

Manufacturing



Is this your future career?

Experiential learning, reach ahead activities, certification and more... at **NO COST** to you.

About the Specialist High Skills Major (SHSM)

The Specialist High Skills Major (SHSM) is a specialized program approved by the Ministry of Education that allows students to focus their learning on a specific economic sector while meeting the requirements of the Ontario Secondary School Diploma (OSSD).

SHSMs assist students in their transition from secondary school to apprenticeship training, college, university or the workplace.

These programs enable students to gain sector-specific skills and knowledge in engaging, career-related learning environments, and prepare in a focused way for graduation and postsecondary education, training or employment.

Profile - Manufacturing

Automobiles, wood products, petroleum and coal products, iron and steel mills, primary metals and fabricated metal products, electricity, plastics and rubber products, printing, biotechnology, textiles, clothing and leather products are all aspects of the manufacturing sector. In Ontario, the manufacturing sector still accounts for the greatest number of jobs with its production of consumer and industrial goods that are essential for the province's prosperity. Although the manufacturing sector remains a powerhouse in our economy, contributing 15 per cent of gross domestic product in 2007, the sector is undergoing fundamental change.¹

An article on the website of the Alliance of Sector Councils² explains that the manufacturing sector is under tremendous pressure as a result of multiple external stresses, including marketplace globalization, an accelerated pace of technological change and a global financial crisis. The alliance reports that manufacturers are now urgently refocusing their strategies to remain competitive and continue to be an important part of the Canadian economy.

The manufacturing industry is committed to addressing skills development, labour market and human resource issues across the various sectors within Canadian manufacturing. This will provide new employment opportunities for students choosing to pursue a career in this sector.

For more information, news articles and where this program is being offered, visit SHSM.rainbowschools.ca

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Required Components for the SHSM – Manufacturing

The SHSM – Manufacturing has the following five required components:

1. A bundle of nine Grade 11 and Grade 12 credits.

These credits make up the bundle:

- Four manufacturing major credits that provide sector-specific knowledge and skills
- Three other required credits from the Ontario curriculum, in English, mathematics and science, in which some expectations are met through learning activities contextualized to the manufacturing sector
- Two co-operative education credits that provide authentic learning experiences in a workplace setting, enabling students to refine, extend, apply and practise sector-specific knowledge and skills

Exception: If a student obtains a four (4) credit co-op, they may choose to use one additional co-operative education credit to substitute for one “major credit” and/or one “other required credit” (not from the Math or English categories).

Required Credits	Manufacturing Major	English*	Mathematics*	Science*	Co-operative Education
Grade 11	2	1		1	2
Grade 12	2		1		
Number of credits (Total = 9)	4	1	1	1	2

* Includes content delivered in the sector's context.

There are NO extra credits required to complete this program.

All required credits may be obtained within the 30 required credits for the Ontario Secondary School Diploma (OSSD).

2. Six sector-recognized certifications and/or training courses/programs

The SHSM in manufacturing requires students to complete six sector-recognized certifications and/or training courses/programs. Of these, three are compulsory and the remaining three are electives that must be chosen from the list in the following table. Note that items in the list that are capitalized are the proper names of specific certifications or training courses/programs that are appropriate for the SHSM. Items that are lowercased are names of the areas or categories within which specific certifications or training courses/programs should be selected by the school or board.

The requirements are summarized in the table below.

Three Compulsory:			
Cardiopulmonary Resuscitation (CPR) Level A	generic (i.e. not site specific) instruction about the Workplace Hazardous Materials Information System (WHMIS)	Standard First Aid	
Three Electives from the list below:			
computer-aided design and computer-aided manufacturing (CAD/CAM)	Canadian Welding Bureau (CWB) – flat	confined space awareness	elevated work platforms
fall protection	hoisting and rigging	lift truck safety	lockout/tagging
personal protective equipment – manufacturing	propane safety	safe lifting	software
transportation of dangerous goods			

3. Experiential learning and career exploration activities

Experiential learning and career exploration opportunities relevant to the sector might include:

- one-on-one observation of a co-operative education student at a placement in the manufacturing sector (example of job twinning)
- a day-long observation of a skilled tradesperson in the manufacturing sector (example of job shadowing)
- a one- or two-week work experience with a member of an industry association or a professional in the sector (example of work experience)
- participation in a local, provincial or national Skills Canada competition
- a tour of a range of manufacturing enterprises
- attendance at a manufacturing trade show, conference or job fair
- attendance at demonstrations and hands-on activities presented by equipment vendors

Experiential learning activities are at NO COST.

(Exceptions may apply to out of town trips.)

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4. Reach ahead experiences

Students are provided one or more reach ahead experiences – opportunities to take the next steps along their chosen pathway – as shown in the following examples:

- Apprenticeship: visiting an approved apprenticeship delivery agent in the sector
- College: interviewing a college student enrolled in a sector-specific program
- University: observing a university class in a sector-related program
- Workplace: interviewing an employee in the sector

Reach ahead activities are at NO COST.

