



Solving Technology Problems

ATG 1008

Dual Credit Program through Olds College, online, asynchronous, September - December, 2022

Program Description

Students will engage in the problem-solving process using current hardware and software tools for applied data-driven problem solving. Through data analysis, algorithmic problem solving, and technical memo writing students will work to solve a technical agricultural issue.

Upon successful completion of the course, students will earn three post-secondary credits for ATG 1108 Solving Technology Problems, and five 30-level high school credits. This course is part of the Precision Agriculture Techgronomy Diploma program at Olds College.

Student Eligibility and Prerequisites

Applications for this program is open to all fulltime CESD students:

1. Who are excited about learning and sharing their ideas
2. Who are in grades 10, 11 or 12 and who have an interest in learning about the Agricultural Profession.
3. Who are able to commit to the duration of the program, participating in learning activities and completing assignments and tests as scheduled, and who can meet regularly with the Off Campus Teacher to communicate about progress in the course and to identify strategies for success.
4. **Prerequisite:** English Language Arts 10-1 (70% minimum)

Important Dates

- **Applications due:** September 16, 2022
- **Schedule:** asynchronous online - follow course schedule, September- December 2022

Program Benefits

1. Earn five 30-level high school options credits
2. Earn three post-secondary credit without paying post-secondary tuition
3. Reduce stress associated with the transition from high school to post-secondary
4. Experience a post-secondary online learning environment
5. Explore potential Post Secondary and career options

Estimated Costs

1. Tuition - \$0 (**savings of approximately \$500**)
2. Textbooks and materials - \$0 - 150 (estimated)

Course Outline

Upon successful completion of this course, students will have the following competencies:

- a. Engage in the cyclical, inter-related process of effective problem-solving, including Defining, Stating, Selecting and Collecting, Analyzing, Testing and Communicating.
- b. Apply the problem-solving strategy to a technical agricultural issue.
- c. Communicate solutions based on quantitative and qualitative data on a technical agricultural issue.

Additional Information

- Tuition costs are covered by Chinook's Edge School Division. However, students are responsible for costs associated with textbooks and any additional materials required for the course.
- Students' marks will appear on their high school transcript as well as their post-secondary transcript.

Supply List: ATG 1008 Solving Technology Problems

- Zumo Arduino Robot: <https://www.pololu.com/product/2510>
- Arduino Uno R3: Either the official branded Arduino Uno (<https://store.arduino.cc/usa/arduino-uno-rev3>), OR any Arduino Uno R3 compatible model (https://www.amazon.ca/Elegoo-Board-ATmega328P-ATMEGA16U2-Arduino/dp/B01EWOE0UU?ref=ast_sto_dp) will work. The latter is often half the price and ships more reliably.
- AA batteries for the robots (could be up to 8 because they are likely to burn out at least one set with robot use)
- A longer USB A to B cable than is sometimes provided with the arduino, sometimes not included depending where it's ordered from, because the students will need to maintain connection with the computer as the robot moves: <https://www.memoryexpress.com/Products/MX184>
- Magnetic compass (smart phone may have this)
- The software is free and can be found here: <https://www.arduino.cc/en/software>
- Microsoft Windows based computer
- Large posters will need to be sent to schools for the testing of the robots later in the course. Printing and shipping costs will apply. We will communicate this to the school division once the course begins and the exact posters are determined by the instructor.

ATG 1008: Important to know for student success

Coding and Microsoft spreadsheets (graphing/figures/charts/basic stats) will be key skills learned in the course that are put into action with the Zumo robot.

Prior coding skill not required but students should be comfortable with math (algebra and polynomials at minimum grade ten level) and working hard in the trial and error process involved with learning to code. Students may need to spend more time on an assignment if the coding requires problem solving. This may need a little extra commitment by the student to be successful. Our instructor is confident that students with a strong work ethic who will not stop until the coding issue is solve will do well in the course. This work ethic is key for the course's final project.

Lessons will have video lectures and all lessons/assignments/assessments are tracked and record completion. Students will have very clear step by step weekly tasks to complete.

One synchronous class per week will run in after school hours to provide direct instruction and guidance for the learners.