

# Specialist High Skills Major Construction Certificate with Land Surveying Electives - Path to a career in land surveying

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Land surveying is one career that students, their teachers, and school counselors tend to overlook. Surveying combines knowledge of Math, Geography, History, computers, Science, planning, and Law. Few would argue that choosing the right career is very important, especially for students who are introduced to many choices in their senior high school years. The challenge is: which choice is the right choice?

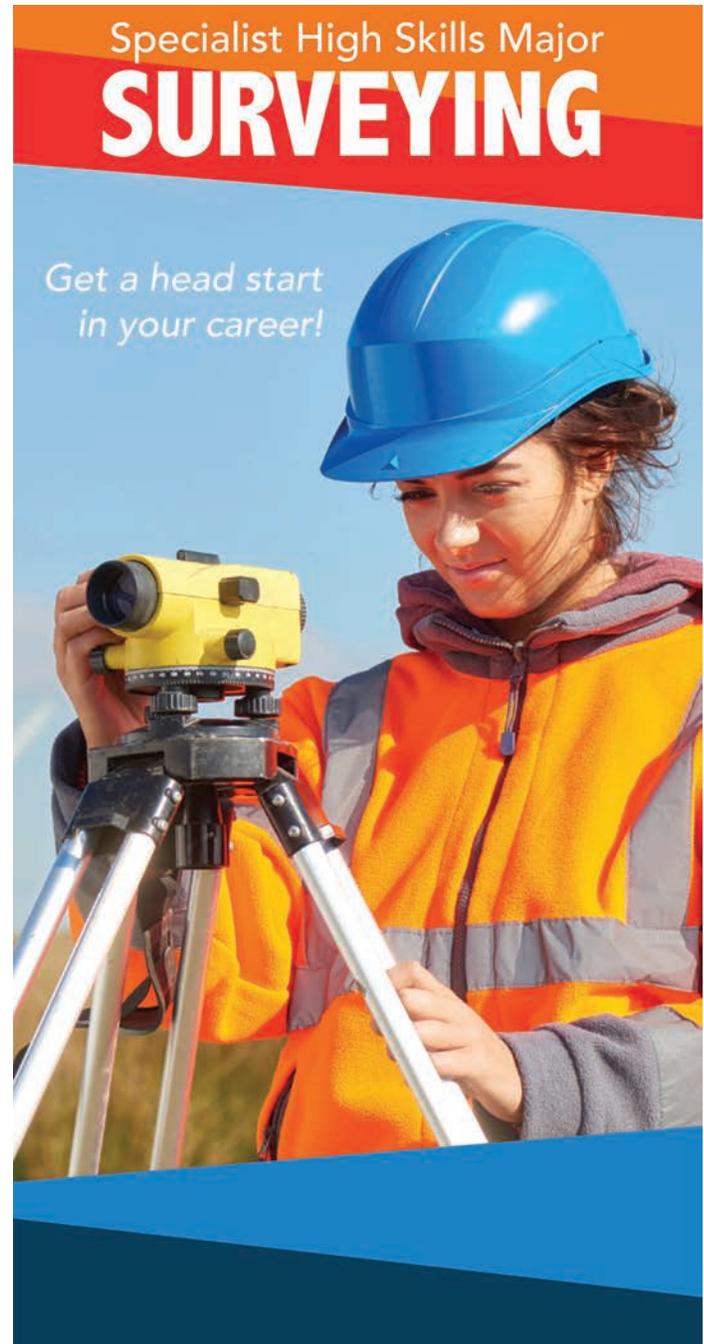
One way to help with decision-making is the Specialist High Skills Majors (SHSM) program, launched in September 2006. It was part of the Ontario government's Student Success Strategy initiative, which focused on expanding quality learning opportunities and supporting success for all students. Now, SHSM programs are available in all Ontario public school boards.

The SHSM is an Ontario Ministry of Education-approved specialized program that allows students to focus their learning on a specific economic sector while meeting the requirements for their secondary school diploma (OSSD). This career-focused program is designed to help prepare students to make the transition from secondary school to apprenticeship training, college, university, or the workplace.

A SHSM enables students to gain sector-specific skills and knowledge in the context of engaging, career-related learning environments and helps them focus on graduation and on pursuing their post-secondary goals.

The SHSM for the construction sector includes land surveying basics. With an approved SHSM certificate from the Association of Ontario Land Surveyors that endorses graduation from a School Board SHSM construction/surveying program, students gain insights to surveying as a career choice and a professional advantage in a land surveying or geomatics career.

