

DATE: January 23, 2018

TO: Board of Trustees

FROM: Darrel Robertson, Superintendent of Schools

SUBJECT: Career Pathways for the Trades
(Response to Request for Information #005)

ORIGINATOR: Sanaa El-Hassany, Director, Research and Innovation for Student Learning

RESOURCE STAFF: Carolyn Baker, Barb Cook, Chelsea Erdmann, Husna Foda, Laurie Houston, Sean Jones, Bob Morter, Julian Pacholik, Will Rice

REFERENCE: November 7, 2017 Board Meeting
[Career and Technology Studies \(CTS\), program of studies](#)
[Career and Technology Foundations \(CTF\), program of studies](#)
[CTS Apprenticeship Pathway Program](#)
[Dual credit education](#)

ISSUE

At the November 7, 2017 Board Meeting, Trustee Gibson requested the following information:

In support of Career Pathways for the trades, can the District:

1. summarize by catchment what course streams Edmonton Public Schools offers at the junior and senior high levels, and if the senior high courses offer dual credit with post-secondary institutions such as NAIT.
2. describe the current offering for teaching digital design/virtual reality/augmented reality

In a subsequent conversation, Trustee Gibson specified that he was particularly interested in what course opportunities were available in the District for students who showed an enthusiasm for the construction trades. He also expressed interest in if/how such course streams lead to a career pathway, and if there was a possibility for students, through dual credit courses or other mechanisms, to complete their high school education with equivalencies of first year of post-secondary hours or instruction in a construction trade.

BACKGROUND

At Edmonton Public Schools, Career Pathways resources and learning opportunities encourage students from Kindergarten to Grade 12 to think about, explore and plan what their life might look like beyond school. District schools work to embed Career Pathways into teaching and learning with the support of a central Career Pathways unit.

Career and Technology Studies (CTS) and Career and Technology Foundations (CTF) closely align with Career Pathways for students in high school and junior high. CTS courses are designed for high school students wishing to explore their interests and career options and are organized by five clusters:

1. Business, Administration, Finance and Information Technology (BIT)
2. Health, Recreation and Human Services (HRH)
3. Media Design and Communication Arts (MDC)
4. Natural Resources (NAT)
5. Trades, Manufacturing and Transportation (TMT)

The course structure for CTS is unique in that it offers flexible programming using one-credit course modules. The decisions about what clusters and pathways are offered are made by individual schools. These decisions are dependent on a number of factors including school context, student interest, and the availability of qualified staff, facilities and equipment available. Many high schools are experimenting with blending CTS clusters in an attempt to increase engagement and exposure to real world jobs and possible career paths.

CTF is an optional curriculum for students in Grades 5–9. The CTF curriculum is based on learning outcomes that encourage students to explore their interests, skills and passions as they learn about different career possibilities. Although CTF is not a prerequisite for participation in CTS courses, it may assist students in making informed course selections as they enter high school.

CURRENT SITUATION

Course Offerings and Dual Credit

At Edmonton Public Schools, there are many ways that students can explore an interest in the trades. Within the 13 Edmonton Public School catchments, high schools and junior highs offer a variety of CTS and CTF courses to help students explore, develop skills and gain exposure to multiple opportunities. CTS and CTF courses are often cross-disciplinary and incorporate multiple subject areas. Many of the skills acquired within these courses are transferable into the trades but may not be identified as trade-specific courses. CTS teachers use their expertise and innovative instructional techniques to address outcomes within the current construction curriculum, which currently has limited specific technology requirements. Attached is a list of CTS/CTF courses offered at the high school and junior high school level, organized by catchment (Attachment I). Each school that offers construction courses may choose to bundle them in different ways based on equipment, facilities and teacher expertise. A breakdown by school of which construction courses are offered at the introductory, intermediate and advanced level is included in Attachment II.

The Registered Apprenticeship Program (RAP) is another way for students to access trades-related instruction and is supported by a certificated off-campus coordinator within many District high schools. High school students participating in RAP can earn credits toward both an apprenticeship and a high school diploma. Students have the opportunity to gain on-the-job training while acquiring hours toward a designated trade. These hours are one of two components required for most trades. The second component, in most cases, is a requirement that student complete technical training through a post-secondary provider or the Apprenticeship and Industry Training (AIT). The number of hours required for the on-the-job portion for each trade varies based on requirements set by the AIT.

Campus EPSB is an innovative and exciting way of approaching teaching and learning. This opportunity allows students to access specialized programming that may require moving between schools.

Campus EPSB helps students explore and excel in areas of interest while earning industry recognized certifications and credentials. This semestered programming, currently in its second pilot year and has expanded to include four catchments and six different programs. Three of the six Campus EPSB semestered programs are trades-related. One of these programs, Steel Construction, provides students with an opportunity to acquire credentials that can be directly transferred to the construction industry. This program is a combination of CTS modules focusing on design, steel, wood construction and jobsite demands that is delivered by an Edmonton Public Schools teacher and industry experts. The two additional trades-related programs are CTS Apprenticeship Pathway Programs in Cosmetology and Automotive Service Technician, which allow students to write the First Period Apprenticeship and Industry Training exam.

