Bachelor of Arts
in
Educational Studies and Digital Technology (ESDT)

Handbook

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The BA ESDT Handbook outlines priority areas of consideration for the BA in Educational Studies and Digital Technology (ESDT) program which leads to an Honours Baccalaureate degree.

1. Graduation Competencies

Graduates of Bachelor degree programs at all Ontario universities work toward graduation competencies. These expectations also apply to BA ESDT students at Ontario Tech University. The provincial expectations for an education degree would be:
1. **Education Knowledge**: Learn education theory and demonstrate a broad understanding of education using critical analytical interdisciplinary skills.
2. **Methodological Knowledge**: Demonstrate creative inquiry, problem-solving and advanced scholarship, including the ability to evaluate different approaches to solving problems.
3. **Application of Knowledge**: Show the ability to analyze information, evaluate its appropriateness and propose solutions making critical use of scholarly reviews and primary sources.
4. **Communication**: To be able to communicate accurately and reliably to a range of audiences.
5. **Awareness of the Limits of Knowledge**: To understand and appreciate the limits to knowledge and one's own ability.
6. **Autonomy and Professional Capacity**: To behave with integrity and social responsibility; To demonstrate skills of personal responsibility and complex decision-making such as self-assessment and the ability to work well with others.

In the ESDT program, these Bachelor degree competencies have been organized so that they are reflected across courses. Appendix A of this handbook explains how the ESDT learning outcomes are aligned with the Bachelor degree competencies for Ontario.

2. Student Characteristics

Pathway students in the ESDT program hold two-year diplomas from Ontario community colleges and the equivalents in other jurisdictions. They may have different experiences and backgrounds than students from non-pathway undergraduate programs. ESDT students are generally older than typical undergraduate students with more work and life experiences to contribute to discussions. Currently most reside in the GTA but students may be geographically located across Ontario, Canada and internationally)
Pathway students are:

- Working full-time or part-time while completing this degree,
- Supporting families,
- Possess academic backgrounds in a variety of subject areas and specialties,
- Have focused educational and career goals, are life-long learners,
- Are open to new learning situations and contexts
- Enjoy reading and writing
- Have relevant experience related to collaborative work
- Aim to develop problem creating and solving skills
- Working towards the development of digital skills and competencies https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/

Elective students are in the ESDT program also. They are students from different years of undergraduate programs across the university and they also bring different experiences and perspectives. Having students with a diversity of backgrounds and experiences within collaborative teams provides a rich assortment of ideas and concepts upon which problems and solutions can be built.

3. Admissions

Admission to this program is competitive. Regardless of educational background, all applicants to undergraduate programs must have specific prerequisite subject knowledge for their intended program of study. The specific average or standing required for admission will vary from year to year. Students are selected by taking into consideration a wide range of criteria including grades, distribution of subjects taken, and performance in subjects relevant to the academic program. Preference will be given to applicants with the best qualifications.

The ESDT program is currently admitting graduates with an Ontario college diploma or equivalent, with an overall B average or better. These students can receive up to 60 transfer credits towards the degree.

4. Program Orientation- Inquiry-Based Learning / Problem Based Learning (PBL)

The ESDT program is oriented towards the inclusion of Inquiry-Based Learning (IBL) and Problem-Based Learning (PBL) (vanOostveen, Childs, Clarkson & Flynn, 2015). Both IBL and PBL methodologies start with questioning a context or situation, then students identify or create questions or problems, then search for answers or solutions to the posed questions or problems and evaluate the solutions. The philosophical stance is social constructivist which places the emphasis on communications with others and working in teams of 3-4 people to co-create meaning and collective understanding of issues.

PBL has been defined as a curriculum model that is designed around real-life (authentic) contexts or situations. These situations may be ill-structured, open-ended, or ambiguous. Students are challenged to analyze the situation to identify or create problems and then work toward solutions to those problems. PBL is an approach to learning that engages students in realistic and relevant intellectual inquiries so that they learn from these realistic situations (Fogarty, 1997). IBL and PBL are not viewed as smooth paths to knowledge. A facilitator will often assist with this process by posing questions or using scenarios to provoke knowledge development through the search for solutions. Scenarios may be tied to real life or authentic situations. Learners may also define their own scenarios and end product(s).

For facilitators, this approach may require the attainment of new content knowledge, procedural knowledge, pedagogical techniques, approaches to assessment and classroom management. Traditional types of teaching may not be applicable (vanOostveen et al., 2015). Students are equally

challenged, as these innovations change how they interact in classrooms. Inquiry learning requires them to be actively engaged, collaborate with peers, think deeply about complex concepts, relate new content to their lives inside and outside school, and self-regulate their behaviour and thinking across the weeks that an inquiry project might unfold (Marx, Blumenfeld, Krajcik, Fishman, Soloway, Geier & Tal, 2004).

Synchronous collaboration tools are vital for the effective use of IBL/PBL online because tools such as chats, shared workspaces, video conferencing, and team browsing are central to supporting collaboration or the negotiation of meaning within the inquiry/problem-based learning team (vanOostveen, Desjardins & Bullock, 2010). It is important for students to have access to the objectives of the module and also the ability to negotiate their own learning needs in the context of the given outcomes. They engage in self and peer-assessment practices that are focussed on the development of declarative (products) and procedural (process) knowledge construction. The facilitator and other course members can have access to the ongoing discussions without necessarily participating in them.

The PBL orientation requires the setting of a context within which problems can be identified and students can investigate. The assignments in the course then become the setting for the creation of solutions to the problem(s). Assessment tasks are focused on process, rather than content, with gravitation to performance-based and other authentic assessment methods. In other words, course facilitators need to be able to gather information about the learning process that students are experiencing, in addition to making judgments about the value of their work. The PBL work processes primarily should be collaborative among team members, as there is much to be gained from the knowledge created by individuals joined in a community of learners. Accordingly, a wide variety of tools, applications, and environments, particularly tools which support collaboration, should be available for the students to work on and in. Prime examples of these types of applications are wikis, scaffolded knowledge building environments such as Knowledge Forum, as well as Google Docs (vanOostveen, Childs, Flynn & Clarkson, 2014).

An electronic copy of Savin-Baden's (2007) "A Practical Guide to Problem-Based Learning Online" is available for use through the OntarioTechU library. Reading this book is highly recommended.

5. Learning for Understanding in Constructivist Environments

Engel (1991, 1992) posits that PBL is a form of learning that involves the following elements:

- Active learning
- Integrated learning
- Cumulative learning
- Consistency in learning
- Learning for understanding

This work suggests that students working in PBL environments have opportunities to work in different procedural modes, developing understandings of the ways in which knowledge can be generated, in addition to building declarative understandings of the concepts and phenomena being studied.

Childs & vanOostveen (2016) suggest that problems can be categorized into a variety of levels of complexity depending on how much contextual information is given to the learners. 'Given' and 'goal' problems (Watts 1991, p. 8) vary by the type of information given to the learners in that 'given' problems contain statements of both the goal and some suggested strategies to be used to solve the problem and 'goal' problems have the goal stated but no strategies are suggested. Savin-Baden (2007b) characterizes given problems as Model I. 'Own' problems (Watts 1991, p. 8) however, include neither the goal nor the strategies information. Problems of this type consist primarily of a statement of context and the learners are required to identify the problem or problems embedded in the context. Savin-Baden (2000) characterizes these types of problems as Model V. Figure 1 shows the range of PBL types of problems that can be tackled as a function of the two axis of openness (closed-ended to open-ended) and control (teacher-directed to student-directed). PBLs towards the upper right of the graph will typically exemplify learner created problems that are emancipatory in nature.

