

SECTION C: PLANNING FOR INSTRUCTION

CTS provides increased opportunity for junior and senior high schools to design courses based on the needs and interests of their students and the circumstances within the school and community. Some strands may be appropriately introduced at the junior high school level. Other strands are more appropriately introduced at the senior high school level or to Grade 9 students. Refer to this section for recommendations regarding the Legal Studies strand, or the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* for a summary of the recommended grade levels for each strand.

PLANNING FOR CTS

Defining Courses

Schools determine which strands and modules will be offered in a particular school, and will combine modules into courses.

Each module was designed for approximately 25 hours of instruction. However, this time frame is only a guideline to facilitate planning. The CTS curricula are competency based, and the student may take more or less time to gain the designated competencies within each module.

A course will usually consist of modules primarily from the same strand but, where appropriate, may include modules from other strands. Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 4) for more information on course names and course codes.

Module selection and sequencing should consider:

- prerequisite(s)
- supporting module(s) (other CTS modules that may enhance the learning opportunity if offered with the module)
- module parameters
 - instructional qualifications, if specialized
 - equipment and facility requirements, if specialized.

The module parameters are defined for each module in Sections D, E and F of this Guide.

Degree of Flexibility

The CTS program, while designed using the modular structure to facilitate flexible timetabling and instructional delivery, does not mandate the degree of flexibility a school or teacher will offer. The teacher and school will determine the degree of flexibility available to the student. Within the instructional plan established by the school, the student may:

- be given the opportunity to progress at a rate that is personally challenging
- have increased opportunity to select modules that develop competencies he or she finds most relevant.

Integrating Basic Competencies

The basic competencies relate to managing learning and resources, problem solving and innovation, communicating effectively, working with others and demonstrating responsibility are developed throughout the CTS program, and are within each module.

Assessment of student achievement on the basic competencies is integrated throughout the other module learner expectations. Refer to Section G (Assessment Tools) of this Guide for the description of student behaviours expected at each of the four developmental stages defined for the basic competencies.

Assessment of basic competencies could include input and reflection involving the student, teacher(s), peers and others. Description of the observed behaviour could be provided through a competency profile for the module. Positive, ongoing interaction between the student and teacher will support motivation for student growth and improvement.

Assessing Student Achievement

Assessing student achievement is a process of gathering information by way of observations of process, product and student interaction.

Where appropriate, assessment tools have been defined to assist the teacher and student in the assessment. Refer to Section G (Assessment Tools) of this Guide for copies of the various tools (worksheets, checklists, sample questions, etc.).

A suggested emphasis for each module learner expectation has also been established. The suggested emphasis provides a guideline to help teachers determine time allocation and/or the appropriate emphasis for each MLE and student grade.

Recognizing Student Achievement

At the high school level, successful demonstration of the exit-level competencies in a module qualifies the student for one credit. Refer to Section A of this Guide for more detailed information about how curriculum and assessment standards are defined in CTS. Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 12) for more information on how student achievement can be recognized and reported at the school and provincial levels.

Portfolios

When planning for instruction and assessment, consider a portfolio as an excellent tool to provide evidence of a student's effort, progress and achievement. Portfolios will aid students in identifying skills and interest. They also provide the receiving teacher, employer and/or post-secondary institution proof of a student's accomplishments. The make-up and evaluation of the portfolio should be a collaborative agreement between the student and teacher.

Resources

A comprehensive resource base, including print, software and audio-visual, has been identified to support CTS strands. It is intended that these resources form the basis of a resource centre, encouraging teachers and students to access a wide selection of resources and other information sources throughout the learning process. Unless otherwise noted, these resources are considered to be suitable for both junior and senior high school students.

Authorized resources may be obtained from the Learning Resources Distributing Centre or directly from the publisher or distributor. Refer to Section I (Learning Resource Guide) of this Guide for the complete resource list including curriculum correlations and resource annotations. Additional sources refer to noncommercial or government agencies that offer resources that may be of assistance in this strand.

Student Learning Guides

In addition to the resources, sample Student Learning Guides are available (refer to Section J of this Guide). These samples, designed for individual student or small group use, provide an instructional plan for selected modules and include the following components:

- Why take this module?
- What are the entry-level competencies?
- What are the exit-level competencies?
- What resources may be accessed?
- What assignments/activities must be completed?
- What are the timelines?
- How will the final mark be calculated?

Sample Student Learning Guides have been developed for the following modules in Construction Technologies:

- CON1010 Basic Tools & Materials
- CON2010 Site Preparation
- CON3040 Stair Construction.

Community Resources

The community can become a major stakeholder and effective partner in the learning process. The use of community members and resources should be integrated into course planning. Business, industry and government agencies offer a wide range of services and resources, as do local clubs, service groups and institutions. When planning for the use of community resources, teacher should ensure that related presentations, activities and work settings:

- are consistent with student knowledge and skill levels
- demonstrate sound pedagogy
- are exemplary of approved health and safety standards
- provide a balanced approach to curriculum topics and related issues.

Off-Campus Excursions

Field excursions are also recommended and should be an important part of teaching and learning throughout the Construction Technologies stands. Safety must be a prime consideration in planning off-campus learning experiences. Both teachers and students should engage in activities commensurate with their level of training and ability. Adequate instructional support, guidance and supervisor must be provided at all times. Local jurisdiction and school policies must be understood and observed by principals, teachers, parents, supervisors and students.

PLANNING FOR CONSTRUCTION TECHNOLOGIES

The following suggestions are provided to assist teachers, school and school system administrators as they plan to deliver modules from the Construction Technologies strand.

Teaching Strategies

A practical “hands-on” approach, where theory and practice are developed in concert with one another, is encouraged throughout Construction Technologies. When teaching content in an applied setting, lecture-type classes should be avoided as much as possible. Teachers should attempt to integrate theory and practice by engaging students in practical experiences. Students who work on meaningful assignments and useful projects are more easily motivated to develop the required knowledge skills and attitudes outlined in each module. Refer to the *Career & Technology Studies Manual for Administrators, Counsellors and Teachers* (Appendix 9) for additional teaching strategies.

Health and Safety and Related Legislation

The health and safety of students and teachers is protected by law. Every worker has the right to be protected from injury and needs to know how to safely use, store and transport hazardous materials. Teachers of Construction Technologies must ensure that students are working in a safe and healthy environment. Students should therefore be encouraged to work in a safe manner and identify and report existing and potential hazards within the learning environment. Accident prevention is one of the most important concepts a student learns in Construction Technologies strands.

Teachers of Construction Technologies modules should also be aware of the issues address in the *Occupational Health and Safety Act*, Worker's Compensation regulations and local fire and building codes related to this strand.

Off-site Risk Management

Safety and risk management involves exercising situation-specific judgement throughout the course of an off-campus excursion. Judgement is the product of experience, and may include recognizing factors such as dangers imposed by equipment, a decline in physical strength, or a more challenging task. Many of the hazard recognition skills can be taught in the classroom in the preparation stage.

A significant aspect of off-site risk management is group management. Teachers can exercise appropriate group management strategies by focusing attention on:

- pacing and observation distance, including speed of travel, rest stops, distance travelled and maintaining safe distance for observations
- group control, including position of leader, regrouping procedures, signal systems and buddy systems
- the establishment of group rules and norms
- clearly defined task allocations for each student
- objective hazard recognition on the site, including machinery and equipment.

For additional information on health and safety standards in CTS, refer to the *CTS Manual for Administrators, Counsellors and Teachers* (Appendix 13).

Instructional Qualifications

Responsibility for instructional planning and delivery of courses in Construction Technologies will be assumed by Alberta certified teachers. For additional teacher qualifications, refer to the module parameters in each module for the formalized training and certificates requirements for each module. It should be noted that where modules or portions of modules require special instructional qualification, these modules or parts of modules can be delivered off-campus by other qualified individuals.

Many of the competencies developed in Construction Technologies relate directly to a number of recognized trade areas. The *Alberta Apprenticeship and Training Act* clearly outlines who can or cannot work in compulsory and optional trade areas. The act states: *A person shall not work in a compulsory or optional trade area unless that person:*

- a. holds a trade certificate*
- b. is an apprentice in the specified trade*
- c. is authorized under Section 23 to work or perform one or more tasks in the trade*
- d. is a student in a student work training program in that trade*

In addition, in an optional certificated trade area, a person who does not hold a trade certificate, may work in or perform one or more tasks, activities or functions if the employer is satisfied that the person possesses the skills and knowledge in the trade as would be expected from one who would be in possession of a trade certificate.

It should also be noted that the *Act* spells out the ratio of journeyman to apprentices, which is a minimum of one apprentice to each journeyman employed. This ruling would apply specifically to Registered Apprenticeship Program.

Selecting Modules

Course planning should take into consideration module sequences that link with both physical and human resources present in the school and community.

The scope and sequence chart in Section B of this Guide provides an overview of the Construction Technologies modules, indicating prerequisites and theme areas. In addition, a brief description of each module can be found in this section following the scope and sequence chart.

Construction Technologies in Junior High

Most introductory level modules may be offered to junior high school students. Since resources and expertise will vary in each school and community, it is important to assess potential support networks before selecting specific modules and module sequences.

The number of modules will vary according to the time available throughout Grades 7, 8 and 9 as outlined below:

Time Available	Modules
25 hours	Basic Tools & Materials
50 hours	<i>add to the previous module</i> Building Construction
75 – 100 hours	<i>add one or two of the following:</i> Project Management Solid Stock Construction Turning Operations Mold Making & Casting

Where appropriate, junior high school students may also become involved in intermediate level modules, particularly in the Manufacturing theme.