(Exceptions may apply to out of town trips.)

5. Essential Skills and work habits and the OSP

Students will develop Essential Skills and work habits required in the sector and document them using the Ontario Skills Passport (OSP), a component of the SHSM.

Seven Key Benefits for Students

Pursuing a SHSM enables students to:

- 1 Customize their secondary school education to suit their interests and talents
- 2 Develop specialized knowledge and skills that are valued by the sector and postsecondary education institutions
- 3 Earn credits that are recognized by the sector and postsecondary education institutions
- 4 Gain sector-specific and career-relevant certification and training
- 5 Develop Essential Skills and work habits that are valued by the sector, recorded using the tools in the Ontario Skills Passport (OSP)
- 6 Identify, explore and refine their career goals and make informed decisions about their postsecondary destination
- 7 Remain flexible, with the option to shift between pathways should their goals and plans change

Exploration (Grades 9 and 10)

In addition, students considering this SHSM can be encouraged to enroll in the following courses to become better informed about careers and postsecondary options in the sector:

- **Exploring Technologies:** This Grade 9 course is recommended for all students following SHSM pathways that have a technological education focus. The course provides students with opportunities to explore a variety of technologies, including manufacturing technology, by engaging in activities related to them.
- **Manufacturing Technology (TMJ20):** This course is recommended for any Grade 10 student who is considering enrolling in a SHSM – Manufacturing program.

Occupations in the Manufacturing Sector

The following table provides examples of occupations in the manufacturing sector, with corresponding National Occupation Classifications, sorted according to the type of postsecondary education or training the occupations would normally require.

Apprenticeship Training
<ul style="list-style-type: none"> • Die Designer 2232 • Electrician 7212 • Electrician, Plant Maintenance 7242 • Industrial Instrument Mechanic 2243 • Millwright - Industrial 7311 • Mould Maker 7231 • Precision Machinist 7231 • Precision Metal Fabricator 7263 • Roll Grinder/Turner 9511 • Tool and Cutter Grinder 9511 • Tool and Die Maker 7232 • Welder 7265 • Welder Fitter 7265

Note: Some of the names of occupations in this table may differ slightly from the names given in the National Occupation Classification system.

The names listed here reflect common usage by institutions and organizations in this sector in Ontario.

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Welding

University

- Chemical Engineer 2134
- Electrical Engineer 2133
- Engineer, Computer Integrated Manufacturing 2141
- Industrial and Manufacturing Engineer 2141
- Mechanical Engineer 2132
- Metallurgical Engineer 2142
- Production Engineer 2141

College

- Buyer 1225
- Chemical Production Engineering Technologist 2211
- Design and Drafting Technologist 2253
- Electronics Engineering Technologist and Technician 2241
- Industrial Engineering Technologist and Technician 2233
- Instrumentation and Control Technologist and Technician 2243
- Inventory Analyst 1474
- Manufacturing Technician/Technologist 2233
- Materials Supervisor/Material Control Manager 0114
- Mechanical Engineering Technologist 2232
- Photonics Technologist and Technician 2241
- Production and Quality Control Technologist 2233
- Stationary Engineer 7351
- Technical Sales Specialist 6221

Workplace

- Foundry Worker 9412
- Inventory Clerk 1474
- Labourer, Material Handling 7452
- Machine Operator, Metal Machining 9511
- Motor Vehicle Assembler 9482
- Solderer 7265

REGISTRATION FORM



Specialist High Skills Major – Manufacturing

Personal Information: *Please print neatly and provide the information below.*

Legal Name: _____
Surname First Name Middle Initial

Current School: _____ Student ID #: _____

Home Address: _____

City/Town: _____ Postal Code: _____

Home Telephone: _____ Cell: _____ E-Mail: _____

Which pathway do you plan to pursue? *(Please check one.)*

- Apprenticeship Training Workplace College University

Are you currently enrolled as an OYAP student? Yes No

Have you taken or are you currently enrolled in any Dual Credit courses? Yes No

If yes, please provide details: Course Code _____ Course Name _____

Currently enrolled: Yes No

Completed: Yes No If yes, provide date of completion: _____

 Student's Signature

 Print name (Student)

 Parent/Guardian Signature

 Print name (Parent/Guardian)

 Date

Once you have completed the Registration Form, please submit it to the Guidance Department at your school for processing. A member of the SHSM team will be in contact with you shortly to set up your file and get you started on your journey to success.

In accordance with the Municipal Freedom of Information and Protection of Privacy Act, personal information is being collected under the authority of the Education Act and will be used to register students in a Specialist High Skills Major. For more information, please contact the Principal.

Congratulations on choosing an exciting future!

School Contact Information: