has consistently been one of the fastest growing sectors in BC. The construction industry now accounts for approximately 7 percent of British Columbia's Gross Domestic Product. That is almost one in every 10 jobs. (See [British Columbia 2024 Labour Market Outlook](#)).

In addition, [BuildForce Canada's](#) most recent forecast report (April 2015) estimates that:

- BC's construction employment levels, lead by several major infrastructure and resource-related projects, will rise to record highs in 2018.
- 39,500 workers, 23 percent of the current workforce, will need to be hired over the next 10 years to offset pending retirements.

## RECOMMENDED CORE COURSES AND ELECTIVES FOR CAREERS IN THE CONSTRUCTION SECTOR

It is vital that students investigate the core courses and electives that will help them take the most direct route to their chosen career in the construction sector.

### Core Courses

All BC high school students take core courses in English, Mathematics and Science for graduation. But in each core subject area there are options that make it easier to go directly to work or get into the post-secondary training program of their choice.

## GRADUATION PLANNING RESOURCES:

[Graduation Planner](#)

[Graduation Requirements](#)





For example, students are required to take English 12, English First Peoples 12 or Communications 12. A number of apprenticeship and post-secondary programs require either English 12 or English First Peoples 12. Communications 12 would not be a good choice for a student wanting to become an apprentice. Communications 12 would not be a good choice for a student wanting a certificate, diploma or degree program.

Although students are not required to take a Mathematics 12 course for graduation, they should choose their Mathematics 11 course carefully. Pre-Calculus 11 and 12 is required for some apprenticeship and post-secondary programs, including those for becoming an electrician and or gasfitter.

### Electives

Choosing the right electives is just as important as choosing the right core courses. For example, an apprentice electrician needs Physics 11, while a student planning to be an engineer needs Physics 12 and Chemistry 11.

Students will benefit from acquiring skills and work experience directly applicable to jobs in the construction sector.

#### *The construction sector recommends that:*

- Students with little or no experience working with tools and equipment, or working in an industrial setting, take introductory courses such as:
  - « Skills Exploration 10, 11 or 12
  - « Applied Skills 11
- Students choose Technology Education 11 and 12 courses available at their school such as:
  - « Carpentry and Joinery
  - « Drafting and Design

### WORK EXPERIENCE 12A AND 12B

Since Work Experience 12A and 12B are each 100 to 120 hours long the students experience a sense of community in the classroom.

Work site placements help prepare students for the transition from high school to the world of work. They provide opportunities to gain valuable workplace knowledge, clarify career goals, and develop real job skills.

To find out more, see the [PROGRAM GUIDE FOR MINISTRY AUTHORIZED WORK EXPERIENCE COURSES](#).

« Industrial Design:

- Design and Communication
  - Product Development
  - Systems Integration
  - Energy, Power and Transportation
- Students choose relevant dual credit courses, where available.
  - Students choose relevant locally developed Board/Authority Authorized (BAA) courses, such as Civil Engineering Concepts or Civil Engineering Management, where available
  - Students take Work Experience 12A and 12 B
  - Students who are considering an apprenticeship, take both [ACE-IT](#) and [SECONDARY SCHOOL APPRENTICESHIP \(SSA\)](#)

### RECOMMENDED CAREER-PREPARATION CERTIFICATES FOR CAREERS IN THE CONSTRUCTION SECTOR

Most construction companies require applicants to have at least a high school diploma and a driver's licence. Acquiring relevant career-specific certifications can also ensure students have a better chance of employment or a higher level of employment directly out of high school, college or university.



Certifications can take anywhere from a couple of hours to several weeks to complete. For any kind of construction job, recommended certifications include:

- Back Care and Ergonomics
- Confined Space Awareness
- Construction Safety Training System
- CPR
- Fall Protection
- Occupational First Aid Levels 1, 2 and 3
- Traffic Control (Flag Person)
- Workplace Hazardous Materials Information System (WHMIS)





### Other certifications, depending on job interests, include:

- Aerial Lift Platform, including boom and scissor lift
- Bear Awareness (for remote and rural worksites)
- Chainsaw Safety
- Forklift Awareness
- Helicopter Safety
- H2S Alive (for oil and gas industry construction)

Please note: Some certifications are time-limited. For example, a CPR certificate is valid for three years only. It is a good idea for high school students to complete or renew their certifications close to graduation.

