

## Course Outline

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Architectural and Engineering Technology  
Faculty of Science

ARET 1300 – 3 Credits  
Building Technology 1 (3,2,3)  
Winter, 2020

Located on the Tk'emlups te Secwepemc territory within the unceded traditional lands of Secwepemcúl'ecw  
(Secwepemc Nation)

**Instructor:** Dale R. Parkes

Office: TT 167

Office Hours: **Mon.** 10:30-12:30

**Wed.** 1:30-2:30

**Thr.** 9:30-10:30

**Fri.** 11:30-12:30

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### Calendar Description

This course introduces the student to basic platform framing commonly used in residential buildings that are regulated under Part 9 (Housing and Small Buildings) of the *British Columbia Building Code*.

### Course Description

This course provides the student with an introduction to architectural drawing practices, with emphasis on the principles of wood-frame construction.

Topics include: basic residential design theory; the design process; architectural working drawings; wood-frame construction; masonry construction, masonry veneer wall assemblies; roofing materials and systems; stairs, ramps, handrails and guards; references to *B.C. Building Code Part 9*.

The project will involve basic planning, working drawings and detailing of a single-family residence, with studies and applications of the *British Columbia Building Code*.

### Educational Objectives/Outcomes

On completion of this course, the students will be able to:

1. Produce a full set of drawings (site plan, floor plans, building sections, elevations, wall sections and details) for a single-family residence, applying pertinent sections of Part 9 of the British Columbia Building Code;
2. Apply basic detailing requirements of wood-frame construction;
3. Identify and detail masonry veneer walls with wood stud backup system;
4. Describe and apply the theory associated with wood-frame construction.

### Prerequisites

ARET 1100, ARET 1110, ARET 1120, ARET 1200

## Texts/Materials Required

1. *ARET 1300 Building Technology 1*, TRU Manual.
2. *British Columbia Building Code*, current edition.
3. *Canadian Wood-Frame House Construction*, Canada Mortgage and Housing Corporation, current edition.

## Student Evaluation

|                               |            |
|-------------------------------|------------|
| Drawing Projects .....        | 55%        |
| Assignments and quizzes ..... | 15%        |
| Mid-term.....                 | 15%        |
| Final Exam .....              | <u>15%</u> |
| Total .....                   | 100%       |

## Course Topics

1. Introduction to Architectural Drafting:
  - a. General characteristics of architectural design and drafting processes;
  - b. Office organization and production procedures;
  - c. Architectural working drawings and specifications (general content and presentation.)
2. Architectural Drawing Standards:
  - a. Architectural symbols and conventions;
  - b. Architectural and metric scales;
  - c. Line types and line weights used in architectural drafting;
  - d. Dimensioning practice.
3. Elements of Residential Construction:
  - a. Footings, foundations and slabs;
  - b. Floor framing;
  - c. Wall framing;
  - d. Ceiling and roof framing;
  - e. Pre-assembled roof trusses;
  - f. Roof coverings;
  - g. Door types and installation;
  - h. Window types and installation;
  - i. Stairs, ramps, handrails and guards;
  - j. Masonry construction;
  - k. Chimneys and flues;
  - l. Masonry fireplaces;
  - m. Flashing.
4. Use of Span Tables:
  - a. Maximum spans for wood floor joists;
  - b. Maximum spans for roof joists and rafters;
  - c. Maximum spans for built-up wood floor beams;
  - d. Maximum spans for steel and glued-laminated beams;
  - e. Maximum spans for I-joists, Microlam® and Parallam® structural members;
  - f. Maximum clear spans between end supports for trusses.

5. British Columbia Building Code:
  - a. British Columbia Building Code – overview;
  - b. British Columbia Building Code - Part 9.
  
6. Residential Design and Working Drawings:
  - a. Main Floor Plan:
    - Planning requirements;
    - Structural requirements;
    - Cabinets, fixtures and services;
    - Stair design and construction;
    - Fireplace and chimney construction;
  - b. Foundation Plan and Details:
    - Wall and footing locations and sizes;
    - Reinforcing requirements;
    - Drainage requirements;
    - Crawlspace ventilation requirements;
    - Beam sizes.
  - c. Building Sections and Elevations:
    - Height requirements;
    - Stair and headroom dimensions;
    - Exterior finishes.
  - d. Wall Sections:
    - Foundations;
    - Floor assemblies;
    - Wall assemblies;
    - Ceiling and roof assemblies;
    - Insulation, vapour barriers and air barriers - door and window installation details.
  - e. Stair Details:
    - Stair dimensions;
    - Landings, guards and railings.
  - f. Site Plan:
    - Building orientation;
    - Required zoning setbacks.
    - Site and building elevations;
    - Site works.

### **Methods for Prior Learning Assessment & Recognition**

Students applying for credit based on prior assessment and recognition must consult with the department chairperson. In general, students who have taken a similar course that covers at least 80 percent of the course material within the last five (5) years will receive advanced credit. Students who are seeking credit based on life experience will be expected to demonstrate their comprehension of the course material to the satisfaction of the department chairperson.

### **Use of Technology**

The current release AutoDesk® software will be used in the planning and production of architectural working drawings.

**Relevant policies:**

TRU policy on attendance: [https://www.tru.ca/\\_shared/assets/Policy\\_ED\\_03-135351.pdf](https://www.tru.ca/_shared/assets/Policy_ED_03-135351.pdf)

“In the case of deficient attendance without cause, a student may, on recommendation of the instructor to the instructor’s Dean or Chairperson, be withdrawn from a course.”

TRU policy on Academic Integrity: [https://www.tru.ca/\\_shared/assets/Student\\_Academic\\_Integrity\\_Policy\\_ED\\_5-036334.pdf](https://www.tru.ca/_shared/assets/Student_Academic_Integrity_Policy_ED_5-036334.pdf)

“Thompson Rivers University (TRU) students are required to comply with the standards of academic integrity set out in this policy. It is the responsibility of TRU employees to take reasonable steps to prevent and to detect acts of academic dishonesty.

It is an instructor's responsibility to confront a student when such an act is suspected and to take appropriate action if academic dishonesty, in the opinion of the instructor, has occurred.

Members of the TRU community, including students, engaged in research or scholarship, are also required to comply with the University’s policy on Integrity in Research and Scholarship ED 15-2.”

Late submissions of assignments:

Late assignments will be accepted in this class, but a penalty of 10% per calendar day will be subtracted from the total grade until the assignment is handed back to the class. Once the assignment is handed back, any outstanding assignments will receive a grade of zero. Late assignments will be accepted without penalty for medical or other reasons approved by the instructor.

Photography:

No photos or videos are to be taken in the classroom or lab without the prior approval of the instructor. Students violating this policy may be asked to leave the classroom.