Teaching land surveying basics to students in grades 11 and 12 involves first providing an overview and what surveying is and the role of the professional surveyor then delving into the hands-on aspect of measurement using various pieces of equipment. For example, in one exercise, students learn about establishing spot elevations. The goal is to measure and check the height of land and a variety of features around a school property using land surveying equipment. Developing spot elevations leads to applications of data for such products as base maps, site plans, or contour models, which in turn, may lead to interests in cadastral surveying, geographic information management, geodetics, photogrammetry, and hydrography. These are branches of surveying recognized



**CONSTRUCTION**  
**SHSM**  
SPECIALIST HIGH SKILLS MAJOR



by the Association of Ontario Land Surveyors (AOLS), the governing body for land surveyors in Ontario. The classroom requires a tripod, level, and rod and for schools or boards that do not own equipment; these may be rented from a rental centre or they can ask an Ontario Land Surveyor for assistance to borrow or obtain equipment. Local surveyors are available to help train teachers and students in the use of equipment to capture and record data.

Students receive the SHSM seal on their diploma when they complete a specific bundle of 8-10 courses in the student's selected field, earn industry certifications including first aid and CPR qualifications, and gain important skills on the job through cooperative education placements.

## Student Benefits of a Specialist High Skills Major

- Customization of a secondary school education to suit a student's interests and talents
- Development of specialized knowledge and skills
- Ability for the student to earn credits that post-secondary educational institutions and the sector (construction/surveying) recognize
- Access to sector-recognized certification and career-relevant training
- Development of essential skills and work habits documented through the Ontario Skills Passport
- Students identify, explore, and refine career goals and make informed decisions about their future
- Students remain flexible, with the option to shift between pathways, should their goals and plans change.

## Additional Student Benefits of a Specialist High Skills Major endorsed by the AOLS

Schools that work with members of the Association of Ontario Land Surveyors for training students and teachers help students:

- Gain an insider's view of the land surveying profession
- Access a career that is in demand (75% of AOLS members are over the age of 50)
- Learn skills to work as a surveyor in dozens of industries



- Earn a certificate from the AOLS upon graduation that enhances the value of the red SHSM seal that goes on a high school diploma
- Explore how surveyors interact with technology to solve practical problems
- Prepare for a career where self employment is common - a great program for young entrepreneurs
- Customize a high school education to suit an unique interest in math, technology, and both outdoor and indoor tasks.

## The Dream Job

Working as an Ontario Land Surveyor or working with an Ontario Land Surveyor as a Survey Technician or Technologist is a dream job:

- To settle land disputes between neighbours, Surveyors need to find evidence on the ground to prove who owns the land. GPS, aerial photos, maps, old deeds (the legal written documents that transfer title from one person to another), and plans are used to determine boundaries.
- The Canadian Government needs a record of the polar ice caps to make ocean travel safe. Surveyors work from planes and boats to measure the changes and chart the ice movements to assist ships engaged in international trade.
- A developer may be building a new shopping mall in a vacant field. Surveyors determine exactly where the foundations of the building will go, and makes sure that the structure is positioned correctly during construction.
- Using satellites and computer software, surveyors make sure the gas lines transporting fuel to markets stay on course and are constructed correctly.
- And, surveyors present their professional opinions in court as an expert witness. The opinions of licensed surveyors are used by legal professionals to make decisions that impact businesses, land owners, plaintiffs and defendants in traffic incidents, crime scenes and many other situations that land in court.

A professional surveyor and the people who work with professional surveyors lead exciting careers that are well rewarded with life-enriching experiences, opportunities to earn high salaries, and advance the science of measuring, collecting data and presenting discoveries in the form of new information and knowledge that can be shared with everyone.

And the Construction SHSM is a gateway into land surveying. There are career paths after high school that can be rewarding for those who wish to be known as technologist and those who have a calling to be a licenced professional surveyor. There are Ontario colleges that offer diploma programs and certificates in surveying/geomatics technology. Universities and the Association of Ontario Land Surveyors offer the requirements for licencing people to practise as professionals. There is a process.

To pursue the path to a professional surveyor, a high school graduate who may have taken the Construction with surveying option SHSM, would also need 12U Calculus & Vectors; 12U Physics; 12U Chemistry; 12U Advanced Functions; and 12U English for entry into a Canadian university. In Ontario, the universities with programs delivering most courses required by the AOLS are the Lassonde School of Engineering at York University, Civil Engineering at Ryerson University and Geomatics at the University of Waterloo. There are universities outside of Ontario with AOLS-recognized geomatics/civil engineering programs such as the University of New Brunswick and University of Calgary.

After graduating from a 4-year university program, students must apply to the AOLS to article with an Ontario Land Surveyor or Ontario Land Information Professional for about 1½ years while being paid a very competitive salary. Following the articling period, the student challenges an oral and written exam of the AOLS to be awarded a certificate of authorization and licence to practice a career as an Ontario Land Surveyor.

For many, a career in land surveying can begin with the high school SHSM in construction. Students who see surveying as a career can work with their teachers, parents, school principal, career counsellor, and local surveyor to realize their dream. For more than 600 surveyors in Ontario, their dream job is land surveying. See [aols.org](http://aols.org).