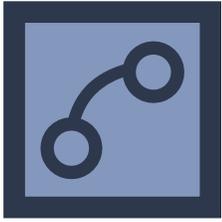
## CONSTRUCTION POSSIBILITIES

The chart below divides job possibilities in the construction sector into high-demand and lower-demand jobs. The list of high-demand occupations is based on the [British Columbia 2024 Labour Market Outlook](#).

Possible Routes:	Possible Jobs:	Possible Credentials:
Apprenticeship	<p><i>High demand:</i></p> <ul style="list-style-type: none"> <li>• Carpenter – see Sample Bundle 1 for a possible route to this career</li> <li>• Concrete Finisher</li> <li>• Hydraulic or Tower Crane Operator</li> <li>• Industrial Mechanic (Millwright)</li> <li>• Electrician:               <ul style="list-style-type: none"> <li>• Construction</li> <li>• Industrial</li> </ul> </li> <li>• Drywall Finisher</li> <li>• Floor Covering Installer</li> <li>• Heavy Equipment Operator</li> <li>• Lather (Interior Systems Mechanic)</li> <li>• Plumber</li> <li>• Roofer</li> <li>• Sprinkler System Installer</li> <li>• Welder</li> </ul> <p><i>Lower demand:</i></p> <ul style="list-style-type: none"> <li>• Asphalt Paving/Laydown Technician</li> <li>• Boom Truck Operator</li> <li>• Bricklayer</li> <li>• Cabinet Maker</li> <li>• Construction Craft Worker (Labourer)</li> <li>• Ironworker</li> <li>• Glazier</li> <li>• Landscape Horticulturalist</li> <li>• Metal Fabricators Fitter</li> </ul>	<ul style="list-style-type: none"> <li>• ITA Certificate of Qualification</li> <li>• Interprovincial Red Seal Certificate</li> </ul>

Possible Routes:	Possible Jobs:	Possible Credentials:
<b>Certificate or Diploma</b>	<p><i>High demand:</i></p> <ul style="list-style-type: none"> <li>Contractor or supervisor in carpentry trades</li> <li>Construction inspector</li> <li>Drafting technologist or technician</li> <li>Electrical and electronics engineering technologist or technician</li> <li>Interior designer – <i>see Sample Bundle 2 for a possible route to this career</i></li> </ul> <p><i>Lower demand:</i></p> <ul style="list-style-type: none"> <li>Architectural technologist or technician</li> <li>Civil engineering technologist or technician</li> <li>Construction estimator</li> <li>Safety attendant</li> </ul>	<p>Certificate and diploma programs (from 13 weeks and up) at BC colleges including:</p> <ul style="list-style-type: none"> <li>Architectural and Building Technology Certificate or Diploma</li> <li>Architectural and Engineering Technology Diploma</li> <li>Drafting Technician – Architectural Certificate</li> <li>Interior Design Certificate –see Sample Bundle 2</li> <li>Residential Construction Certificate</li> <li>Construction Operations Associate Certificate</li> <li>Hydronic Technician Associate Certificate</li> <li>Environmental Technology Diploma</li> <li>Project Management Associate Certificate</li> </ul>
<b>Degree</b>	<p><i>High demand:</i></p> <ul style="list-style-type: none"> <li>Architect</li> <li>Construction manager</li> <li>Engineering manager</li> <li>Senior manager</li> <li>Civil engineer – <i>see Sample Bundle 3 for a possible route to this career</i></li> </ul> <p><i>Lower demand:</i></p> <ul style="list-style-type: none"> <li>Geological Engineer</li> <li>Environmental Engineer</li> <li>Industrial designer</li> <li>Interior designer</li> <li>Landscape architect</li> <li>Project manager</li> </ul>	<ul style="list-style-type: none"> <li>Architectural Science Bachelor of Technology</li> <li>Bachelor of Business Administration Degree: Trades Management</li> <li>Bachelor of Environmental Design</li> <li>Bachelor of Interior Design</li> <li>Bachelor of Technology Degree: Trades and Technology Leadership</li> <li>Bachelor of Technology: Construction Management</li> <li>Bachelor of Engineering</li> <li>Bachelor of Science in Engineering</li> <li>Bachelor of Science: Environmental Sciences</li> </ul>
<b>Direct-to-Work</b>	<p><i>High demand:</i></p> <ul style="list-style-type: none"> <li>Truck driver - <i>see Sample Bundle 4 for a possible route to this career</i></li> <li>Heavy equipment operator</li> <li>Residential and commercial installers and servicers, including: <ul style="list-style-type: none"> <li>Flooring</li> <li>Roofing</li> <li>Solar technology</li> <li>Windows</li> </ul> </li> <li>Security guard</li> </ul> <p><i>Lower demand:</i></p> <ul style="list-style-type: none"> <li>Helper or labourer: general trades</li> <li>Tradesperson assistant: <ul style="list-style-type: none"> <li>Drywall installer</li> <li>Flooring installer</li> <li>Heavy equipment operator</li> <li>Insulator</li> </ul> </li> <li>Gardener</li> <li>Emergency medical responder</li> <li>Excavator operator</li> <li>Framer</li> </ul>	<p>Some direct-to-work jobs may require a short (up to 12 weeks) certificate program. For example:</p> <ul style="list-style-type: none"> <li>Emergency Medical Responder</li> <li>Excavator Operator</li> <li>Heavy Equipment Technician</li> <li>Solar Thermal: Entry Level</li> <li>Truck driver – <i>see Sample Bundle 4</i></li> </ul>





# CONSTRUCTION SECTOR CAREER PATHS – SAMPLE BUNDLES

These four sample bundles of high school and post-secondary courses and training illustrate how high schools, post-secondary institutions and industry partners may work together to develop a particular path for students to follow.

## SAMPLE BUNDLE 1: APPRENTICESHIP ROUTE – CARPENTER

An apprentice carpenter learns how to measure, cut, shape, assemble and join materials made of wood, wood substitutes, lightweight steel and other materials. They also learn how to:

- Read and interpret blueprints, drawings and sketches.
- Use measuring tools to prepare layouts that conform to building codes.
- Form foundations, install floor beams, lay sub-flooring, erect walls and build roof systems and stairs.
- Fit and install trim, molding, doors, and hardware.
- Maintain, repair and renovate residential and non-residential construction.
- Build structures required for constructing roads, bridges and other infrastructure.



### MORE INFORMATION ON A CAREER AS A CARPENTER:

Career profile: [WorkBC](#)

Training providers: [Education Planner](#) or Trades Training BC

Apprenticeships: [Industry Training Authority](#)

Carpenters work for construction companies and carpentry contractors. They may also choose to be self-employed.

*Students interested in becoming an apprentice carpenter have two options. They may:*

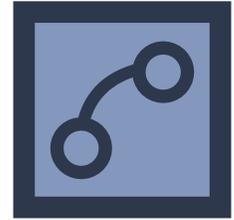
- Go directly into a job with an employer sponsor after graduation and start the Carpenter Apprenticeship Program at Level 1.
- Take a pre-apprenticeship Foundation program at a post-secondary institution while in high school. Successful completion of this dual credit course will allow them to start a Carpenter Apprenticeship Program at Level 2

The [CARPENTER APPRENTICESHIP PROGRAM](#) requires a combination of work experience and classroom instruction.

The classroom technical training has four levels. Each block of schooling takes six to eight weeks of in-school technical training. Part-time and distance education may be available.

Apprentice carpenters must also complete 7,200 hours of work-based training.

The entire Carpenter Apprenticeship program takes roughly four years to complete. This includes 20 percent classroom technical training and 80 percent work-based training. Apprentices are paid during the work-based training.

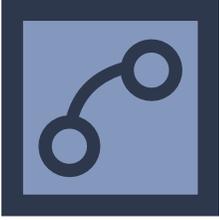


### FOUNDATION PROGRAMS

An employer sponsor is not required for Foundation (or pre-apprenticeship) programs.

Rather, these programs are opportunities for high school students to gain experience and familiarity with a trade and make it easier to find an employer to sponsor an apprenticeship later.

Foundation programs are available across BC (see [TRADES TRAINING BC](#)).



## APPRENTICESHIP ROUTE – CARPENTER

Core High School Courses, plus Electives such as:	Career-preparation Certificates:	Carpenter Apprenticeship Program:	Credentials
<p><i>Recommended core high school courses (not required for entry):</i></p> <ul style="list-style-type: none"> <li>• English 12</li> <li>• Foundations or Pre-Calculus Math 11</li> </ul> <p><i>Recommended electives:</i></p> <ul style="list-style-type: none"> <li>• Technology Education 11 and 12:               <ul style="list-style-type: none"> <li>• Carpentry and Joinery</li> <li>• Drafting and Design</li> </ul> </li> <li>• ACE-It Carpentry (dual credit)</li> <li>• Relevant locally developed Board/ Authority Authorized (BAA) courses, where available</li> <li>• Work Experience 12A and 12B</li> <li>• Secondary School Apprenticeship Program</li> </ul>	<p><i>Recommended:</i></p> <ul style="list-style-type: none"> <li>• CPR</li> <li>• First Aid</li> <li>• WHMIS</li> <li>• Fall Protection</li> <li>• Confined Space Entry</li> </ul>	<p><i>Technical training includes:</i></p> <ul style="list-style-type: none"> <li>• Safe Work Practices</li> <li>• Using Tools and Equipment</li> <li>• Using Documentation and Organizational Skills</li> <li>• Using Survey Instruments</li> <li>• Using Rigging and Hoisting Equipment</li> <li>• Performing Site Layout</li> <li>• Building Concrete Formwork</li> <li>• Framing Residential Houses</li> </ul> <p>Plus 7,200 hours of work-based training</p>	<ul style="list-style-type: none"> <li>• ITA Certificate of Qualification</li> <li>• Interprovincial Red Seal Endorsement</li> </ul>

## SAMPLE BUNDLE 2: CERTIFICATE ROUTE – INTERIOR DESIGNER

Interior designers produce attractive, practical and safe designs for interior spaces in residential, commercial, cultural, institutional and industrial buildings. They may work directly for construction companies, architectural firms, interior design firms, retail and other establishments, or may be self-employed.

According to [WorkBC](#), among other tasks interior designers should be able to:

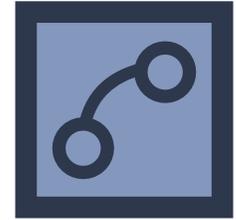
- Consult with clients
- Develop space plans
- Select colours and finishes
- Prepare cost estimates

### MORE INFORMATION ON A CAREER AS AN INTERIOR DESIGNER:

- Career profile: [WorkBC](#)
- Training providers: Education Planner

The British Columbia Institute of Technology (BCIT) is one of several BC post-secondary institutions offering certificates and/or diplomas in interior design.

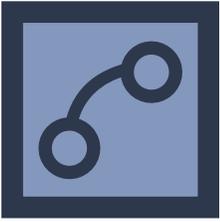
BCIT's **CERTIFICATE IN INTERIOR DESIGN** can be finished in one year by full-time students or completed over two years by part-time students.



### CERTIFICATE ROUTE – INTERIOR DESIGNER

Core High School Courses, plus Electives	Career-preparation Certificates	Certificate Program at BCIT	BCIT Credential
<p><i>Required:</i></p> <ul style="list-style-type: none"> <li>English 12</li> </ul> <p><i>Recommended electives:</i></p> <ul style="list-style-type: none"> <li>Technology Education 11 and 12:               <ul style="list-style-type: none"> <li>Drafting and Design</li> <li>Industrial Design: Design and Communication</li> </ul> </li> <li>Fine Arts 12:               <ul style="list-style-type: none"> <li>Visual Arts</li> </ul> </li> <li>Math 11 and 12:               <ul style="list-style-type: none"> <li>Apprenticeship and Workplace, or</li> <li>Foundations, or</li> <li>Pre-Calculus</li> </ul> </li> <li>Relevant dual credit courses where available</li> <li>Relevant locally developed Board/Authority Authorized (BAA) courses where available</li> <li>Work Experience 12A and 12B</li> </ul>	<p><i>Recommended:</i></p> <ul style="list-style-type: none"> <li>CPR</li> <li>First Aid</li> <li>WHMIS</li> </ul>	<p><i>The basics of residential design, includes:</i></p> <ul style="list-style-type: none"> <li>design theory</li> <li>concept development</li> <li>space planning</li> <li>lighting</li> <li>colour</li> <li>history of design</li> <li>materials and fabrics</li> <li>millwork detailing</li> <li>sustainability</li> <li>written communication</li> <li>visual communication: freehand and computer-generated drawing</li> </ul>	<p>Certificate in Interior Design</p>

Students who complete BCIT's Certificate in Interior Design may choose to add an additional six General Education elective credits to go on to BCIT's **Diploma in Interior Design** followed by a **Bachelor of Interior Design Degree**.



Certificate in Interior Design and 6.0 Credits in General Education Electives

Diploma in Interior Design

Bachelor of Interior Design

### ***SAMPLE BUNDLE 3: DEGREE ROUTE – CIVIL ENGINEER***

Civil engineers plan, design and oversee construction and maintenance of building structures and facilities, such as roads, railways, airports, bridges, harbours, dams, irrigation projects, power plants, water and sewerage systems.

*Their jobs may include:*

- Consulting with clients and other members of the engineering team to design and plan structures
- Creating construction specifications and procedures
- Recommending construction materials
- Overseeing air, water and soil quality



*Sub-disciplines of civil engineering include:*

- Construction engineering
- Environmental engineering
- Geotechnical engineering
- Hydro-technical engineering
- Materials engineering
- Structural engineering
- Transportation engineering
- Urban engineering

**MORE INFORMATION  
ON A CAREER AS A CIVIL  
ENGINEER:**

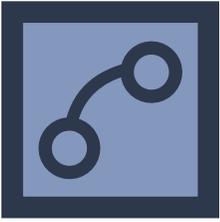
- Career profile: [WorkBC](#)
- Training providers: Education Planner



The University of Victoria is one of several BC post-secondary institutions to offer a degree in civil engineering. UVic’s [BACHELOR OF ENGINEERING IN CIVIL ENGINEERING](#) degree is a five-year program, with eight academic terms and four mandatory co-op work terms. This ensures that students gain experience with real-world civil engineering projects.

