

# AUTOMOTIVE INDUSTRY LABOUR MARKET ANALYSIS

## POST-SECONDARY EDUCATION REPORT



The project is a collaboration of the Canadian Skills Training and Employment Coalition, Prism Economics and Analysis, and the Automotive Policy Research Centre.

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**THIS PAPER** was prepared for the Auto Labour Market Information (LMI) Project, now known as the *Future of Canadian Automotive Labourforce (FOCAL) Initiative*.

The goal of the project is to help stakeholders better understand the automotive labour market. The Project will create industry-validated, regional, occupational supply and demand analyses and forecasts and skill profiles for skilled trades and other key skilled occupations in the broader automotive sector including vehicle assemblers, parts manufacturers and technology companies that supply the industry. The project will also examine various labour market trends in the sector and facilitate discussions among stakeholders about how to address any forecasted skills shortages and other labour market challenges. The planned outcome of the project is enhanced regional labour market information that will support colleges, employers, policy makers and other stakeholders in taking practical steps to address skills shortages and other labour market challenges in the automotive sector.

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## INTRODUCTION

Canada's automotive industry plays an important role in the economy of the country. The industry has a complex supply chain and changes quickly. Understanding links between various sectors that produce for the automotive industry means relying on data that may be a few years old. As a result, we are still working on how to define the sector and measure the size of the workforce. However, in building our forecasting model of the sector, we are including the jobs in NAICS other than 3361 and 3363 that are dependent on the automotive sector and our preliminary research indicates that between 177,000 jobs and 188,000 jobs are dependent on the sector. This is slightly more than what was reported earlier this year by Statistics Canada (Statistics Canada, 2019). Our preliminary work also indicates that included in those job numbers are approximately 20,000 skilled trades and over 28,000 senior management, engineering and other jobs with a technical orientation. Our preliminary estimate of the economic output of automotive assembly and exported automotive parts is well over \$83 billion per year. This paper looks at the post-secondary education programs that can provide a labour supply for the automotive sector in Canada.

# AUTOMOTIVE MANUFACTURING-RELATED OCCUPATIONS

Table 1 is a list that consists of all of the 49 occupations that was identified as being related to the automotive sector using Statistics Canada’s list of NOCs. The 49 selected occupations related to the automotive manufacturing industry is being used in our forecast of labour supply and demand. The list of occupations was developed considering two factors: number of employees in the occupation; and degree of technical skill related to the occupation. We started by identifying the occupational designations that are held by at least 100 employees in at least one of the automotive producing regions that we are examining. There are 41 occupations that meet that test. Motor vehicle assemblers, inspectors and testers are by far the largest occupational group, but there are also a fair number of material handlers, motor vehicle assembly supervisors, and manufacturing managers.

We also identified 8 more occupations that don’t meet the test of at least 100 employees holding the occupational designation in at least one region, but are highly skilled and/or technically oriented and therefore important to the sector. Included in that group are metallurgical and material engineers, database analysts, and information testing technicians.

**TABLE 1:** List of Occupations to be used in forecasting model

| NOC/Occupation  |
|---|
| 0016 Senior managers - construction, transportation, production and utilities |
| 0211 Engineering managers   |
| 0213 Computer and information systems managers                                |
| 0911 Manufacturing managers   |
| 1121 Human resources professionals  |
| 1521 Shippers and receivers   |
| 1523 Production logistics coordinators  |
| 2132 Mechanical engineers   |
| 2133 Electrical and electronics engineers                                     |
| 2141 Industrial and manufacturing engineers                                   |
| 2142 Metallurgical and materials engineers                                    |
| 2147 Computer engineers (except software engineers and designers)             |
| 2171 Information systems analysts and consultants                             |
| 2172 Database analysts and data administrators                                |
| 2173 Software engineers and designers   |
| 2174 Computer programmers and interactive media developers                    |
| 2232 Mechanical engineering technologists and technicians                     |
| 2233 Industrial engineering and manufacturing technologists and technicians   |
| 2241 Electrical and electronics engineering technologists and technicians     |
| 2243 Industrial instrument technicians and mechanics                          |

| NOC/Occupation  |
|---|
| 2281 Computer network technicians   |
| 2283 Information systems testing technicians  |
| 7201 Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations |
| 7231 Machinists and machining and tooling inspectors  |
| 7232 Tool and die makers  |
| 7237 Welders and related machine operators  |
| 7241 Electricians (except industrial and power system)  |
| 7242 Industrial electricians  |
| 7301 Contractors and supervisors, mechanic trades   |
| 7311 Construction millwrights and industrial mechanics  |
| 7321 Automotive service technicians, truck and bus mechanics and mechanical repairers                           |
| 7452 Material handlers  |
| 7511 Transport truck drivers  |
| 9221 Supervisors, motor vehicle assembling  |
| 9222 Supervisors, electronics manufacturing   |
| 9223 Supervisors, electrical products manufacturing   |
| 9224 Supervisors, furniture and fixtures manufacturing  |
| 9226 Supervisors, other mechanical and metal products manufacturing   |
| 9227 Supervisors, other products manufacturing and assembly   |
| 9412 Foundry workers  |
| 9416 Metalworking and forging machine operators   |
| 9417 Machining tool operators   |
| 9422 Plastics processing machine operators  |
| 9522 Motor vehicle assemblers, inspectors and testers   |
| 9523 Electronics assemblers, fabricators, inspectors and testers  |
| 9526 Mechanical assemblers and inspectors   |
| 9535 Plastic products assemblers, finishers and inspectors  |
| 9536 Industrial painters, coaters and metal finishing process operators   |
| 9619 Other labourers in processing, manufacturing and utilities   |

# POST-SECONDARY EDUCATION PROGRAMS BY AUTOMOTIVE REGION

We identified post-secondary education and training programs offered by publicly-funded universities and colleges, and programs/courses offered by private career colleges that match key occupations in demand in the broader automotive sector. The information is based on a dataset developed to support forecasting of labour demand in the automotive manufacturing sector. The list of programs includes institution name, program name, and occupations by automotive region for key occupations in the skilled trades, engineers/technical/managers, and production/supervisors. A more detailed list of programs will be available through an online tool which can be used by human resources staff to identify which institutions graduate students who could fill jobs in their companies. The list of tables can be found below.

# REGIONAL TABLES

## AUTOMOTIVE REGION: GOLDEN HORSESHOE

### a) Engineers/Technical/Managers

| Automotive Region – Golden Horseshoe: Engineers/Technical/Managers |  |  |
|--|--|--|
| NOC Code – Occupation  | Institution  | Program Name   |
| 2132 – Mechanical Engineers  | McMaster University  | Mechanical Engineering   |
|  |  | Technology   |
|  | Ryerson University   | Mechanical and Industrial Engineering  |
|  |  | Mechanical Engineering   |
|  | UOIT   | Automotive Engineering   |
|  |  | Mechanical Engineering   |
|  |  | Mechatronics Engineering   |
|  | University of Toronto  | Mechanical and Industrial Engineering  |
|  |  | Mechanical Engineering   |
|  |  | Robotics Engineering   |
| EPIC College   | Mechanical Engineering Design Technology                     |  |
| Metro College  | Mechanical Engineering Design and Technology                 |  |
| North American College   | Mechanical Engineering Design and Technology                 |  |
| Petrel College   | Mechatronics Engineering Technology                          |  |
| 2133 – Electrical Engineers  | McMaster University  | Electrical Engineering   |
|  |  | Electrical and Computer Engineering  |
|  | Ryerson University   | Electrical and Computer Engineering  |
|  |  | Electrical Engineering   |
|  | UOIT   | Electrical and Computer Engineering  |
|  |  | Electrical Engineering   |
|  | University of Toronto  | Electrical Engineering   |
|  |  | Electrical and Computer Engineering  |
| Canadian Scitech College   | Electrical and Electronics Engineering Design and Technology |  |
| North American College   | Electrical and Electronic Engineering Design and Technology  |  |
| Petrel College   | Electrical Engineering Technology                            |  |
| 2141 – Industrial & Manufacturing Engineers                        | Mohawk College   | Industrial Engineering – Level 1   |
|  |  | Manufacturing Engineering Technician – Automation (Industrial Mechanic Millwright) |
|  | McMaster University  | Engineering Design   |
|  | Ryerson University   | Industrial Engineering   |
|  | UOIT   | Applied and Industrial Mathematics   |
|  |  | Manufacturing Engineering  |
| University of Toronto  | Industrial Engineering                                       |  |



