

# Transportation

## Required Components for the SHSM–Transportation

1. A bundle of nine Grade 11 and Grade 12 credits that comprises:
  - four transportation major credits
  - three other required credits from the Ontario curriculum, in English, mathematics, and science or business studies
  - two cooperative education credits tied to the sector
2. Seven sector-recognized certifications and/or training courses/programs (four compulsory and a choice of three electives)
3. Experiential learning and career exploration activities within the sector
4. Reach ahead experiences connected with the student’s postsecondary plans
5. Development of Essential Skills and work habits required in the sector, and documentation of them using the OSP

## Profile of the Transportation Sector

Transportation affects our lives in a multitude of ways. We drive cars for everyday purposes, use mass transit to commute to work, and take flights and cruises on holidays. Transportation systems move raw materials to manufacturers and finished products to consumers – locally, nationally, and globally.

### INSIGHT

The requirements of this SHSM are unique and are geared to the transportation sector. However, the design of all SHSM programs follows a consistent model, described in **Section A: Policy**.

In addition to being essential to our daily lives, transportation and transportation systems are an important area of employment in our economy. Transport Canada’s *Transportation in Canada 2008* reports that the industry provided work for approximately 900,000 people in 2008 and that employment in this sector has grown steadily since 2000, reflecting a high demand for qualified personnel.<sup>1</sup>

The SHSM–Transportation provides students with a strong foundation for a wide variety of careers in the transportation sector, from those focusing on the service, repair, and modification of vehicles and vehicle systems to those related to the organization and management of transportation services and mass-transit systems. Depending on local circumstances, this SHSM may be designed to have a particular focus. Where a choice of focus areas is offered, students may select one.

<sup>1</sup> Transport Canada, *Transportation in Canada 2008, An Overview, Addendum*, [www.tc.gc.ca/media/documents/policy/addendum.pdf](http://www.tc.gc.ca/media/documents/policy/addendum.pdf).

## Occupations in the Transportation Sector

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

### FIND IT!



See **Section A1.6** for more on occupations and NOCs.

Apprenticeship Training	College
<ul style="list-style-type: none"> <li>• Alignment and Brakes Technician 7321</li> <li>• Auto Body Repairer 7322</li> <li>• Automotive Painter – Motor Vehicle Repair 7322</li> <li>• Automotive Service Technician 7321</li> <li>• Marine Engine Mechanic 7311</li> <li>• Motorcycle Technician 7334</li> <li>• Parts Technician 1472</li> <li>• Recreation Vehicle Service Technician 7383</li> <li>• Small Engine Mechanic 7335</li> <li>• Transmission Technician 7321</li> <li>• Truck and Coach Technician 7321</li> <li>• Truck and Transport Vehicle Mechanic 7321</li> </ul>	<ul style="list-style-type: none"> <li>• Air Pilot 2271</li> <li>• Industrial Designer 2252</li> <li>• Industrial Engineering Technician 2233</li> <li>• Marine Engine Technician 7436</li> <li>• Mechanical Engineering Technologist 2232</li> <li>• Navigation Officer – Water Transport 2273</li> <li>• Quality Control Assembly Inspector – Automotive/Marine Engines 9486</li> <li>• Supervisors, Motor Transport, and Other Ground Transit Operators 7222</li> </ul>
University	Workplace
<ul style="list-style-type: none"> <li>• Aerospace Engineer 2146</li> <li>• Automotive Engineer 2132</li> <li>• Industrial Designer 2252</li> <li>• Urban Planner 2153</li> </ul>	<ul style="list-style-type: none"> <li>• Aircraft Assembler and Aircraft Assembly Inspector 9481</li> <li>• Airport Ramp Attendant 7437</li> <li>• Automobile Salesperson 6421</li> <li>• Automotive Mechanical Installers and Servicers 7443</li> <li>• Boat Assembler and Inspector 9491</li> <li>• Boat Operator 7436</li> <li>• Bus Driver, Subway Operator, and Other Transit Operator 7412</li> <li>• Car Lot Attendant 6683</li> <li>• Delivery and Courier Service Drivers 7414</li> <li>• Heavy Equipment Operators (except Crane) 7421</li> <li>• Railway Track Maintenance Worker 7432</li> <li>• Service Station Attendant 6621</li> <li>• Tire Repairer 7443</li> </ul>

*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.

## Postsecondary Programs and Training in the Transportation Sector

The following are examples of programs and training related to careers in the transportation sector and the accreditations associated with each.

