



**CAREER &
TECHNOLOGY
STUDIES**

**Manual for Administrators,
Counsellors and Teachers**

Appendix 2:

**Defining CTS Learning
Environments—Strand and
Course Parameters**

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The information and recommendations provided in this appendix do not in any way replace the collaboration and professional advice required for establishing effective learning environments at school and school system levels.

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PURPOSE

This appendix is designed to assist school and school system administrators and teachers to plan for the delivery of CTS in their schools and communities. It provides information regarding suitable learning environments for each CTS strand and course, and guidelines for developing CTS facilities. Schools and school systems may use this information to:

- decide which strands and courses to make available to students
- organize for learning by:
 - selecting appropriate on-campus and off-campus learning sites
 - scheduling facilities and equipment to maximize student access to courses
 - identifying program components or entire courses that may be effectively delivered through distance education technologies
- plan for change through:
 - upgrades to present facilities and equipment
 - the design of new facilities
 - the purchase of new equipment.

STRAND AND COURSE PARAMETERS★

A set of strand and course parameters are defined for each of the following CTS strands:

- Agriculture
- Communication Technology
- Community Health
- Construction Technologies
- Cosmetology Studies
- Design Studies
- Electro-Technologies
- Energy and Mines
- Fabrication Studies
- Fashion Studies
- Foods
- Forestry
- Information Processing
- Logistics
- Management and Marketing
- Mechanics
- Wildlife

Refer to Attachment 1:
Strand and Course
Parameters.

Each set of parameters describes key features of the learning environment that need to be in place to support effective learning. The parameters provide:

- general information regarding facilities and equipment, safety considerations, instructional qualifications and credentialling opportunities for each strand
- specific requirements and recommendations regarding facilities, equipment, instructional qualifications and credentialling for each course.

★Includes only those CTS strands that require specialized facilities, equipment and/or instructional qualifications.

The strand and course parameters apply to courses delivered in the school and through off-campus learning. In general, the parameters identify more requirements for course delivery at the intermediate- and advanced-level than at the introductory-level.

FACILITIES AND EQUIPMENT

Specialized facilities and equipment are identified for courses when their use is recommended for:

- delivering one or more of the learner outcomes
- maintaining appropriate levels of safety
- providing credentialling opportunities or articulation with post-secondary training programs.

In some instances particular facilities and equipment are recommended as necessary to meet the outcomes of the course, while in other instances they are identified as optional in providing student access to supportive learning environments. Where appropriate, facility and equipment requirements for offering commercial programs are also identified, as in the Foods strand.

SAFETY CONSIDERATIONS

Refer to Appendix 3:
Addressing Health and Safety
in CTS.

General guidelines for promoting a safe learning and teaching environment are also provided through the strand and course parameters. Safety guidelines focus attention on safety awareness and the demonstration of safe practices, and in some instances identify specific elements that need to be in place to support safe learning.

Recommendations regarding safety and risk management are general in nature, and do not in any way replace the expert advice required in specific circumstances.

INSTRUCTIONAL QUALIFICATIONS

Instructional qualifications over and above a professional teaching certificate are identified for courses that require special technical expertise or special safety precautions. Instructional qualifications required may include:

- a specific credential granted by business, industry, government or a community organization; e.g., journeyman certificate, Alberta Best Trainer, First Aid certificate
- evidence of successful completion of a specialized training program or equivalent; e.g., a workshop/course from a technical institute/college/university, a session at the CTS Leadership Seminar.

In some instances the instructional qualifications are a requirement for course delivery, such as when learning involves high risk to student safety. In other instances they are recommended for specific circumstances, such as when providing customer services or in qualifying students to obtain a credential.

CREDENTIALLING OPPORTUNITIES

Refer to *Appendix 5: Planning Ahead—CTS Transitions into Post-Secondary and the Workplace.*

The course parameters also identify courses that offer students the opportunity to earn partial or complete credentials recognized in the workplace or by post-secondary institutions. Credentials provide written evidence by agencies external to the school of a student's qualifications with respect to particular competencies.

Credentialling opportunities are not limited to those identified through the course parameters, and depend on resources available in local and neighbouring communities. Schools may choose to use this information as a basis for further research and for planning regarding credentials they wish to offer students.