**Automotive Region – Golden Horseshoe: Engineers/Technical/Managers**

| NOC Code – Occupation                                       | Institution                 | Program Name   |
|---|-----------------------------|--|
| 2171 – Information systems analysts and consultants         | Trent University            | Computing Systems and Physics                                  |
|   |                             | Computing Systems  |
|   | Canadian All Care College   | Software Quality Assurance and Testing Analyst                 |
| 2173 – Software Engineers & Designers                       | Centennial College          | Software Engineering Technician                                |
|   |                             | Software Engineering Technology                                |
|   | Durham College              | Artificial Intelligence Analysis, Design and Implementation    |
|   | Humber College              | Enterprise Software Development                                |
|   | Mohawk College              | Computer Science – Software Engineering Specialist             |
|   |                             | Computer Systems Technology – Software Development             |
|   |                             | Microcomputer Engineering Hardware                             |
|   | Seneca College              | Microcomputer Engineering Software                             |
|   | Seneca College              | Software Development   |
|   |                             | McMaster University  |
|   | McMaster University         | Software Engineering   |
|   |                             | Trent University   |
|   | UOIT                        | Software Engineering   |
|   | University of Toronto       | Machine Intelligence   |
|   | APLUS Institute             | Software Application Developer                                 |
|   | Canadian Business College   | Full Stack Software Development                                |
|   |                             | Software Engineering   |
|   | Canadian Scitech College    | Software Development   |
|   | Canadian Technology College | Engineering Design/Drafting                                    |
|   | General Assembly            | Software Engineering (mostly workshops)                        |
| NetPlus College   | Software Engineering        |  |
| 2174 – Computer programmers and interactive media developer | Niagara College             | Computer Engineering Technician                                |
| 2232 – Mechanical Engineering Technologist & Technicians    | Centennial College          | Mechanical Engineering Technician – Design                     |
|   |                             | Mechanical Engineering Technology – Industrial                 |
|   |                             | Technology Foundations   |
|   |                             | Trades Foundations – Motive Power                              |
|   | Collège Boréal              | Mechanical Techniques  |
|   | Durham College              | Mechanical Engineering Technician                              |
|   |                             | Mechanical Engineering Technician – Non-Destructive Evaluation |
|   |                             | Mechanical Engineering Technology                              |
|   | George Brown College        | Automation Integration Rockwell                                |
|   |                             | Automation Technician  |
|   |                             | Mechanical Engineering Technology – Design                     |
|   |                             | Mechanical Techniques  |
|   |                             | Programmable Logic Controllers                                 |

| Automotive Region – Golden Horseshoe: Engineers/Technical/Managers            |  |   |
|---|--|---|
| NOC Code – Occupation   | Institution                                | Program Name  |
| 2232 – Mechanical Engineering Technologist & Technicians                      | George Brown College                       | Robotics Technician                                       |
|   | Humber College                             | Mechanical Engineering Technician                         |
|   |  | Mechanical Engineering Technology                         |
|   | Mohawk College                             | Mechanical Design   |
|   |  | Mechanical Engineering Technology                         |
|   |  | Mechanical Techniques (Advanced Manufacturing Operations) |
|   |  | Mechanical Techniques (Electrical Monitoring and Systems) |
|   |  | Mechanical Techniques (Manufacturing Processes)           |
|   | Niagara College                            | Industrial Automation                                     |
|   |  | Mechanical Engineering Technician                         |
|   |  | Mechanical Engineering Technology                         |
|   |  | Motive Power Technician – Automotive                      |
|   | Seneca College                             | Mechanical Engineering Technician (Tool Design)           |
|   |  | Mechanical Engineering Technology – Industrial Design     |
|   |  | Mechanical Technician – CNC Programming                   |
|   | Sheridan College                           | Mechanical Engineering Technician                         |
|   |  | Mechanical Engineering Technology                         |
|   |  | Mechanical Engineering Technician – Design and Drafting   |
|   |  | Mechanical Engineering Technology – Design and Drafting   |
|   |  | Mechanical Engineering                                    |
|   | Siemens Mechatronics Systems Certification |   |
| Beta College  | Automation Technology                      |   |
| Cortechma Academy   | Automation Technology                      |   |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | Durham College                             | AutoCAD   |
|   | Humber College                             | AutoCAD Design  |
|   |  | Industrial Design   |
|   | Mohawk College                             | Advanced AutoCAD  |
|   |  | AutoCAD Design  |
|   |  | Manufacturing Techniques                                  |
|   | Niagara College                            | AutoCAD Operator  |
|   | Sheridan College                           | Computer Aided Design                                     |
|   | OCAD                                       | Industrial Design   |
|   | Canadian Scitech College                   | Mechanical Design and CAD Program                         |
|   | CITI College                               | Chemical Process Engineering Technology                   |
|   | JRS College                                | Engineering Design and Drafting Technologist              |
| Petrel College  | Chemical Process Technology                |   |
| Stanford International College  | Industrial Automation                      |   |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | Centennial College                         | Electrical Engineering Technician                         |
|   |  | Electrical Engineering Technology                         |

**Automotive Region – Golden Horseshoe: Engineers/Technical/Managers**

| <b>NOC Code – Occupation</b>   | <b>Institution</b>   | <b>Program Name</b>   |
|--|----------------------|---|
| <b>2241 – Electrical and Electronics Engineering Technologists and Technicians</b> | Centennial College   | Electro-Mechanical Engineering Technician – Automation and Robotics |
|  |                      | Electronics Engineering Technician                                  |
|  | Collège Boréal       | Computer Engineering Technician                                     |
|  |                      | Computer Engineering Technologist                                   |
|  |                      | Electrical Engineering Technician                                   |
|  |                      | Electrical Engineering Technology                                   |
|  |                      | Electronics Engineering Technology                                  |
|  | Durham College       | Electrical Engineering Technician                                   |
|  |                      | Electromechanical Engineering Technology                            |
|  |                      | Electronics Engineering Technician                                  |
|  |                      | Electronics Engineering Technology                                  |
|  | George Brown College | Electromechanical Engineering Technician                            |
|  |                      | Electromechanical Engineering Technology – Building Automation      |
|  |                      | Electromechanical Technician  |
|  |                      | Electronics Technician  |
|  | Humber College       | Computer Engineering Technology                                     |
|  |                      | Electrical Engineering Technician – Control Systems                 |
|  |                      | Electrical Engineering Technology – Control Systems                 |
|  |                      | Electromechanical Engineering Technician                            |
|  |                      | Electromechanical Engineering Technology                            |
|  |                      | Electromechanical PLC Programming                                   |
|  |                      | Electromechanical Robotics  |
|  |                      | Electronics Engineering Technician                                  |
|  |                      | Electronics Engineering Technology                                  |
|  | Mohawk College       | Computer Engineering Technician                                     |
|  |                      | Computer Engineering Technician – Mechatronics Systems              |
|  |                      | Computer Engineering Technology                                     |
|  |                      | Computer Engineering Technology – Mechatronic Systems               |
|  |                      | Electrical Engineering Technician – Power                           |
|  |                      | Electrical Engineering Technology                                   |
|  | Niagara College      | Electrical Engineering Technician                                   |
|  |                      | Electrical Engineering Technology                                   |
|  |                      | Electronics Engineering Technician                                  |
|  |                      | Electronics Engineering Technology                                  |
|  | Seneca College       | Computer Engineering Technology                                     |
|  |                      | Electromechanical Engineering Technology - Automation               |
|  |                      | Electronics Engineering Technician                                  |
|  |                      | Electronics Engineering Technology                                  |