### *Apprenticeship Training*

Alignment and Brakes Technician	Certificate of apprenticeship/ certificate of qualification
Auto Body Repairer	Certificate of apprenticeship/ certificate of qualification
Automotive Painter	Certificate of apprenticeship/ certificate of qualification
Automotive Service Technician	Certificate of apprenticeship/ certificate of qualification
Farm Equipment Mechanic	Certificate of apprenticeship/ certificate of qualification
Heavy Duty Equipment Technician	Certificate of apprenticeship/ certificate of qualification
Motorcycle Technician	Certificate of apprenticeship/ certificate of qualification
Parts Technician	Certificate of apprenticeship/ certificate of qualification
Recreation Vehicle Service Technician	Certificate of apprenticeship/ certificate of qualification
Tire, Wheel, and Rim Mechanic	Certificate of apprenticeship/ certificate of qualification
Transmission Technician	Certificate of apprenticeship/ certificate of qualification
Truck and Coach Technician	Certificate of apprenticeship/ certificate of qualification
Truck Trailer Service Technician	Certificate of apprenticeship/ certificate of qualification
Turf Equipment Technician	Certificate of apprenticeship/ certificate of qualification

### *College*

Applied Business – Automotive Management	Bachelor's degree
Automobile Production Manager	Diploma
Industrial Designer	Diploma
Industrial Engineering Technician	Diploma

Marine Engine Mechanic	Diploma
Motive Power Technician	Diploma
Navigation Officer – Water Transport	Diploma
Quality Control Assembly Inspector – Automotive/Marine Engines	Diploma
Small Engine Mechanic	Diploma
Stationary Engineer and Auxiliary Equipment Operator	Diploma
Transportation Manager	Diploma

### *University*

Aerospace Engineer	Bachelor's degree
Automotive Engineer	Bachelor's degree
Electrical Engineer	Bachelor's degree
Mechanical Engineer	Bachelor's degree

### *Training for the Workplace*

Air Pilot	Certificate
Air Transport Ramp Attendant	Certificate
Aircraft Assembler and Aircraft Assembly Inspector	Certificate
Airline Sales and Service Agent	Certificate
Boat Assembler and Inspector	Certificate
Boat Operator	Certificate
Bus Driver, Subway Operator, and Other Transit Operator	Certificate
Railway Track Maintenance Worker	Certificate
Small Business Manager	Certificate
Tire and Rim Technician	Certificate

## Required Components for the SHSM–Transportation

The SHSM–Transportation has the following five required components:

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

These credits make up the bundle:

- four transportation major credits that provide sector-specific knowledge and skills
- three other required credits from the Ontario curriculum, in English, mathematics, and science or business studies, in which some expectations are met through learning activities contextualized to the transportation sector
- two cooperative education credits that provide authentic learning experiences in a workplace setting, enabling students to refine, extend, apply, and practise sector-specific knowledge and skills

#### FIND IT!

See **Section A1.2** for more on SHSM credits.



Credits		Apprenticeship Training		College		University		Workplace	
		Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12	Gr. 11	Gr. 12
<b>Transportation Major</b>		2	2	2	2	2	2	2	2
includes content delivered in the sector's context	<b>English</b>	1		1		1			1
	<b>Mathematics</b>		1		1		1	1	
	<b>Business Studies or Science</b>	1		1		1		1	
<b>Cooperative Education</b>		2		2		2		2	
<b>Total number of credits</b>		<b>9</b>		<b>9</b>		<b>9</b>		<b>9</b>	

Note: Multiple credits in the Ontario technological education curriculum allow additional instructional time for the practice and refinement of skills needed to develop student performance to the levels required for certification, entry into apprenticeship programs, or participation in school–work transition programs (see *The Ontario Curriculum, Grades 11 and 12: Technological Education, 2009*, page 17).

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

The SHSM in transportation requires students to complete seven sector-recognized certifications and/or training courses/programs. Of these, four are compulsory and the remaining three are electives that must be chosen from the list in the following table. Note that items in the table 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.

#### FIND IT!

See **Section A1.3** for more on SHSM certifications and training.



Four compulsory			
Cardiopulmonary Resuscitation (CPR) Level A	health and safety – basic	generic (i.e., not site-specific) instruction about the Workplace Hazardous Materials Information System (WHMIS)	Standard First Aid
Three electives from the list below			
air brake	all-terrain vehicle (ATV) safety	computer-aided design and computer-aided manufacturing (CAD/CAM)	customer service
Dare to Care – Vehicle Sales and Service	Drive Clean	environmental spill	ergonomics
fall protection	filling propane and motor fuel tanks	fire extinguisher use	lift truck safety
lockout/tagging	original equipment manufacturer’s training	ozone depletion	Pleasure Craft Operator
vehicle lift safety			

### 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 cooperative education student at a placement in the transportation sector (example of job twinning)
- a day-long observation of a skilled tradesperson in the transportation 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 an automobile dealership, specialized transportation business, or municipal transportation department office and garage
- attendance at a transportation sector trade show, conference, or job fair.