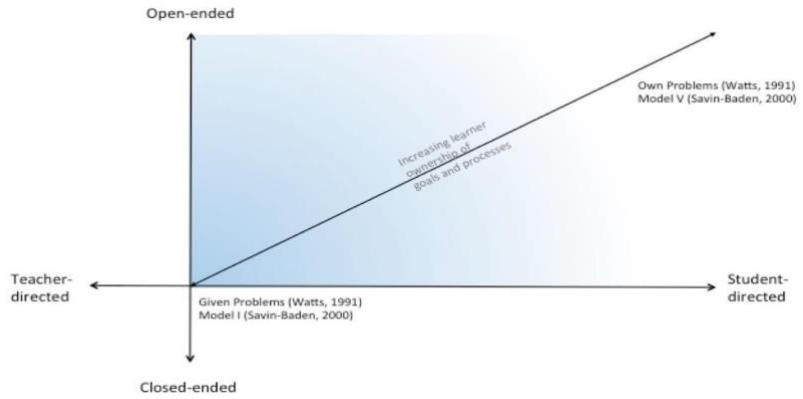

Figure 1: Problem orientation with respect to learning control (Modified from Lock, 1990) (Childs & vanOostveen, 2016).

6. Fully Online Learning Community (FOLC) Model

The ESDT program design philosophy is informed by the Online Pedagogy Model (UOIT Faculty of Education Graduate Online Pedagogy Committee, 2014) which builds from a Community of Inquiry (CoI) model (Garrison, Anderson & Archer, 2000) and indicates that deep and meaningful learning within the program occurs at the intersection of two spheres: the social presence and the cognitive presence, while immersed within a digital space. Presence is simply understood as the availability for interaction. The space is fluid in that, while there are some prescribed components, many of the tools are left to the choice of the students, making use of the newer Open Educational Resources that are constantly appearing (vanOostveen et al., 2014). Students in ESDT program use multiple Open Educational Resources, social media sites and shared workspaces such as Google Classroom to solve problems.

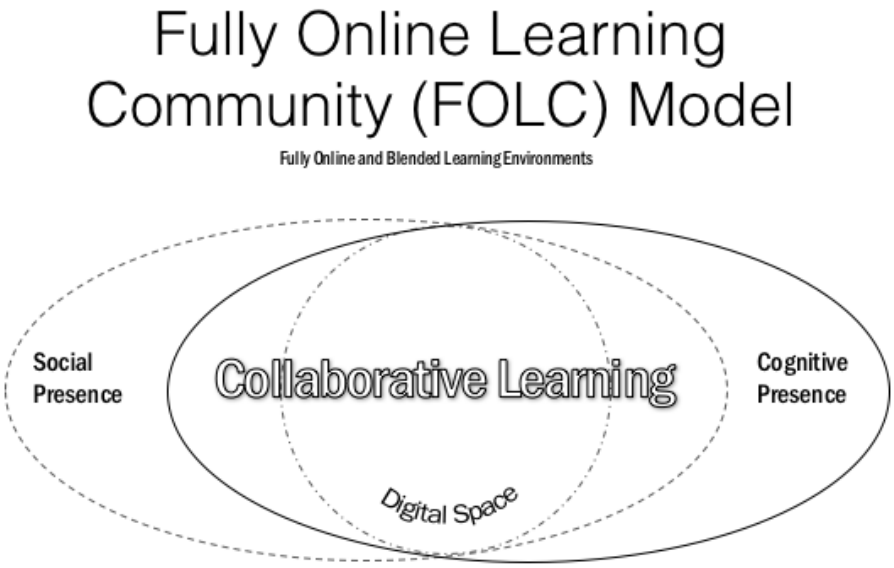

Figure 2: The Fully Online Learning Community (FOLC) model. Formerly the BA ESDT Program Design Model. (vanOostveen, DiGiuseppe, Barber, Blayone and Childs, 2016)

In the ESDT program, *cognitive presence* is established by students creating questions/problems, seeking out relevant information and actively engaging in building their understandings while producing their solutions as preliminary conjectures or hypotheses. According to Anderson (2008), cognitive presence online "supports the development and growth of critical thinking skills. Cognitive presence is grounded in and defined by the study of a particular content" (p.344). In a similar fashion to the CoI model, the FOLC model used in the ESDT program defines *social presence* as the building of a collegial environment that invites and supports students so that they will feel free to share their ideas without fear. However, unlike the CoI model, students in ESDT courses are encouraged to actively seek out constructive feedback from peers and facilitators to improve the quality of their thinking. Each course member is given a primary responsibility to engage in critical discussions surrounding each problem (vanOostveen et al., 2015). Unlike the CoI model, there is no 'teacher presence' in the FOLC model because the facilitator role has less emphasis on hierarchy and power. (See Section 10 below.)

Everyone in the class, regardless of position (student, instructor or teaching assistant), is viewed as a learner - each with valid past experiences, perceptions and responsibilities. This results in a space that is characterized as *collaborative learning*. This type of learning requires all parties involved in a project to work jointly towards solutions that will be co-owned by all since there is a shared discussion of processes used and all decisions are reached through social negotiations, enabling differing and possibly conflicting views to merge resulting in the creation of new, complex and previously unimagined understandings/solutions to the originally presented contexts (Eaves, 2007; Conrad & Donaldson, 2011). This collaboration model promotes *positive interdependence* where members of the group understand that working together is mutually beneficial and success is dependent on the participation of all of the group members (Johnson, Johnson & Holubec, 1986). The fluid nature of the interactions conducted during the tutorials, as well as the conversations in small teams working on tasks and assignments, results in the development of a *learning community*

(Luppicini, 2007; Rheingold, 2012; Lave & Wenger, 1991; Kowch & Schwier, 1997, vanOostveen et al., 2015).

Student engagement in the ESDT program is a collaborative process that is intentionally encouraged, evidenced by key elements, and includes one or more of the following:

- Establishing their own learning goals,
- Working together in small teams of 3-4 people,
- Exploring appropriate resources to answer meaningful questions,
- Completing tasks that are multidisciplinary and authentic, with connections to the real world,
- Receiving ongoing, performance-based assessment,
- Sharing work products with an audience beyond the classroom with the ability to add value outside the learning environment (Conrad & Donaldson, 2011, p.6).

The Canadian Education Association (CEA) developed a framework to describe three forms of engagement: social, institutional, and intellectual. Of the three, fostering intellectual engagement is more challenging as it appears to contain two dimensions:
1) encouraging student rigour, relevance, interest, motivation, and effort and,
2) creating instructional challenges which build on Csikszentmihalyi's theory of Flow (Wilms & Friesen, 2012) and support many of the principles of PBL (Engel, 1991) and models of PBL (Savin-Baden, 2000).

The use of online communities as a vehicle for engagement is well-documented in the literature (Luppicini, 2007; Palloff & Pratt, 1999). *Community* requires "a highly interactive, loosely structured organization with tightly-knit relations based on personal persuasion and interdependence" (Kowch & Schwier, 1997, p.2). The work done on *communities of practice* by Lave & Wenger (1991) and on online communities (Luppicini, 2007; Rheingold, 2012) focuses on moving individuals from the role of lurker to one of legitimate participation. Rheingold (2012) discusses how the quality of this collaborative participation can contribute to the creation of new knowledge in new ways.

7. Authentic, Performance-Based Assessment

The learning outcomes for ESDT program and each specific course are referenced in the course outlines. The activities, assignments and weekly topics should be visibly connected to the learning outcomes for the course. In the ESDT program, students are encouraged to identify their learning needs, determine the resources they will need to use to accomplish their tasks and take responsibility for their learning (Bridges & Hallinger, 1991). PBL encourages collaborative and cooperative learning among students and their peers; students play a key role in encouraging learning in this collaborative setting (Neo, 2003). Similarly, students are encouraged to take an active role in assessment, particularly in peer-assessment, self-assessment, reflection and metacognition (awareness and understanding of one's own thinking processes).