| Automotive Region – Golden Horseshoe: Engineers/Technical/Managers          |                          |  |
|---|--------------------------|--|
| NOC Code – Occupation   | Institution              | Program Name   |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians | Sheridan College         | Computer Engineering Technician  |
|   |                          | Computer Engineering Technology  |
|   |                          | Computer Systems Technician – Software Engineering                         |
|   |                          | Computer Systems Technology – Software Development and Network Engineering |
|   |                          | Electrical Engineering Technician  |
|   |                          | Electromechanical Engineering Technician                                   |
|   |                          | Electromechanical Engineering Technology                                   |
|   |                          | Electronics Engineering Technician   |
|   |                          | Electronics Engineering Technology   |
|   | Vanier Community College | Computer Engineering Technology  |
|   |                          | Computer Science Technology  |
|   |                          | Industrial Electronics   |
|   | Cortechma Academy        | Computer Technology  |
| 2243 – Industrial Instrument Technicians and Mechanics                      | George Brown College     | Applied Principles of Industrial Maintenance                               |
|   | Mohawk College           | Fluid Power  |
|   |                          | Fuel Technician Certification and Examinations                             |
|   |                          | Industrial Lubrication   |
|   |                          | Instrumentation and Control  |

## b) Skilled Trades

| Automotive Region – Golden Horseshoe: Skilled Trades  |                      |   |
|---|----------------------|---|
| NOC Code – Occupation                                 | Institution          | Program Name  |
| 7231 – Machinist and Machining and Tooling Inspectors | George Brown College | Computer Numerical Control Programming              |
|   |                      | Conventional Machining                              |
|   |                      | Mechanical Technician – CNC and Precision Machining |
|   | Mohawk College       | General Machinist                                   |
|   | Niagara College      | General Machinist                                   |
|   |                      | General Machinist Pre-Apprenticeship                |
|   |                      | Mechanical Techniques – General Machinist           |
| Sheridan College                                      | General Machinist    |   |
| 7232 – Tool and Die Makers                            | Seneca College       | Mechanical Techniques (Tool and Die)                |
|   | Sheridan College     | Tool and Die Maker                                  |
|   |                      | Tool and Die Maker, Mechanical Techniques           |
|   |                      | Tool/Tooling Maker                                  |
| 7237 – Welders and Related Machine Operators          | Collège Boréal       | Welding Engineering Technician                      |
|   | Durham College       | Canadian Welding Bureau                             |
|   |                      | Welder  |
|   |                      | Welding Engineering Technician                      |

| Automotive Region – Golden Horseshoe: Skilled Trades        |                                      |   |
|---|--------------------------------------|---|
| NOC Code – Occupation                                       | Institution                          | Program Name                                    |
| 7237 – Welders and Related Machine Operators                | George Brown College                 | TIG Welding Fundamentals                        |
|   |                                      | Welding Fundamentals                            |
|   |                                      | Welding Techniques                              |
|   | Humber College                       | Welding Techniques                              |
|   | Mohawk College                       | Mechanical Techniques (Welding and Fabrication) |
|   |                                      | Welder  |
|   |                                      | Welder Operator                                 |
|   | Niagara College                      | Welder  |
|   |                                      | Welding Technician                              |
|   |                                      | Welding Techniques                              |
|   | Sheridan College                     | Welding and Fabrication Technician              |
|   |                                      | Welding and Fabrication Techniques              |
|   | Advanced Welding Techniques          | Structural Welder Training Program              |
|   |                                      | Welder Operator Manufacturing Program           |
|   |                                      | Welder Trade Certification Program              |
|   | Canadian Welding Skills              | Entry Level Multi Process Welder (FT, PT)       |
|   | Career College Group                 | Structural & Pressure Vessel Welder             |
|   |                                      | Welding Technology                              |
|   | General Welding School               | Comprehensive Welding                           |
|   |                                      | General Welding                                 |
|   |                                      | Industrial Welding                              |
|   |                                      | Pipe Welding                                    |
|   | Institute of Technical Trades        | Welding Technology (includes license tests)     |
| Welder Fitter   |                                      |   |
| Welding (Master/Option A, skills upgrade)                   |                                      |   |
| Welding Techniques  |                                      |   |
| Stanford International College                              | Welder Training (FT, PT)             |   |
|   | Welding 1 Specialist/Inspector       |   |
| 7242 – Industrial Electricians                              | Mohawk College                       | Industrial Electrician                          |
|   | Sheridan College                     | Industrial Electrician                          |
|   | Institute of Machine Tool Technology | Automation & Industrial Electrician             |
|   | Stanford International College       | Industrial Electrician (PLC & Robotics)         |
| 7311 – Construction Millwrights and Industrial Electricians | Collège Boréal                       | Mechanical Millwright Technician                |
|   | Durham College                       | Industrial Maintenance Mechanic                 |
|   |                                      | Industrial Mechanic Millwright                  |
|   |                                      | Mechanical Technician – Millwright              |
|   | George Brown College                 | Industrial Mechanic (Millwright)                |
|   | Humber College                       | Mechanical Techniques – Millwright              |

**Automotive Region – Golden Horseshoe: Skilled Trades**

| NOC Code – Occupation                                       | Institution      | Program Name                     |
|---|------------------|----------------------------------|
| 7311 – Construction Millwrights and Industrial Electricians | Mohawk College   | Industrial Mechanic (Millwright) |
|   | Sheridan College | Industrial Mechanic Millwright   |

**c) Production/Supervisors**

**Automotive Region – Golden Horseshoe: Production/Supervisors**

| NOC Code – Occupation                                   | Institution          | Program Name                      |
|---|----------------------|-----------------------------------|
| 9522 – Motor Vehicle Assemblers, Inspectors and Testers | George Brown College | Quality Management                |
|   | Humber College       | Fundamentals of Quality Assurance |

## AUTOMOTIVE REGION: WINDSOR

### a) Engineers/Technical/Managers

| Automotive Region – Windsor: Engineers/Technical/Managers  |   |  |  |
|--|---|--|--|
| NOC Code – Occupation                                      | Institution   | Program Name   |  |
| 2132 – Mechanical Engineers                                | University of Windsor   | Automotive Engineering   |  |
|  |   | Foundations in Mechanical Engineering                                      |  |
|  |   | Mechanical Engineering   |  |
|  |   | Mechanical Engineering – Automotive Option                                 |  |
|  |   | Mechanical Engineering – Materials Option                                  |  |
| 2133 – Electrical Engineers                                | University of Windsor   | Electrical Engineering   |  |
| 2141 – Industrial & Manufacturing Engineers                | Lambton College   | Quality Engineering Management   |  |
|  | University of Windsor   | Industrial Engineering   |  |
|  |   | Industrial and Management Engineering                                      |  |
|  |   | Industrial and Manufacturing Systems Engineering                           |  |
| 2171 – Information Systems Analysts and Consulting         | Lambton College   | Quality Assurance  |  |
| 2173 – Software Engineers & Designers                      | Lambton College   | Computer Software and Database Development                                 |  |
|  | University of Windsor   | Software Engineering   |  |
| 2232 – Mechanical Engineering Technologist & Technicians   | Lambton College   | Advanced Power Engineering Technology                                      |  |
|  |   | Embedded Systems Engineering Design  |  |
|  |   | Power Engineering Technology   |  |
|  | St. Clair College   | Mechanical Engineering Technician – Industrial                             |  |
|  |   | Mechanical Engineering Technology – Automotive Product Design              |  |
|  |   | Power Engineering Technology – Mechanical                                  |  |
|  | University of Windsor   | Engineering Technology   |  |
|  |   | Finite Element Analysis with CATIA v5                                      |  |
|  |   | Mechanism Design and Animation with CATIA v5                               |  |
|  |   | Siemens Mechatronic Systems Certification: Level One                       |  |
|  | 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | St. Clair College  | Mechanical Technician – CAD/CAM                      |
|  | 2241 – Electrical and Electronics Engineering Technologists and Technicians   | Lambton College  | Electrical Power Distribution and Control Technician |
|  |   | St. Clair College  | Electrical Engineering Technician                    |
| Electromechanical Engineering Technician – Robotics        |   |  |  |
| Electronics Engineering Technology – Industrial Automation |   |  |  |
| Canadian College of Health Sci                             |   | Systems Software Technician  |  |
| 2243 – Industrial Instrument Technicians and Mechanics     | Lambton College   | Instrumentation and Control Engineering Technician – Industrial Automation |  |
|  |   | Instrumentation and Control Engineering Technology – Industrial Automation |  |
|  |   | Instrumentation and Control Technician                                     |  |