#### FIND IT!

See **Section A1.4** for more on experiential learning and career exploration activities.

#### POLICY

Note that volunteer activities in an SHSM cannot be counted towards the hours of community involvement required to earn the OSSD.

#### 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

#### FIND IT!

See **Section A1.5** for more on reach ahead experiences.



#### 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 OSP, a component of the SHSM.

#### FIND IT!

See **Section A1.6** for more on Essential Skills and work habits.



### Pathways for the SHSM–Transportation

A table illustrating the four pathways and required credits leading to completion of this SHSM is provided below. You will also find tables illustrating sample bundles of credits, and other useful resources, on the ministry's SHSM website.

#### **Awareness building (Grades 7 and 8)**

See **Section 5.5** for information on building awareness of SHSM programs among students in Grades 7 and 8.

#### **Exploration (Grades 9 and 10)**

See **Section 5.5** for information on providing Grade 9 and 10 students with opportunities for exploration of SHSM programs. In addition, students considering this SHSM can be encouraged to enrol 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 transportation technology, by engaging in activities related to them.
- Career Studies (compulsory) and Discovering the Workplace: Some of the expectations in these Grade 10 courses provide opportunities for students to explore occupations and other postsecondary options in the sector and to participate in experiential learning activities.
- Transportation Technology: This course is recommended for any Grade 10 student who is considering enrolling in an SHSM–Transportation program.

#### TOOLS AND RESOURCES

Visit the ministry's SHSM website at [www.edu.gov.on.ca/eng/teachers/studentsuccess/specialist.html](http://www.edu.gov.on.ca/eng/teachers/studentsuccess/specialist.html) for:

- sample bundles of credits specific to this SHSM
- a list of organizations and resources specific to this SHSM.



***Specialization (Grades 11 and 12)***

Students acquire the sector-specific knowledge and technical skills required to earn their OSSD with an SHSM–Transportation by completing its five required components. Students and their parents/guardians are encouraged to consult with guidance counsellors and teachers to select the courses that will enable students to pursue their goals.

Students pursuing an apprenticeship pathway should consider OYAP, which enables them to start an apprenticeship while earning their OSSD.

Students pursuing a university pathway are advised to complete their required cooperative education credits in Grade 11, in order to allow room in their timetables in Grade 12 for credits needed to meet university entrance requirements.

When helping students plan their SHSMs, particularly with respect to the selection of courses to fulfil the requirement for credits in the major, teachers should bear in mind that technological education courses can be offered as single-credit or multiple-credit courses.

## Program pathways: SHSM–Transportation

• Shaded boxes – required credits in the bundle for the SHSM–Transportation • (C) – compulsory credit for the OSSD

Grade 9: <i>Exploration</i>	Grade 10: <i>Exploration</i>	Apprenticeship Training Pathway: <i>Specialization</i>		College Pathway: <i>Specialization</i>		University Pathway: <i>Specialization</i>		Workplace Pathway: <i>Specialization</i>	
		Grade 11	Grade 12	Grade 11	Grade 12	Grade 11	Grade 12	Grade 11	Grade 12
An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit	An optional or a compulsory credit
(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English	(C) English
(C) Mathematics	(C) Mathematics	(C) Mathematics	(C) Mathematics	(C) Mathematics	(C) Mathematics	(C) Mathematics	(C) Mathematics	(C) Mathematics	Mathematics
(C) Science	(C) Science	Science or Business Studies in either Gr. 11 or Gr. 12		Science or Business Studies in either Gr. 11 or Gr. 12		Science or Business Studies in either Gr. 11 or Gr. 12		Science or Business Studies in either Gr. 11 or Gr. 12	
(C) Geography of Canada	(C) Canadian History	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major
(C) Core French	(C) Career Studies/ Civics	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major	Transportation Major
(C) Healthy Active Living Education	(C) The Arts	May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12		May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12		May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12		May be used as a (C) Cooperative education (2 credits) related to the sector, in either Gr. 11 or Gr. 12	
Exploring Technologies	Transportation Technology	Business Studies or an optional or a compulsory credit	Cooperative Education	Business Studies or an optional or a compulsory credit	Cooperative Education	Science	Mathematics	Cooperative Education	Business Studies or an optional or a compulsory credit