As the curriculum content in PBL is authentic and mirrors the real-world setting, evaluation for students' work reflects authentic assessment which measures their performance and learning within authentic contexts (Moursund, 1999). Students are encouraged to set their own goals, practice self-reflection (where they become proficient in assessing their own learning) and participate in peer-assessment (learning how to effectively provide constructive feedback to their peers) (Moursund,

1999). Facilitators can model this approach to openness to constructive feedback by requesting feedback from students frequently and anonymously using simple measure such as asking students what they should stop, start, or continue doing.

Wiggins (1990) describes authentic assessment as realistic assessment that requires students to use their knowledge. Authentic assessment is more appropriate in assessing PBL when compared to traditional assessments such as norm-referenced and standardized testing that assess the recall of factual content knowledge (Torrance, 1995; Herington & Herington, 1998, Ward & Lee, 2002). Authentic assessment utilizes performance samples or learning activities that encourage students to use higher order thinking skills.

Students in the ESDT program have varied backgrounds and academic experiences. As such, many will require multiple attempts for assignments. This improvement process is encouraged, where practical. Fair assessment practices require course facilitators to ensure that students have access to full explanations of how they will be graded. Students may also participate in building rubrics and success criteria for assignments. When information on an assignment is given to one student in the class, this same information needs to be made available for all students.

8. The Facilitator (Tutor/TA) in PBL

The ESDT program design model allows for a diminution of the transactional distance between individuals within the community. All members -- regardless of whether in the role of professor, TA or student -- are able to see themselves as learners within the virtual space. To be sure, each member is learning different things, but all are working together in a collaborative way, supporting and challenging as is appropriate to the circumstance (Childs, vanOostveen, Flynn & Clarkson, 2015). PBL courses offer students complex, open-ended projects requiring knowledge, skills and problem-solving. Students in PBL construct knowledge in a flexible environment and is action oriented (Moursund, 1999). In PBL situations, the lecturers and tutors act as facilitators, resource guides or consultants in encouraging students' participation, providing resources and advice to students as they carry out their research to collect and analyze information, make discoveries, and report their findings (Aspy, Aspy & Quimby, 1993).

Another aspect of the facilitator role in PBL is to scaffold student learning (de Grave, Dolmans & van der Vleuten, 1999, p.901). Ways to scaffold the learning include the following:

- Stimulate the elaboration of information and ideas,
- Guide the learning process, including stimulation of reflection on the learning process (usually through the use of challenging questions),
- Stimulate the creation and integration of knowledge, and
- Stimulate and support student interaction and individual accountability (de Grave et al., 1999).

An expert PBL Facilitator/Tutor:

- Takes time to understand the background and experiences of students in the class to be culturally responsive and inclusive,
- Plans the course in advance to allow students multiple means to access the learning, multiple means to engage with the learning and multiple means to express their understanding according to the principles of Inclusive Design for Learning (IDRC, nd),

- Has subject matter knowledge but also subject-specific pedagogical knowledge to deal with difficulties students encounter, as well as more general pedagogical knowledge,
- Displays a high level of affective support and nurtures students,
- Uses a Socratic style of questioning (asks questions to stimulate critical thinking and to help students build knowledge),
- Makes increasing demands on students in successive sessions,
- Conveys high expectations in an indirect and understated fashion,
- Helps students to articulate their reasoning and the assumptions underlying their thinking and helps students to generate their own answers,
- Devotes substantial effort to encouraging and motivating students.

Teaching Assistants (TA) are assigned to an ESDT course by the Program Director according to a schedule. Each course is initially scheduled with 2 tutorial sessions: one beginning at 12 p.m. and a session at 6 p.m. All times are flexible and may be adjusted as needed. Tutorial sessions are capped at 30 students. When both sessions near capacity (approximately 55 students), an additional session may be made available usually at 8 p.m. A TA may then be assigned to the course. TAs may perform the following course work: preparation and reading, tutorials, marking and entering marks, student consultation, and meeting with instructor regularly. The information in this paragraph describes current practice and is subject to change based on the business plan of the Faculty of Education. All decisions are made through discussions between the Program Director, the Dean and the Faculty of Education Business and Planning Officer.

9. Program Structure

The BA in Educational Studies and Digital Technology degree recognizes the growing importance of life-long learning and post-diploma programs. There are many career opportunities for graduates who have a college diploma, related work experience, and a bachelor's degree particularly if these students understand how to design and assess learning at different points across the life span and if they have digital technology skills. As the ESDT program changes over time, it will continue to provide opportunities to construct knowledge, and build competencies and skills associated with adult learning and digital technologies but will increase the program offerings to include the education of those working with both adult learners as well as early years learners, i.e., across the life span of humans. The program consists of a total of twenty 3-credit courses with sixteen courses provided for all students and four courses reserved in each of the specializations. Students registered in the diploma program will complete six 3-credit courses chosen from the Lifelong Learning specialization.

a) Lifelong Learning with Technology (LLwT) Specialization

The faculty of Education offers a Bachelor of Arts in Educational Studies and Digital Technology with a specialization in **Lifelong Learning with Technology** (a name change for the Adult Education and Digital Technology specialization, in effect for Fall 2021 term). This fully online pathways (advanced entry) program is designed for students who have completed a two-year Ontario college diploma or equivalent. Our unique online format uses virtual classrooms to maximize interaction, collaboration and community building. You may pursue this program on a part-time or

full-time basis. The key focus of this program is to explore digital lifelong learning and the design of engaging learning spaces.

The **Lifelong Learning with Technology** specialization:

- Is conducted fully online, using virtual classrooms to maximize interaction, collaboration and community building. This flexible format allows you to study from anywhere in the world and to pursue your studies part-time.
- Prepares graduates for careers in human resources (HR) management, and for education and training in industrial, commercial, and non-profit and community sectors.
- Leverages the potential of digital technology in a wide range of education contexts.
- Provides an intensive study of educational theories and practices for those interested in kindergarten-to-Grade-12 education employment opportunities beyond the formal public educational system.
- Capitalizes on the recent success of Pathways programs, allowing qualified students to obtain both a college diploma and a university degree while decreasing the time required for completion.
- Offers adult educators in the corporate and government sectors opportunities for professional development and advancement in adult education and HR development.

b) Early Childhood Studies (ECS) Specialization

The Faculty of Education offers a Bachelor of Arts in Educational Studies and Digital Technology with a specialization in **Early Childhood Studies (ECS) specialization.** These fully online pathways (advanced entry) program is designed for students who have completed a two-year Ontario college diploma or equivalent. Our unique online format uses virtual classrooms to maximize interaction, collaboration and community building. You may pursue this program on a part-time or full-time basis. This program emphasizes real-world inquiry/problem-based learning provide you with the best opportunities to develop job-ready skills in training and instruction using digital technology in early childhood education fields.

The **Early Childhood Studies** specialization:

- Is conducted fully online, using virtual classrooms to maximize interaction, collaboration, and community building (This flexible format allows you to study from anywhere in the world and to pursue your studies part-time),
- Affords careers in human resources management and training in the industrial, commercial, and various other sectors,
- Capitalizes on the recent success of Pathway programs, allowing qualified students to obtain both a college diploma and a university degree, while simultaneously decreasing the time required for completion,
- Enhances qualifications for individuals applying to positions that require an undergraduate degree,
- Leverages the potential of digital technology affordances in early childhood education,
- Provides alternatives for those who are interested in kindergarten to Grade 12 education employment opportunities, but who are frustrated by the current lack of opportunities.

c) Diploma in Designing Adult Learning for the Digital Age

The Diploma in **Designing Adult Learning for the Digital Age** is a fully online, six-course program designed for students with a post-secondary diploma or equivalent. Our unique online format uses virtual classrooms to maximize interaction, collaboration, and community building. You may pursue this program on a part-time or full-time basis. This program emphasizes real-world inquiry/problem-based learning to provide you with the best opportunities to develop job-ready skills in training and instruction using digital technology in early childhood education fields.

The **Diploma in Designing Adult Learning for the Digital Age**:

- Is conducted fully online, using virtual classrooms to maximize interaction, collaboration and community building. This flexible format allows you to study from anywhere in the world and to pursue your studies part-time.
- Affords careers in human resources management and training in the industrial, commercial and a wide variety of other sectors.
- Leverages the potential of digital technology affordances in adult education contexts.
- Offers adult educators in the corporate and government sectors opportunities for professional development and advancement in adult education and human resource development.
- Situates graduates as college educators, military trainers, health educators (both for professional development and public education), as well as education bureaucrats and public educators in other service areas.
- Provides graduates with the competencies and habits of thinking to be successful in jobs yet to be designed through technological advances and institutional growth in online learning and training.

10. Pathways to other programs at OntarioTechU

There are existing avenues for students registered in the ESDT program to enter into one of the other programs in the Faculty of Education at OntarioTechU. These are described below. Students who which to pursue any of these pathways should seek advice from the Undergraduate Academic Advisor.

a) Bachelor of Education (Teacher Certification)

ESDT graduates who hope to enter the Bachelor of Education program can do so by applying to the Primary-Junior (PJ) Bachelor of Education. Additional information, including admissions details, can be viewed at the BEd webpage.

b) Master of Education in Education and Digital Technology

ESDT graduates who obtain a 3.7 GPA or higher and who meet the graduate studies admission requirements will be accepted into the OntarioTechU Master of Education Program.

11. Capstone Courses

Fulfillment of the ESDT program requires completion of two capstone courses. These courses will be scheduled in the final two sequential terms of the student's program. The majority of students will be

completing the thesis courses, while a small number each year will prepare a proposal required to participate in the EEP.

a) Thesis Courses Overview

The world is becoming more globalised, digitalised and interconnected by shared problems such as the COVID-19 pandemic, online misinformation, increasing social-economic divides and resurgent xenophobia. Moreover, academia, governments and private organisations are placing new demands on researchers. For example, researchers are expected to produce *timely and useful* research that (a) reaches their target audiences quickly via new forms of digital publishing, and (b) and achieves significant levels of reception as demonstrated by bibliometric and altimetric measures. In this context, researchers are transforming their practices. For example, university scholars are increasingly moving from authoring hefty individual monographs to collaborating on more focused and readily publishable articles. They are also sharing preprints and soliciting early peer reviews via academic networks like ResearchGate and Orcid. Moreover, with the increasing amount of published research, more emphasis is being placed on research syntheses that establish the state of knowledge, find patterns of results, build models and identify new problems. In short, scientific research at all levels is undergoing a seismic shift in response to changing needs! The two thesis courses, EDUC 4200U and EDUC 4201U provide opportunities to pursue scientific studies of this type in a collaborative setting.

b) Engaged Educator Project Overview

The Engaged Educator Project (EEP) is an action-oriented educational project where students will engage with the various stakeholders of an organization, network, or community of practice on an issue or opportunity that is meaningful to the group, leading toward meaningful social or structural change for the group.

The EEP will support students in:

- Working in partnership with an organization, community, network, or community of practice.
- Understanding and addressing all ethical considerations of such an engaged inquiry, in accordance with UOIT's Research Ethics Policy and Tri-Council Ethical Guidelines.
- Learning new processes and methods for stakeholder engagement and inquiry.
- Conducting, or facilitating, activities with stakeholder groups in an appropriate process (sequence of methods) that supports engagement, participation, learning, and meaningful change.
- Undertaking this change-oriented process with a clear focus on personal and organizational values.
- Producing an evidence-based (not assumptions-based) outcome described in a related report, and, in most cases, with related knowledge products.
- Leading to an inquiry-oriented leadership practice.

12. Digital Tools (Creating the Digital Space)

"Digital spaces, in environments defined by the FOLC, are co-created by all learners within the community. Initially, within the ESDT program at OntarioTechU, the course facilitator begins to define the space by posting videos to YouTube and providing facilitated tutorial sessions in a browser-based audio-video conferencing suite. Subsequently, when working collaboratively in small groups, Open Educational Resources (OER) and other web-based applications are chosen by the learners according to two specific principles: resources used must be shareable, and the URL for the site(s) must be provided to everyone in the learning community. The tools and applications are a rich mixture of synchronous and asynchronous environments (including creative synchronous/asynchronous merging), allowing for greater clarity and effectiveness of the interactions than can be achieved using asynchronous technologies alone (Trevino, Lengel & Daft, 1987; Rockinson-Szapkiw & Wendt, 2015).

In particular, the use of a browser-based audio-video conferencing tool, in which each individual is represented by a "real time" web-camera generated image, and by audio interactions through a microphone headset, provides a semblance of face-to-face interactions which allow participants to "present themselves to others as real people" (Garrison, et al., 2000). The use of visual cues, such as facial expressions and body language; audio cues from direct speech; and the incorporation of text-based backchannels allow for the promotion of SP, community, and ultimately, collaborative learning (Hrastinski, 2008; Rockinson-Szapkiw, Baker, Neukrug & Hanes, 2010; Rockinson-Szapkiw & Wendt, 2015).

CoI views digital technologies and competencies as extraneous to the core model. It was thought to include the digital context as a dimension would make the CoI model unreasonably complex. FOLC resists this reduction, conceptualizing the digital space as a key sub-context for immersive online learning. According to FOLC, SP and CP cannot be fully conceptualized without considering the mediating influences of the digital space.

Importantly, FOLC's digital space is a negotiated, dynamic, globalized, and oftentimes unpredictable virtual context for online learning. It is not a neutral space but rather a space inhabited by applications and platforms that shape interactions. For example, Facebook may be chosen by learners owing to their level of comfort using the application. However, the discussion functionality was not designed for sustained collaborative inquiry, and therefore, limits are placed on CP. In a FOLC environment, this situation becomes a learning experience rather than a situation to be avoided" (Blayone et al., 2016).

a) Learning Management System (LMS)

Canvas is the current Learning Management System (LMS) at Ontario Tech University and it can be accessed at learn.ontariotechu.ca. Each course in the program has an accompanying course site within Canvas. Students should be able to access, at least, the course outline from the LMS prior to the beginning of the course. Other key course resources may be posted in the LMS or in other open tools.

The use of announcements (inside the LMS or other tools such as Slack) is encouraged, as they are useful in communicating important updates, including weekly reminders for students. Additionally, announcements created within the LMS can be sent to students' OntarioTechU.net inboxes.

The LMS includes a range of other tools that may also be used (examples: messages, assignments, discussion boards, and tools for monitoring progress and receiving feedback), in addition to other tools employed in the program.

b) Ontariotechu.net Email Addresses and G Suite

Ontario Tech University students have access to G Suite via their Ontariotechu.net accounts. Ontariotechu.net accounts may be used to access a range of tools used for course activities and team work, including Google Drive, Docs, Sheets, Hangouts/Meet (for synchronous meetings), Google Calendar, Gmail, and more. Students, instructors and TAs are encouraged to explore the tools that are available through the Ontariotechu.net G-Suite. Instructors will also be assigned Ontariotechu.net accounts for access to G Suite.