DEVELOPING FACILITIES TO SUPPORT CTS

Developing CTS facilities is a collaborative process involving teachers, administrators, students and the community. Decisions regarding facilities and equipment are made on the basis of student need, knowledge of the curriculum and further education/workplace opportunities.

Those involved in planning for the construction of new facilities or renovations to existing facilities should contact the School Facilities Branch for guidelines on developing facilities to support CTS.

PLANNING PRINCIPLES

Refer to Attachment 2: *Developing a Facility Improvement Plan.*

When planning CTS facilities at the school and school system level, consideration should be given to:

- the safety of students and staff and care of the environment
- facilities and space that support the achievement of desired learner outcomes
- facilities that are flexible and adaptable to accommodate change
- facilities that accommodate a variety of learning styles and teaching methodologies
- extending school programs and courses through the use of community partnerships and off-campus learning
- demographic trends regarding long-term use of facilities.

GUIDELINES FOR NEW CONSTRUCTION AND MODERNIZATION

As teaching and learning in CTS is student centered and involves a broad base of resource support, facilities should be adapted to meet a range of student and community needs. Instructional spaces should become larger and more flexible. Larger spaces can be subdivided into work stations, research centres, computer centres and seminar rooms, thus allowing for individual and group work across a range of instructional areas in CTS. As schools expand their delivery of CTS, students may also spend more time outside the physical boundaries of the school, accessing resources found in the community.

Refer to Attachment 3:
Sample Checklist for Facility
Planning.

The following processes are recommended when planning for new construction or modernization projects at the school level:

- identify specific educational outcomes to be achieved, ensuring alignment with the school/school system mission, needs of students and local resources
- determine which CTS strands and courses are to be offered by or in the school
- inventory existing space within the school and community that can be used, as it exists, to achieve educational outcomes and deliver CTS strands and courses
- identify new space that may be required to achieve educational outcomes and deliver CTS strands and courses
- consider the proximity of instructional spaces to one another and how they are likely to be used by teachers and students
- determine millwork, furniture, equipment and services required to deliver the learner outcomes
- identify ambient features important to the learning environment.

CTS IN STANDARD CLASSROOM SETTINGS

Refer to Attachment 4: CTS
without Labs.

While many CTS courses cannot be delivered effectively unless the student has access to hands-on learning, either in a lab or worksite setting, others are more theory based and can be readily delivered in standard classroom settings. CTS courses suitable for delivery in a standard classroom assume access to appropriate learning and teaching resources, and may also require that students:

- gain practical experiences through participation in field trips
- use computer simulations and other multimedia software.

EXPANDING STUDENT ACCESS TO CTS

Student access to the CTS program can be expanded considerably through the efficient use of facilities and equipment and taking advantage of alternative delivery strategies, on- and off-campus. The following questions are provided to provoke thought about how course delivery might be expanded.

USE OF FACILITIES AND EQUIPMENT

What courses are presently being offered?

When making the transition into CTS, it may be possible that a particular facility could support the delivery of courses from strands other than those currently being considered.

Which additional courses could be offered:

- in this facility?
- in an adjacent facility?

Is there adequate technical support?

Teachers who are extensively involved in setting up, maintaining and repairing the technology are often unable to invest sufficient time in organizing for learning, working directly with students and assessing their competencies.

Are there alternative facilities and equipment available:

- in the community, from business, industry, central office, and the like?
- through neighboring schools and school systems, post-secondary institutions, and other partners?

USE OF DISTANCE EDUCATION TECHNOLOGY

The use of information, communication and multimedia technologies can be another effective means of expanding access to a range of relevant CTS courses for all students.

Could distance education technologies be used to:

- help students learn difficult concepts?
- deliver instruction in new areas where there may be a lack of teacher expertise?

While distance education can be a valuable alternative for expanding student access to some CTS courses, care is needed in selecting courses to be delivered by these technologies. Many CTS courses focus on the development of workplace competencies and require students to link theory with practice in real-life contexts. *These courses cannot be effectively delivered unless the student has access to hands-on learning, either in a lab or worksite setting, and appropriate levels of technical expertise.*

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