Similar to the Campus EPSB courses, Centre High Campus offers a Carpentry First Period Apprenticeship Pathway Program that is currently supported by an industry partner. This program is offered in second semester and, at the end of the course, students have the opportunity to challenge the first year apprenticeship exam. In addition to the dual credit opportunities in the CTS Apprenticeship Pathways, two Dual Credit courses are available for students. This past summer students from all high schools had an opportunity to complete Business 200 through King's University, where 10 students successfully completed the course. Lillian Osborne High school will be piloting Psychology 1040 with 33 students in the second semester of this school year in partnership with Norquest College. Both of these programs help students earn credits that are transferable to a number of publicly funded post-secondary institutions throughout the province.

District schools continue to work with NAIT in various ways, such as field trips, open houses and workshops. Currently, none of these partnerships are dual credit related learning opportunities. From 2013 to 2016, under the Provincial Dual Credit Strategy, dual credit courses offered by NAIT through the Faculty of Continuing Education made use of an online Moodle platform with significant tuition attached. In November 2017, Alberta Education announced changes to dual credit education. These changes could positively impact potential dual credit opportunities with post-secondary institutions. Career Pathways continues to explore future dual credit opportunities with all post-secondary institutions, including NAIT.

Digital Design/Virtual Reality/Augmented Reality

As our District continues to respond to evolving labour market trends and the economy, schools are working to incorporate evidence-based educational practices and technologies to promote the development of competencies and transferable skills. Instructional practices and learning opportunities around digital design, virtual reality (VR) and augmented reality (AR) are varied within many classrooms.

Digital Design is a broad term that encompasses the areas of print, video, and multimedia. Across all grade levels, schools are integrating digital design into course work. As early as elementary school, students are using design software to operate 3D printers to create prototypes for projects. Many junior high and high schools offer CTF and CTS courses within the Media, Design and Communication cluster. These courses support different applications depending on the school, expertise and resources. CTS one-credit courses or CTF challenges may or may not incorporate trade-specific skills, but can help students to connect what they are learning to various potential pathways. To do this, one high school combines courses from two separate clusters by incorporating design components into the steel and welding program through use of a plasma cutter. Likewise, one of our junior high schools has created a "design—think—build" lab where students explore the design thinking process to solve challenges with a

focus on wood construction. When the space is not in use by school scheduled courses, it can be used by classes from other schools.

Additionally, Locally Developed Courses (LDCs) are developed or acquired and approved by school authorities to provide students with learning opportunities that complement provincial programs of study. We are considering LDCs that are available through other school jurisdictions and continue to work with high schools to determine interest and demand in these areas. Two potential LDCs that directly address the technologies in question are:

1. Working with Three Dimensional Data 15-25-35 (five credit): The emphasis of this course is on the student developing a 21st century skill that will become critically important as our manufacturing industry evolves and changes. Students will be able to take physical objects and digitally represent these objects in maps, simulations, modeling, and historical artifact preservation.
2. Human-Computer Interface 35 (five credit): The aim of this course is to give students a general understanding of the context and current state of interactive computer technology and allow them to explore those aspects of HCI that most interest them.

VR and AR are not explicitly being taught in one subject or course. Rather, these new technologies are used to enhance learning opportunities. VR primarily incorporates the use of headsets or multi-projected environments to immerse the user in a virtual environment (e.g., [Google Expeditions](#)), whereas AR superimposes digital images over real-world environments, most often using the camera on a person's smartphone (e.g., Pokémon GO).

The District currently has several VR kits (smartphones and headsets) that are available for schools to borrow from the Technology Integration Planning and Support (TIPS) team and a few schools have ordered their own sets. These kits are primarily used for Google Expeditions; a virtual field trip application that allows students to explore with global and career development perspective. Recently, pricing has become more attractive, making school sets more accessible.

At Edmonton Public Schools, through Career Pathways, we continue to support innovative and engaging ways to foster growth and success in students to better prepare them for life beyond school. Recognizing that this is a collective responsibility, we regularly look outward to community organizations who can share their expertise. We continue having conversations with industry stakeholders and schools to look at ways to digitally enhance current course offerings and support teachers with professional learning opportunities.

KEY POINTS

This report provides:

- A summary of CTS/CTF-related course offerings at the junior and senior high level.
- An overview of the trades-related dual credit opportunities in high school.
- An overview of the current offering and teaching of digital design/virtual reality/augmented reality within Edmonton Public Schools.

ATTACHMENTS and APPENDICES

- [ATTACHMENT I](#) 2016-17 CTS/CTF Courses by Catchment
[ATTACHMENT II](#) 2016-17 Construction Courses Offered

CE:BC:SJ