13. Common Course Format

Courses in the ESDT program should have common elements in order to support the students but the courses also need to be updated continuously. ESDT courses are on a 3-year developmental cycle, i.e., after the initial development, approximately one third of all 'course content' is reviewed and renewed yearly. This ensures that each course is renewed every three years. Changes to course descriptions need to be passed through the appropriate committees in the faculty and at the university level (program curriculum committee, program committee, faculty council and CPRC).

Background materials for all courses, including course syllabi, video clips, scripts, etc. are maintained in a shared Google Drive folder (course facilitators should contact the course director for access). These are available for the use of the course facilitators who can add contributions and create materials to share. Contact the program Director for access.

A typical 36-hour (3 credits) course in the BA program will be articulated in 12 mandatory weekly modules each including:

- A series of 1-3 video clips that are designed to present contexts/situations. Students are to work through video clips, which are structured as modified PBLOs using the embedded analysis and synthesis questions, in order to construct/create problems or questions that will form the basis of the investigations to be undertaken by students. The interrogation of the videos will also form the basis for the discussion that will occur in the subsequent tutorial sessions.
- 1 hour of synchronous team activities (tutorials) using a video conferencing application such as Zoom facilitated by instructor/Teaching Assistant per 30 students.
- The equivalent of one hour of work to be done online synchronously and asynchronously (i.e. blogs, wiki entries, Google Drive, etc.)
- A standard 3 credit course is 110 hours of student effort, 36 hours of which is "course" time. This is relative. Fully engaged students typically dedicate more time to the preparation of course requirements by completing assigned readings before weekly Tutorials, viewing

educational videos on YouTube, researching topics (for PBLs) and submitting assignments by due dates.

Expectations for student participation in tutorials: Students should attend orientation sessions for the ESDT program when they are held prior to the beginning of each term. They should come to class with a working camera and microphone in order to participate fully in the online, synchronous environment. During class they will negotiate the ethical/moral interactions within the digital space on an ongoing basis (e.g., who has an active, unmuted microphone when another person is talking). An expectation of this program is active participation in the tutorial sessions. Students should be prepared to explain and reflect on their learning in the courses. Course facilitators should provide opportunities for students to metacognitively reflect on what they have learned. Students are also encouraged to rehearse before presentations.

14. Course Outlines- Shared Format

The standard OntarioTechU course outline template should be used. Include as much detailed information as possible in the Course Schedule section of the course outline as this will serve as a roadmap to much of the activity for the students and TAs. Course facilitators will need to identify the titles of all video clips here in order for the students to be aware of order, etc. Placing an additional version of this schedule as a learning module in the LMS has been found to help the students as an additional reminder/road map.

For an example of a detailed course outline please see the linked EDUC 4703U Problem and Inquiry Based Learning.

Presentation Files (PowerPoint/ Presentation/Keynote) Presentation files provide the graphical (and textual) elements that will be used in the video clips. All images and text requiring permissions should be identified as soon as possible so that OntarioTechU library staff (see the copyright section below) can get to work. Final scripts of required references, when received, should be included into the presentation files before recording the video versions of these files.

Video Files can be created in several ways. Zoom, GMeet and other software allow facilitators to record by adding a ‘voice over’ or even picture-in-picture to an existing presentation file. Controlling production on your own machine helps to regulate timelines since you are not reliant on others and iterations can be handled on your own, when errors are found. Additional assistance is available from OntarioTechU Teaching and Learning staff. Other similar packages exist on the Apple platform. Uploading to YouTube can be accomplished independently.

Shared Folders (for Course Facilitators) Copies of all files shared with you are available in the shared BA Courses folder in G-Suite. You are invited to view any of these files as they provide a detailed development record of the one course in this program that has been already produced and used with students. Please be sure not to modify any of the files in the shared folder as the folder is currently the production storage site for this course. Shared folders are a convenient way to transfer large files to others without the complications of transferring media. We share materials and practices across the program.

15. Course Planning

a) Organizing for PBL's

Here is one way to set up a 12-week course with 4 PBL's (modified from Savin-Baden, 2007).

Week	1	2	3	4	5	6	7	8	9	10	11	12
Problem	Scenario A			Scenario B			Scenario C			Scenario D		
Workflow	Identify Problem, resources and requisite knowledge	Collaborative Learning	Synthesis									
Resources to Support PBL	• Video clip -scenario • Tutorials using Analysis/Synthesis questions • Assignments and Assessment Tasks											

b) Tutorials conducted in an Audio-Video Conferencing Suite

In order to provide maximum flexibility, tutorial sessions are spaced throughout the day. As the number of individuals registered in the program from other time zones increases, the number of tutorial sessions in the evening/night times - for the Eastern (UTC-5) Time Zone - will increase. Current tutorial times are one hour from 12:10 - 1:00 pm, 6:10 - 7:00 pm and 8:10 - 9:00 pm (if a third section opens due to numbers of registrants). The program tries to be as flexible as possible, whereas, if a student registers for a 12:10 tutorial but their work schedule changes at some point and the student needs to attend at a different time, it is appropriate to do so by informing the Facilitator beforehand.

The structure of the tutorials will be most effective if there is a strong tie between the Video Clip portion of the courses and the tutorial sessions. Accordingly, the use of Analysis and Synthesis questions becomes important as they provide that strong link and can be used as the basis for the discussions that will occur in the tutorial sessions. Since the tutorial sessions may be conducted by Teaching Assistants (TA's), it will be vital that you establish a strong connection with the Facilitator or TA(s) for your course as they will be acting as front-line contacts with the students. It is therefore vital to ensure that a good relationship is established between the Facilitator and the TAs in a course and meetings should be scheduled on a weekly basis. The TAs must also develop facilitation skills based on the principles of online facilitation listed earlier in this model. TAs may also participate in the grading of assignments and projects.

WebCams should be used by all in every online tutorial session in order to establish a supportive learning community in which learners will be expected to work collaboratively with others. Facial expressions and body language are an important part of the environment and students should be visible as much as possible. A culture of using the video affordances needs to be established within

the program. Net etiquette or netiquette, as well as net ethics or ethics, should be discussed and negotiated within the boundaries of each course in the context of the online environment. Break out rooms should be available for students to allow for small teamwork and to facilitate problem solutions.

It is important that students see the tutorial sessions as a vital and mandatory part of the class, where they can meet with their peers and discuss topics of relevance to the course, particularly discussions revolving around the analysis and synthesis questions provided in the Video Clip portion of each course. There are apps available for video-conferencing software. While these apps do not provide total functionality for giving presentations, they are excellent for providing video and audio presence for all participants. The use of these devices with the apps support students who need to be mobile.

c) Equivalent of one hour of work to be done online a/synchronously

The final element of each module includes 2 hours devoted to online activities such as forum discussions, self-directed learning activities, etc., as specified in the course syllabus, using a wide variety of online resources. It should be noted that additional reading or other course work will be expected from the students. A typical guideline might be described to the students as a minimum of 2 additional hours to every hour of prescribed course work; therefore a 36-hour course requires additional time by students to complete all of the assigned activities.

Part of the orientation to PBL used within these courses will be the expectation that students will seek out their own resources and work at developing the skills required for the creation of their identified solutions without the direct supervision of the course facilitators. While the LMS course site will be the sole 'official' web site for each course, other environments should be explored, analyzed and used for purposes of gathering information, communicating with others and the building of knowledge. The links for each of these may be posted on the LMS.

The major resources to be used for this program are Internet-based, meaning they are available using an Internet connection. Some of these may only be accessed through the OntarioTechU Library as they are restricted by licensing agreements. Others are freely accessible through services like YouTube, Twitter or Cmap. It is expected that all students in the program will use these resources in many different ways. There is a general orientation to Open Educational Resources (OER) within the BA program, allowing for the access and creation of documents and media that are free to be used for learning purposes. Please see the OER entry in Wikipedia. .