Construction Technologies in Senior High

Depending on the interest and intent of the students, modules in Construction Technologies may be clustered in a variety of ways. Students with a general interest in the strand may wish to sample modules from the various themes, while those with specific interests may focus on a cluster of modules related to welding, sheet metal, foundry or machining as outlined in the Scope and Sequence chart.

As in all CTS strands, students will identify, explore and prepare for future career opportunities. It is recommended that course planning include the integration of relevant career investigations throughout each module, rather than in a singular or isolated study. Career profiles, interviews and job shadowing will acquaint students with the many technical and professional careers associated within the field of fabrication.

Students intending to continue their studies in a post-secondary institution and/or through apprenticeship should be aware of the post-secondary and apprenticeship linkages referred to in Section H of this Guide. For example, basic to most trade-related programs is the need to have

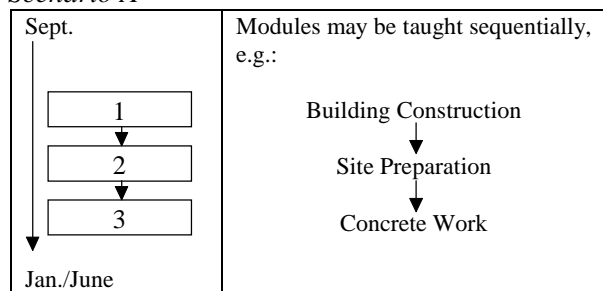
well-developed print reading and hand-tool skills. Such considerations will affect module selection.

Before selecting modules, teachers should check the module parameters outlined in each module (see Sections D, E and F of this Guide).

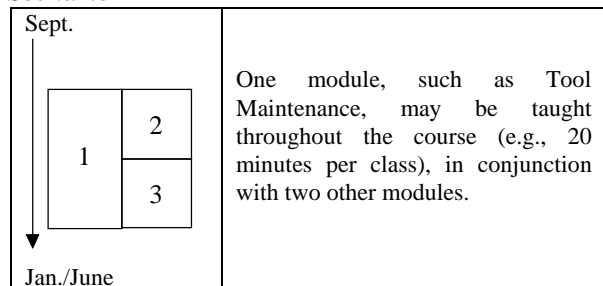
Module Blocking and Sequencing

Modules can be delivered sequentially, concurrently or combined as 3-, 5- or 6-credit courses as outlined below:

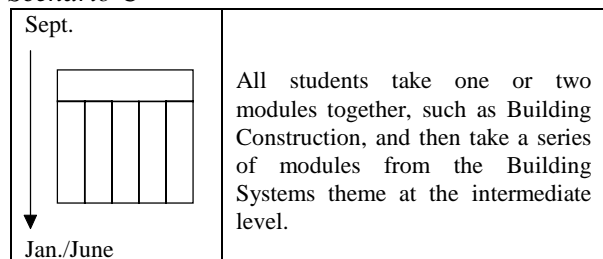
Scenario A



Scenario B

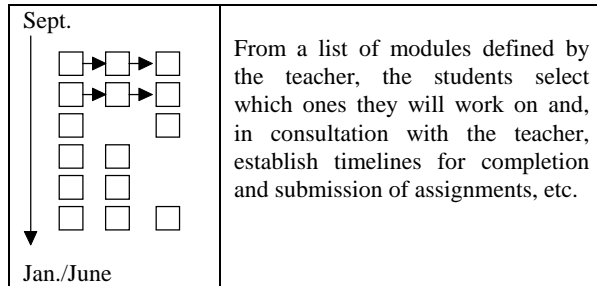


Scenario C



Teachers can also allow students to progress at a rate that is personally challenging; e.g.:

Scenario D



Identifying Linkages

Section H of this Guide describes some possible linkages between the Construction Technologies strand and:

- other CTS strands
- complementary programs such as art and drama
- core programs, e.g., mathematics, science, social studies and language arts
- off-campus programs.

Note that project modules from the Career Transitions strand may be combined with modules from the Construction Technologies strand to provide increased opportunity for students to develop expertise and refine their competencies.

Project modules are **not** designed to be offered as distinct courses and should **not** be used to extend Work Experience 15, 25 and 35 courses.

Improving Smooth Transitions to the Workplace and/or Post-secondary Programs

As in other CTS strands, students will assess and prepare for future career opportunities. It is recommended that program planning include the integration of relevant career information and experiences. Through the development of career-specific skills, occupational profiles and on-site activities, students become aware of the training requirements and career opportunities related to the fabrication sector of the economy.

Refer to Section H of this Guide for potential transitions students may make into:

- the workplace
- related post-secondary programs or other avenues for further learning.