COMMUNICATIONS TECHNOLOGY

Communications technology affects all aspects of our lives in a fundamental way. Having an understanding of communications technology is an important part of being both technologically and media literate.

Communications technology courses are project-based and will provide students with opportunities to acquire the knowledge and skills required to design, use, and manage electronic, live, recorded, and graphic communications systems, specifically in the areas of TV, video, and movie production; radio and audio production; print and graphic communications; photography; digital imaging; broadcast journalism; and interactive new media and animation. These courses will help students understand the effects of communications technology on the environment and society. Students will also examine standards and regulations governing communications technology, health and safety issues, careers in the field, and the importance of lifelong learning, and will learn about the Essential Skills and work habits that are important for success in careers in the field.

The list of approved emphasis areas for communications technology can be found at www.edu.gov.on.ca/eng/curriculum/secondary/teched.html.

- Courses in technological education are suitable for use in cooperative education programs and in connection with other forms of experiential learning as well as in programs such as the Specialist High Skills Major (SHSM). For more information, see pages 43–44 of this document.
- For policy guidelines pertaining to multiple-credit courses and emphasis courses, see pages 17–18 of this document.

Communications Technology, Grade 11

University/College Preparation **TGJ3M**

This course examines communications technology from a media perspective. Students will develop knowledge and skills as they design and produce media projects in the areas of live, recorded, and graphic communications. These areas may include TV, video, and movie production; radio and audio production; print and graphic communications; photography; digital imaging; broadcast journalism; and interactive new media. Students will also develop an awareness of related environmental and societal issues, and will explore college and university programs and career opportunities in the various communications technology fields.

Prerequisite: None

A. COMMUNICATIONS TECHNOLOGY FUNDAMENTALS

OVERALL EXPECTATIONS

By the end of this course, students will:

A1. demonstrate an understanding of the core concepts, techniques, and skills required to produce a range of communications media products and services;

A2. demonstrate an understanding of different types of equipment and software and how they are used to perform a range of communications technology operations and tasks;

A3. demonstrate an understanding of technical terminology, scientific concepts, and mathematical concepts used in communications technology and apply them to the creation of media products;

A4. demonstrate an understanding of and apply the interpersonal and communication skills necessary to work in a team environment.

SPECIFIC EXPECTATIONS

A1. Core Concepts, Techniques, and Skills

By the end of this course, students will:

A1.1 demonstrate an understanding of design principles *(e.g., balance, rhythm, proportion, contrast, and flow)* and elements *(e.g., colour, line, space, form, and texture)* and their role in creating effective media products *(e.g., use of colour in photography, balance in a layout, continuity in an audio or video production, proportion and contrast in typography)*;

A1.2 demonstrate an understanding of the concepts *(e.g., video and photography composition, appropriate audio levels, audio and video continuity, animation fluidity, balanced layout, basic lighting)* and creative techniques *(e.g., lighting, image manipulation and editing, composition and framing)* required to produce effective media products or services;

A1.3 identify the components of a communications system *(e.g., cameras, lenses, filters, editing software, printer in a photographic system; microphones, connectors, mixers, recorders in an audio system; desktop publishing software and platesetter in a computer-to-plate system)* and describe their functions;

A1.4 identify different types of communications software *(e.g., software for photo, audio, and video editing, animation, page layout, web page creation, and computer graphics)*, and describe how they are used to produce communications technology products and services.

A2. Equipment and Software

By the end of this course, students will:

A2.1 identify the components and controls of different types of communications devices *(e.g., lens, mirror, sensor, command dial, mode selector in a digital SLR; plate cylinder, blanket cylinder, impression cylinder, ink keys in an offset press)* and describe their functions;

A2.2 use application software and/or equipment competently to perform a variety of communications tasks *(e.g., inputting, manipulating, and outputting sounds and images; embedding and linking graphics in an interactive portable document; posting media on the Internet)*.

A3. Technical Terminology and Scientific and Mathematical Concepts

By the end of this course, students will:

A3.1 demonstrate an understanding of communications technology terms, and use them correctly in oral and written communication *(e.g., kerning, framing, key frame, jump cut, peaking, video switch-*

ing, audio levels, dissolve, resolution, masking, file management, storyboard);

A3.2 demonstrate a basic understanding of scientific concepts that relate to processes and technologies used in communications technology *(e.g., light and colour theory, acoustic theory, persistence of vision, sensor operation);*

A3.3 use appropriate formulas and calculations to solve problems in pre-production, production, and post-production work *(e.g., calculating frame rates, timelines, resolutions, file compression ratios, scaling).*

A4. Teamwork

By the end of this course, students will:

A4.1 explain the benefits of listening, encouraging participation, and sharing information, resources, and expertise when working in a team setting;

A4.2 describe and apply concepts and techniques that facilitate effective collaboration in a team environment *(e.g., cooperative discussion, conflict resolution techniques, providing opportunities for all to participate, listening, respecting the ideas of others, constructive criticism).*

B. COMMUNICATIONS TECHNOLOGY SKILLS

OVERALL EXPECTATIONS

By the end of this course, students will:

B1. apply project management techniques to develop communications technology products effectively in a team environment;

B2. apply a design process or other problem-solving processes or strategies to meet a range of challenges in communications technology;

B3. create productions that demonstrate competence in the application of creative and technical skills and incorporate current standards, processes, formats, and technologies.

SPECIFIC EXPECTATIONS

B1. Project Management

By the end of this course, students will:

B1.1 describe the roles that are required for effective management of team-based projects *(e.g., scheduler, budget controller, secretary/coordinator)* and apply coordination techniques *(e.g., meeting regularly to review progress and make decisions, forming task groups to deal with special issues)*;

B1.2 use a variety of planning techniques and tools *(e.g., research, design briefs, task lists, scripts, mock-ups, storyboards, site maps, project-planning software)* when creating plans for communications projects;

B1.3 use appropriate organizational and time-management tools *(e.g., student planners, journals, electronic organizers, organizational software)* throughout the project to manage resources and ensure that project deadlines are met;

B1.4 use a variety of techniques *(e.g., comparing outcomes to specifications)* to evaluate the results of the project management process.

B2. Problem Solving

By the end of this course, students will:

B2.1 define a problem or challenge precisely and in adequate detail, taking into account relevant contextual or background information;

B2.2 define project objectives and performance criteria precisely and in adequate detail, and identify constraints such as cost, time, or technology restrictions that will limit design or problem-solving options;

B2.3 use a variety of information sources and research techniques to help identify possible solutions *(e.g., Internet and library searches, checking manuals and other printed materials, consulting experts)*;

B2.4 use idea-generating techniques such as brainstorming or clarification techniques such as situation analyses to help identify possible solutions;

B2.5 use charts or hand-drawn sketches to organize sequences, clarify relationships, or compare alternatives;

B2.6 evaluate possible solutions to identify those that most effectively meet the objectives and criteria within the existing constraints.

B3. Process and Production Skills

By the end of this course, students will:

B3.1 use appropriate procedures to set up and operate media production equipment *(e.g., audio, video, or graphic systems; studio lighting systems; electronic pre-press equipment; printing systems)*;

B3.2 use appropriate software applications *(e.g., computer graphics, photo editing, video editing)* to complete a variety of tasks associated with designing communications media;

B3.3 demonstrate an understanding of industry guidelines, conventions, rules, and standards and apply them to the production of communications media products *(e.g., standards for legibility, type measurement, and letter spacing in graphic design; video resolution standards [standard versus high definition] and colour standards [NTSC versus ATSC] for TV; colour proofing guidelines for printing; resolution, readability, file size, browser compatibility, and accessibility standards for websites)*.

C. TECHNOLOGY, THE ENVIRONMENT, AND SOCIETY

OVERALL EXPECTATIONS

By the end of this course, students will:

C1. describe the impact of current communications media technologies and activities on the environment and identify ways of reducing harmful effects;

C2. demonstrate an understanding of the social effects of current communications media technologies and the importance of respecting cultural and societal diversity in the production of media projects.

SPECIFIC EXPECTATIONS

C1. Technology and the Environment

By the end of this course, students will:

C1.1 describe the impact of current communications media technologies on the environment *(e.g., increased energy consumption, disposal of electronic equipment and batteries, noise pollution, electromagnetic interference, RF pollution, chemical and other wastes associated with paper production)*;

C1.2 describe environmentally responsible practices that can be used to reduce the impact of communications technologies on the environment *(e.g., recycling or finding new uses for obsolete equipment, disposal of batteries as toxic waste, using energy-efficient equipment and turning off equipment that is not being used, recycling of toner cartridges, use of recycled paper)*.

C2. Technology and Society

By the end of this course, students will:

C2.1 demonstrate an understanding of social standards and cultural sensitivity and use appropriate and inclusive content, images, and language in communications media productions *(e.g., including people from different races, cultures, and backgrounds in media productions; portraying minority groups with respect and sensitivity; avoiding sexism, homophobia, and cultural or racial bias)*;

C2.2 describe the effects of current trends in communications technology *(e.g., interactivity, on-demand programming, user-generated content, specialty channels such as the Aboriginal Peoples' Television Network)* on society and different cultures within society.

D. PROFESSIONAL PRACTICE AND CAREER OPPORTUNITIES

OVERALL EXPECTATIONS

By the end of this course, students will:

D1. demonstrate an understanding of and apply safe work practices when performing communications technology tasks;

D2. demonstrate an understanding of and adhere to legal requirements and ethical standards relating to the communications technology industry;

D3. identify careers in communications technology for which postsecondary education is required or advantageous, and describe college and university programs that prepare students for entry into these occupations.

SPECIFIC EXPECTATIONS

D1. Health and Safety

By the end of this course, students will:

D1.1 describe industry hazards *(e.g., ergonomic hazards, electrical hazards, mechanical hazards)*, identify sources of hazard information *(e.g., Workplace Hazardous Materials Information System [WHMIS], Passport to Safety)*, and describe methods of preventing accidents *(e.g., safety audits, regular retraining in safety procedures)*;

D1.2 demonstrate an understanding of and apply safe work practices when performing communications technology tasks *(e.g., use of safe procedures for lighting set-up, cable management, computer operation, and ladder use; use of ergonomic equipment and practices)*.

D2. Professional Standards and Ethics

By the end of this course, students will:

D2.1 demonstrate an understanding of and adhere to laws applicable to creative content *(e.g., laws governing copyright and other creative property rights, domain names, privacy, defamation)*;

D2.2 describe privacy and security issues related to the use of communications media technology;

D2.3 demonstrate an understanding of and adhere to ethical standards relating to the creation of media products *(e.g., restrictions on appropriation of content and image manipulation)* and to their dissemination *(e.g., honesty in advertising)*.

D3. Career Opportunities

By the end of this course, students will:

D3.1 describe careers in communications technology for which postsecondary education is required or advantageous, and identify the qualifications required for entry into these occupations;

D3.2 describe university and college programs that prepare students for careers in communications technology, and identify the qualifications required for entry into these programs;

D3.3 identify groups and programs that are available to support students who are interested in pursuing non-traditional career choices in the communications technology industry *(e.g., mentoring programs, virtual networking/support groups, specialized postsecondary programs, relevant trade/industry associations)*;

D3.4 demonstrate an understanding of and apply the Essential Skills that are important for success in the communications technology industry, as identified in the Ontario Skills Passport *(e.g., reading text, oral communication, job task planning and organizing, problem solving, finding information)*;

D3.5 demonstrate an understanding of and apply the work habits that are important for success in the communications technology industry, as identified in the Ontario Skills Passport *(e.g., working safely, teamwork, reliability, initiative, customer service, entrepreneurship)*;

D3.6 maintain an up-to-date portfolio that includes pieces of work and other materials that provide evidence of their skills and achievements in communications technology *(e.g., work logs, skills checklist, photographs, digital media, sketches, drawings)*, and explain why having a current portfolio is important for career development and advancement.