It is expected that students will continue to develop intellectual independence throughout each course, i.e., the students should be expected to strike out on their own, not waiting to be told what tool to use or what to do, but to be adventurous and get started on their own. All course assignments should be listed in the course syllabus along with the week they are due. The facilitator should make it clear that students are expected to begin work on all assignments and course activities immediately at the beginning of each course.

Collaborative teamwork is expected. Students will be expected to form a team of 3-4 students. These teams will be self-regulated in that each member of the team will be responsible for participating in the teamwork and as some of the assignments are graded on the basis of the project presented by the team. It is up to the team to determine who will be doing what and then ensuring that it is completed

within the required time frame. Some assistance will be available from the course TA and instructor early in the course, but this assistance should decrease over time. Students will be encouraged to construct their own understanding of concepts encountered through intentional disruption of prior conceptions of learning and providing space for the reshaping of their ideas (Bencze, 2008).

It is suggested that students choose the tools with which they will be working. For instance, many teams may decide to collaboratively work in Google Drive, while others decide to work in Wiki spaces, etc. This choice of environments may be supplemented with specific tools that are designed to promote entire class interaction, e.g., a Wiki or Knowledge Forum discussion teams may be established with the intent of having the entire class reflect on specific aspects, terminology, or topics which were addressed in the course.

16. Facilitation Skills used in PBL Environments (Savin-Baden, 2007b)

Savin-Baden (2007b) provides guidelines for facilitating PBL online. Some of her suggestions are included in this list:

Guide rather than interrupt. There is a tendency, particularly at the start of a session where students are presented with a new problem or activity, to interrupt or even pre-intervene by asking leading questions before the team has had a chance to discuss the problem. For example, if there is silence some facilitators will begin the scenario for the students by asking a question. It is better to wait or to ask a gentle question such as "Can you explain your thinking?"

Represent online and academic etiquette. Although much has been written on online etiquette (netiquette) there are differences in PBL online, particularly in relation to respecting silence, promoting student autonomy, and not interrupting when deliberate debate (active conversation) occurs among community members.

Encourage initiative in students. Reflect on the experience of being supervised in a research project. Another option might be to imagine the facilitator role as being that of a non-directive counsellor who uses reflection and questioning rather than directions.

Acknowledge and use the prior experience of students. While the facilitator guides students initially with analysis and synthesis questions, toward the end, students surpass their initial knowledge base with life-long learning skills as a result of the ESDT programming advantages. Supporting guided discovery learning is one of the key roles of the facilitator.

Being a facilitator means also being a learner. This might mean learning to develop the capabilities of a facilitator and learning new knowledge with and through the students. The process of becoming a facilitator also demands developing and understanding the way in which the facilitator and team influence one another in the learning process.

Ensure that the team's concerns are heard. Active listening skills are a prerequisite to good communication and are one of the most effective tools for helping online teams manage conflict.

There is often an assumption that 'hearing' what is occurring online is very difficult, but learning to read the subtext of discussion forums and chat sessions is a skill that facilitators need to develop. Although this is complex to begin with, the ability to read team interactions in online spaces does develop over time.

Listen and lurk positively. There is often a tendency, after using straight-forward online learning, to retain control rather than granting it to the students. The notion of 'lurking' often seems to imply that silence and watching are inherently bad, but students often need to watch and listen in PBL online, so it is important not to confuse lurking with thinking space.

Provide supportive intervention. It is often easy to assume that not intervening means maintaining silence, but it is useful if students 'know' you are part of the discussion. Rather than just lurking it is helpful to students if the facilitators add some remark that illustrates they are listening and supporting the learning, but in a way that does not interrupt the students' discussion. Although this is difficult, statements such as “I think this an interesting discussion.” or “Does all the team agree with this?”, are useful general statements for supporting students.

Promote and model personal reflection. Rather than weaving and summarizing the discussion as a facilitator, it is possible to encourage the students to reflect and summarize their own discussion and stances at the end of a given time period or problem. This encourages the synthesis of the process of what has occurred, as well as the synthesis of the information that has been collected and collated, and these are higher order thinking skills.

Encourage learners to think critically. One of the most difficult capabilities for students in PBL online is in taking a critical stance. Many of those who have researched PBL online report that there is a tendency for students to focus on the process of learning and the information collected, rather than taking a critical stance toward the way they are working, and the knowledge produced. Ways of encouraging the development of criticality include the use of a team wiki, using blogs for assessment and asking students to summarize and critique each other's contributions. The latter activity is very demanding of students and often difficult to do, but if the teams have been well supported and are cohesive this is often a possibility. For students studying education, encourage the critical and informed analysis of education policy.

Use Inclusive Design Principles in course design. This means providing materials for students to access in multiple ways. Along with the recording of the video prompt for the class, provide the slides and the instructor commentary notes. Record the tutorials and make these available for all of the students. Where possible, provide auto transcription during the tutorial. Allow students multiple means of engaging with and accessing the course materials.

Try to Avoid: Course facilitators are asked to avoid the ‘talking head’ lecture format, reusing graphics instead of inserting the URL; Embedding images, quotes, etc. without permissions and without references; and multiple slides of textual material, rather provide descriptions of situations (case study type information) that can be used to generate problem statements.

17. Video Clips (1 hour per weekly session)

a) Common Characteristics of video clips

Video Clips used prior to tutorial sessions may have these characteristics:

- 1, 2 or 3 clips, each of 3-10 min. total length, per session
- Incorporate 3-5 analysis questions at the beginning of every clip. Analysis questions are designed to invite the viewer to break down the remainder of the video clip into component parts in order to identify embedded problems (inductive processes).
- Conclude each video clip with 3-5 synthesis questions. Synthesis questions are designed to invite the viewer to compile information gleaned from the video clip content to propose solutions (deductive processes).
- Should provide a context/situation within which problems are embedded (either implicitly derived by the viewers or explicitly stated by the instructor)
- It makes sense not to include dates for the current course on the video clips as this may cause confusion for students.
- All images and other materials for which copyright permissions will be required to be identified prior to the final production of video clips so that the appropriate references can be included (see Section 18 Copyright Guidelines)
- Developers might consider including space for a variety of video clips that can be generated based on comments/questions elicited from students by the TA in tutorial sessions. In some courses, discussions/interviews with colleagues were conducted on camera and then posted back as a response to the students on YouTube.

b) Video Content

Video clip content can be organized in several different ways including the following:

- Voice-overs added to a PowerPoint/Keynote presentation file (please ensure that high-resolution graphics are used since there is a significant degradation of resolution when the video is compressed for display on some devices).
- Discussion/interviews conducted and recorded in online.
- Linking to video, images, applications, etc. within presentation files is encouraged as this helps to avoid copyright/permission issues.
- All video clips must be accompanied by a closed-caption script of the audio/dialogue as required by the Accessibility for Ontarians with Disabilities Act (AODA). Closed captioning of video clips falls under the responsibility of OntarioTechU Disability Services. In order to have closed captions created for all video clips, access to the video clips and scripts for the clips is required. All materials must be stored in the provided shared program folders.
- Copyright/permissions for identified materials can be obtained through OntarioTechU Library personnel.

c) Video-Clips as Modified PBLO's

It is suggested that the video clips created by faculty in the ESDT program use a modified version of a PBLO structure, containing analysis and synthesis questions as well as contextual and theoretical information. These video clips provide learners with a contextualized situation that promotes knowledge creation, as shown in a course videoclip regarding the construction of knowledge within a community of practice (vanOostveen, 2013).