**DEGREE ROUTE – CIVIL ENGINEER**

Core High School Courses, plus Electives	Career-preparation Certificates	UVic’s Civil Engineering Degree Program	Credential
<p><i>Required by UVic:</i></p> <ul style="list-style-type: none"> <li>• Chemistry 11</li> <li>• English 12 or English First Peoples 12</li> <li>• Physics 11 and 12</li> <li>• Pre-Calculus 12 (grade of at least 73%)</li> </ul> <p><i>Recommended electives:</i></p> <ul style="list-style-type: none"> <li>• Technology Education 11 and 12: <ul style="list-style-type: none"> <li>• Drafting and Design</li> <li>• Industrial Design</li> <li>• Design and Communication</li> </ul> </li> <li>• Computer Science 11 and 12</li> <li>• Chemistry 12</li> <li>• Geography 12</li> <li>• Geology 12</li> <li>• Relevant dual credit courses where available</li> <li>• Relevant locally developed Board/ Authority Authorized (BAA) courses where available</li> <li>• Work Experience 12A and 12B</li> </ul>	<p><i>Recommended:</i></p> <ul style="list-style-type: none"> <li>• CPR</li> <li>• First Aid</li> <li>• WHMIS</li> <li>• Fall Protection</li> <li>• Confined Space Entry</li> </ul>	<p><i>First year includes:</i></p> <ul style="list-style-type: none"> <li>• Chemistry (CHEM)</li> <li>• Computer Science (CSC)</li> <li>• General engineering (ENGR)</li> <li>• Mathematics (MATH)</li> <li>• Physics (PHYS)</li> </ul> <p><i>Second year and on includes:</i></p> <ul style="list-style-type: none"> <li>• Civil Engineering (CIVE),</li> <li>• Geography (GEOG)</li> <li>• Mathematics (MATH)</li> <li>• Mechanical Engineering (MECH)</li> <li>• Statistics (STAT)</li> <li>• Two complementary studies electives that deal with central issues in the humanities or social sciences, such as: <ul style="list-style-type: none"> <li>• Political Science</li> <li>• History,</li> <li>• Anthropology</li> <li>• Philosophy</li> </ul> </li> </ul>	<p>Bachelor of Engineering Degree: Civil Engineering</p>



## **SAMPLE BUNDLE 4: DIRECT-TO-WORK ROUTE – CLASS 3 TRUCK DRIVER**

Truck drivers operate heavy trucks to transport goods and materials for a variety of industries, including construction.

They may be employed directly by construction, transportation, manufacturing, distribution or moving companies. They may also be self-employed. Truck drivers include shunters who move trailers to and from loading docks within trucking yards or lots.

In BC, driving any truck with more than two axles such as a dump truck, large tow truck or mobile truck crane, requires specialized training from an Insurance Corporation of BC (ICBC) approved training institution. It also requires a Class 3 commercial driver's licence, with a special endorsement allowing the operation of trucks equipped with air brakes.

Anyone applying for a Class 3 licence must be 18 or older and meet specific medical standards.

*For a full-privilege commercial licence, they must successfully pass:*

- Knowledge and road sign tests
- Pre-trip inspection and road-trip tests
- A driver's medical exam



See [ICBC](#) for more information.

Class 3 truck driver training courses in this province are offered through a number of public and private training institutions, including Thomson River University (TRU).

TRU's [CLASS 3 REGULAR DRIVER TRAINING](#) is a 30-hour course. It provides students who may have little or no experience on a manual transmission with the training they need to operate a commercial three-axle vehicle.

The course prepares students for the Class 3 ICBC road test.

## DIRECT-TO-WORK ROUTE – CLASS 3 TRUCK DRIVER

Recommended Electives	Career-preparation Certificates and Prerequisites	TRU's Class 3 Regular Truck Driver Training	Credential
<p><i>Recommended:</i></p> <ul style="list-style-type: none"> <li>• Relevant dual credit courses where available</li> <li>• Relevant locally developed Board/ Authority Authorized (BAA) courses where available</li> <li>• Work Experience 12A and 12B</li> </ul>	<p><i>Prerequisites:</i></p> <ul style="list-style-type: none"> <li>• Valid Class 5 driver's licence</li> <li>• Successful completion of an ICBC-certified air brakes course (offered at TRU and other institutions)</li> <li>• Valid Class 3 learner's permit with air brakes endorsement</li> </ul> <p><i>Recommended:</i></p> <ul style="list-style-type: none"> <li>• CPR</li> <li>• First Aid</li> <li>• WHMIS</li> <li>• Traffic Control (Flagperson)</li> </ul>	<ul style="list-style-type: none"> <li>• One-to-one training</li> <li>• 3 and 4 hour lessons (morning, afternoon or evening start times)</li> <li>• 20 to 28 hours per week training including:               <ul style="list-style-type: none"> <li>• mixed urban and rural driving</li> <li>• vehicle inspection training</li> <li>• airbrake training on Kenworth highway tractors</li> </ul> </li> <li>• TRU arranged ICBC road test</li> <li>• TRU supplied truck for the test</li> </ul>	<p>Class 3 Commercial Driver's Licence</p>





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