A Problem Based Learning Object (PBLO) is a reusable, multimedia tool that is comprised of four templated 'pages' of information (vanOostveen et al., 2018; vanOostveen et al., 2014). Each page has a specific purpose and function, which is grounded in theories of social constructivism, communities of learners, and makes use of problem-based learning principles (vanOostveen et al., 2010). PBLOs are self-contained tools that make use of multimedia including video-based case studies to present a situation to the learner or team of learners which are used to stimulate discourse within students (vanOostveen, et al., 2010). Modified versions of PBLOs are used throughout the ESDT program as a guideline or best practice for the development of course video clips.

According to vanOostveen et al. (2018) the first 'page' of a PBLO contains a video-based case study as well as a set of analysis questions. The inclusion of a video-based case study provides the learner with a situation from which they can formulate a problem, as seen in Figure 1, with learners determining the situation, their roles, and identifying their available resources. These case studies form the basis for the PBLO, providing learners with an 'own' type problem as previously discussed (Watts, 1991). This also follows Savin-Baden's (2000) Model V scenario of learners having autonomy of their learning. In order to maintain an environment that is both open-ended and student-directed, see Figure 1, videos must provide a contextualized situation but should not direct the learner to a specific problem, nor be used to deliver content (vanOostveen et al., 2018). These video-based case studies provide what Fogarty (1997) refers to as ill-structured and ambiguous situations that are then constructed by the learner into a problem to be solved. The first page of the PBLO also contains a number of analysis type questions that act as a guide to the learners allowing them to formulate a hypothesis, as well as provide context to the case study. Facilitators use these questions as the basis for discussion during tutorial sessions.

The second 'page' of the PBLO contains contextual information for the video-based case study, which provides learners with additional pieces of information regarding the situation depicted within the video clip. This offers learners some resources, as well as potential obstacles that may be present in the situation. This information could be background information about the given situation, or it may serve to highlight information provided in the case study. Again, this process falls into the field of student-directed and open-ended as depicted in Figure 2, so it is important to ensure this information is not leading the learner in a specific direction. Providing contextual information allows the learner to be immersed within the authenticity or situatedness of the case study (vanOostveen, 2013; vanOostveen et al., 2018).

The third page of the PBLO focuses on theoretical information regarding the video-based case study by providing a metaphorical lens that should provide alternative perspectives to the learner (vanOostveen 2013; vanOostveen et al., 2018). Theoretical information consists of theories or constructs that relate to the situation presented within the PBLO (vanOostveen, 2013). The purpose of this information is to provide the learner with an alternative lens with which to view the situation, essentially challenging the role or preconceived perception of the learner (vanOostveen, 2013). This notion of challenging the learner's perception of the situation roots itself in constructivist principles, allowing for the potential for the learner's schema to be altered (vanOostveen et al., 2018).

The fourth PBLO page presents the learner with the video-based case study a second time, however, it is now paired with synthesis questions (vanOostveen et al., 2018). There are typically three to four synthesis type questions that are open-ended and ambiguous (Fogarty, 1997). The inclusion of these

questions is crucial to help foster knowledge creation in learners (vanOostveen, et al., 2018). Learners are challenged to formulate conjectures and to invite refutations using methods of inductive and deductive reasoning (Popper, 1963). These questions serve to create a sense of cognitive dissonance in the mind of the learner from where learning can occur (Piaget, 1972). Facilitators are then able to use these questions during tutorial sessions to increase the sensation of dissonance, helping learners create their own knowledge and understandings, as seen in Savin-Baden's (2000) Model V problem scenarios. Examples of PBLOs are available in the program shared folders. PBLOs are created by students in the EDUC 4703U Problem and Inquiry Based Learning course.

18. Copyright Guidelines: Images in Instructional Videos

1.	**Use copyright-exempt images whenever possible.**

What is a copyright-exempt image?
Copyright-exempt images are those that do not require permission to be used. They include images in the public domain and images with Creative Commons licenses attached, among others.

How do I find copyright-exempt images?
You can find an image that is copyright-exempt or licensed for use by searching websites that collect or link to such images. Creative Commons Search is one example. For more websites, see the **Copyright**

2.	**Look for copyright information.**

Look for a copyright statement near the image or on the website's 'terms of use' or 'copyright' page. You may find a statement that forbids copying the image without permission, that provides guidelines for using the image, etc. Examples of copyright statements:

- An image that costs money to use. A stock photo website that allows users to copy images, but that requires them to include special wording when acknowledging the website and creator.

3.	**When permission is required to use an image, contact the Library's copyright staff.**

You may have the right to use an image for a number of reasons. For example, use of the image may be allowed because of:

- Fair Dealing guidelines
- The university's Access Copyright license
- The fact that the image is Creative Commons-licensed, in the public domain, etc.

However, you will likely come across images that require permission to use. In those cases, if you still wish to use the images, complete the Library's **Copyright Request Form**:

- https://ontariotechu.ca/sites/library/Folders/Forms/copyright-request.php

The request will go to the copyright@ontariotechu.ca mailbox where it will be reviewed by the Library's copyright staff. Works that cannot be cleared cannot be copied. You can also send general questions to this email address.

4. Cite images properly to meet copyright requirements.

What citation information does the Copyright Act require?
The Act only specifies that the *creator* and the *source* of the work be cited (29.1). Generally, image citations should meet the same requirements as a text citation: a person should be able to find the source of the image, and the image itself, based on the information in the citation.

As you collect images to use, remember to write down key details about the images.
For example:

Creator Name	Dave Challender
Source of the image, usually in the form of a URL to the image source page	http://www.flickr.com/photos/dchallender/34155689/
Image Title (if any)	Frog
If it is a Creative Commons image, "you must make clear to others the license terms of the work." The best way to do this is with a link to the license web page (Creative Commons, "Marking," 2012).	*With hyperlink:* Creative Commons Attribution-NonCommercial-ShareAlike 2.0 Generic *Without hyperlink:* Creative Commons Attribution-NonCommercial-ShareAlike 2.0 Generic. http://creativecommons.org/licenses/by-nc-sa/2.0/

What about screen captured images?
If you are using a screen captured image of a website, cite the website.

Can I put citation/permission statements at the end of the video?
Citation or permission statements can either be added directly with the individual work, or teamed together in a separate bibliography at the end of the video. Keep in mind, however, that footnotes should be included next to the images. A "Copyright Permissions" slide with the corresponding list of works and the citation/permission statements can then be added at the end. (University of Manitoba, "Copyright Checklist for Instructors," 2019).

5.	**Cite images and other works that *you* have created.**

It is highly recommended that you add citations/credits to your own works. No specific citation form is required. By adding this credit, you will ensure that anyone who wishes to reference or use your image will be able to credit your work properly.

Example: Figure 2.1 Bookshelves. © Colin Stoker, OntarioTech University

19. Software & Technical Requirements for the BA Program

OntarioTechU has established minimum technology requirements and supports. These can be found here: https://itsc.ontariotechu.ca/remote-learning.php Students may find that their experiences in online courses are enhanced with the use of mobile computing devices, including laptops, smartphones, tablets, or similar devices. The courses in this program should be found to encourage mobile thinking by providing mobile access to learning resources (both electronic and human) anytime, anywhere. Many of the applications listed below are currently supported by apps (on a variety of platforms), which permit direct connections to their features.

Videoconferencing for classes: Computer participation in these courses requires all candidates to have access to a computer with these minimum characteristics:

- Operating system: Windows10, MacOS 10.5.x, Linux (e.g., Ubuntu) (Chromebooks are not recommended)
- Video capabilities with either a or an external, compatible WebCam
- Audio capabilities with appropriate combination headset/microphone (external speakers are not acceptable as they tend to cause feedback noise)
- Apps for Adobe Connect are available for the iPad, Playbook and Android devices

Internet Access **

Students must also have Internet access with sufficient speed or bandwidth to allow full audio and video participation in Adobe Connect meetings. It is suggested that this connection be accessed from home as some schools and businesses may have firewalls that can block many features of these courses such as the video conferencing.

A speed test for your Internet connection can also be performed at https://www.speedtest.net/ or by typing “speed test” into the search bar while using the Chrome Internet browser.

Minimum speeds for your connection should exceed:

- 10Mbps download speed AND
- 5Mbps upload speed

Course facilitators are encouraged to add a back-up communication plan to the course outline.

Expected Technical Requirements for Software Applications Used in Courses

Please be aware that the following list is not prescriptive. The applications listed here are merely examples of software applications that could be used in the program. All members of the program course members should take a critical approach to ensure that the software and tools selected for use are appropriate to the specific circumstance, secure, and enable inclusion among course members.

Below are just a few questions to consider when determining which tools to use for your coursework:

- Is this technology an appropriate choice in the particular context that I plan to use it?
- What are the terms and conditions, including details regarding privacy and security, associated with this software?
- What affordances or opportunities for action are provided by the software? Do the affordances match with the requirements of the tasks you need to complete?
- Is this technology designed to be accessible for all? Is anyone excluded by the use of this technology?

Here are a few resources you may wish to explore while considering which specific tools to use:

- Ontario Tech University's Technology Use Policy
- Ontario Tech University's Social Media Community Rules
- Bates' SELECTIONS model, explored in Teaching in a Digital Age: Guidelines for designing teaching and learning (licensed under a CC BY-NC 4.0 License)
- The University of British Columbia's Digital Tattoo project (licensed under a CC BY-SA 4.0 License)

IT Services can be contacted to request information about supported software.

a) Other Applications:

Collaborative Document Production, Editing and Storage (e.g., Google Drive). Cloud-based software is accessible at: https://drive.google.com/. Ontario Tech University users can log in with their Ontariotechu.net email addresses and network credentials. It is suggested that you install Google Drive File Stream to allow you to access all GDrive content directly from any of your devices. Multiple users with shared access can simultaneously edit/modify a Google doc and all modifications will be synchronously updated on the site. Google provides help through the G Suite Learning Center.

Blogs (e.g., WordPress): In addition to the blog tool found within the LMS, there are hundreds of blogs available on the Internet. Many of these are available as downloadable and installable packages so that you can set these up on your own machines and/or websites. WordPress, a commonly used blogging tool, can be downloaded and installed this way (visit http://wordpress.org/download/). An example of this type of use can be found at the website for the Journal of Educational Informatics (http://www.journalofeducationalinformatics.ca/). WordPress is also available as a hosted service where WordPress.com hosts your blog on their servers (visit http://wordpress.com/). Tutorial - http://codex.wordpress.org/Introduction_to_Blogging

Wikis (e.g., MediaWiki): Wikis are websites that commonly allow communities of collaborators, often with varying levels of editing permission, to create and/or edit linked web pages ("Wiki," n.d.). For a more comprehensive explanation of the term, the "Wiki" Wikipedia entry is recommended.

There are hundreds of wikis available on the Internet. Many of these are available as downloadable and installable packages so that you can set these up on your own machines and/or websites. Mediawiki (http://www.mediawiki.org/wiki/MediaWiki) is a wiki tool used at Ontario Tech University. While the functionality of the wiki will be determined by the way the site has been configured, users can check out how to navigate, edit a page, etc. by following the link given above.

Micro-blog (e.g., Twitter): A micro-blog can be used as a backchannel (having a synchronous conversation with other networked users) alongside the main discussion occurring within the class. Twitter is a micro-blogging tool. The blog postings (known as 'tweets') in Twitter are limited to 280 characters, including symbols, spaces and punctuation. For further information visit http://twitter.com/about Twitter apps are also available for a broad range of smartphones and other mobile devices. Tutorial - http://www.youtube.com/watch?v=J0xbjIE8cPM

Presentation/Sharing Software (e.g., Google Slides, Prezi, Camtasia/Screencast, PowToons, Adobe Spark): Online presentation tools allow users to generate presentations that can be edited and shared online. **Learning Resources:** G Suite Learning Center - Get started with slides Prezi - Prezi Support

Chats: (e.g., https://chat.google.com/download): Many students may already be familiar with tools that allow for synchronous text 'chat' sessions. Some of these are combined with whiteboard and file sharing affordances that provide additional functionality. Course members are reminded to use tools that are secure and foster inclusion. For example, if a messaging tool is used to coordinate team communications, all team members should have access and be included.

Video Viewing and Posting (e.g., YouTube): YouTube is a video-sharing service that may be used in your courses. Videos may be viewed using these services, however, the real power comes with the ability that you have to create your own videos, post them to the online environment and share them with your colleagues. YouTube is also available through the OntarioTechU.net G Suite. Course members are also reminded to prepare scripts/transcripts for videos that are created. When seeking existing videos to share, please also check that they have captions. Tip: The Filter options in the YouTube search feature (available after a search term is entered) allow users to search for videos with captions and Creative Commons licenses.
Learning resource: Select the 'Upload videos' tab on this YouTube help page to learn more about uploading to YouTube and the various video privacy settings.

Concept Mapping Software (e.g., Cmap): Cmap is a graphical organizer that allows for the construction, navigation, sharing and critique of concept maps (graphical depictions of personal knowledge schema). The downloadable client can be easily installed on individual machines. Server versions are also available (visit http://cmap.ihmc.us/download/). Tutorials: There are a variety of presentations and videos which describe a variety of affordances provided by the Cmap tool: http://cmap.ihmc.us/support/help/

Knowledge Database (e.g., Knowledge Forum (WebKF - Browser Based)): The Knowledge Forum application provides users a collaborative scaffolded knowledge building environment within which posts, notes and multimedia files can be created. WebKF supports the development of learning communities with its unique ability to reorganize posts on the fly as well as allowing for the creation of synthesis posts (rise-aboves) which subsume a variety of individual posts. If your course uses the

WebKF application, you can access it at: https://kf6.ikit.org. For access to a WebKF database for your course, please contact Roland. Knowledge Forum 6 | Tutorial 0: How to Get Started on Knowledge Forum.

b) Open Educational and Other Resources

Here is the link to the OER Toolkit from OntarioTechU Library: https://guides.library.uoit.ca/OER-Toolkit

It is suggested that a textbook, at least a hard copy version of a textbook might convey the message that the courses in this program are like other programs. This would not be accurate, as there are many resources available on the Internet and through library resources that should make it possible to do without a textbook. Most of the courses in the ESDT program will operate without a textbook.

20. References

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21. *Appendix A: How the BA in ESDT maps onto the UGDIP UDLE expectations*.

OntarioTechU learning outcomes for students in BA ESDT programs → / OCAV expectations for Ontario Graduates ↓	1. Identify the historical and current trends of technology development and predict their effects on society.	2. Develop learner-centred environments best suited to facilitate the needs of learners in digital spaces.	3. Use constructivist theory to apply experiential and practical knowledge to online education.	4. Plan PBL approaches that focus on authentic activities.	5. Critically analyze the social, psychological and administrative issues that shape the integration of digital technologies in learning environments.	6. Critically evaluate how technology reflexively affects models of learning.
Depth and breadth of educational knowledge	x	x	x	x	x	x
Methodological knowledge	x		x	x		x
Application of Knowledge			x	x	x	x
Communication		x		x	x	
Awareness of limits of knowledge	x		x	x		
Autonomy and professional capacity-	x	x		x	x	