## b) Skilled Trades

| Automotive Region – Windsor: Skilled Trades              |                           |   |
|--|---------------------------|---|
| NOC Code – Occupation                                    | Institution               | Program Name                                      |
| 7231 – Machinist and Machining and Tooling Inspectors    | Lambton College           | General Machinist                                 |
|  | St. Clair College         | General Machinist                                 |
| 7232 – Tool and Die Makers                               | St. Clair College         | Tool and Die maker                                |
| 7237 – Welders and Related Machine Operators             | Lambton College           | Welding Techniques                                |
|  | St. Clair College         | Welding Techniques                                |
|  | Windsor Welding Institute | Welding Technology Program<br>Pipe Welder Program |
| 7242 – Industrial Electricians                           | St. Clair College         | Industrial Electrician                            |
| 7311 – Construction Millwrights and Industrial Mechanics | Lambton College           | Millwright Mechanical Technician                  |
|  | St. Clair College         | Industrial Mechanical Millwright                  |

## c) Production/Supervisors

| Automotive Region – Windsor: Production/Supervisors     |                       |                      |
|---|-----------------------|----------------------|
| NOC Code – Occupation                                   | Institution           | Program Name         |
| 9522 – Motor Vehicle Assemblers, Inspectors and Testers | University of Windsor | Six Sigma Green Belt |



## AUTOMOTIVE REGION: CAMBRIDGE/KITCHENER/WATERLOO

### a) Engineers/Technical/Managers

| Automotive Region – Cambridge/Kitchener/Waterloo: Engineers/Technical/Managers |                            |   |
|--|----------------------------|---|
| NOC Code – Occupation  | Institution                | Program Name  |
| 2132 – Mechanical Engineers  | University of Guelph       | Mechanical Engineering                                      |
|  | University of Waterloo     | Mechanical Engineering                                      |
|  |                            | Mechanical and Mechatronics Engineering                     |
|  |                            | Mechanical and Mechatronics Engineering – Nanotechnology    |
|  |                            | Mechatronics Engineering                                    |
|  |                            | Physics – Quantum Information                               |
|  | Wilfrid Laurier University | Mechanical Engineering                                      |
| 2133 – Electrical Engineers  | Georgian College           | Electrical Engineering                                      |
|  | University of Waterloo     | Electric Power Engineering                                  |
|  |                            | Electrical Engineering                                      |
|  |                            | Electrical and Computer Engineering                         |
|  |                            | Electrical and Computer Engineering – Nanotechnology        |
|  |                            | Electrical and Computer Engineering – Quantum Information   |
|  | Wilfrid Laurier University | Electrical Engineering                                      |
|  |                            | Electrical and Computer Engineering                         |
| 2141 – Industrial & Manufacturing Engineers                                    | Conestoga College          | Manufacturing Engineering                                   |
|  |                            | Process Quality Engineering                                 |
|  |                            | Software Quality Assurance and Test Engineering             |
|  | University of Waterloo     | Combinatorics and Optimization                              |
|  |                            | Management Engineering                                      |
|  |                            | Management Science – Management of Technology               |
| 2171 – Software Engineers & Designers  | Conestoga College          | Quality Assurance   |
|  | Wilfrid Laurier University | Computational Mathematics                                   |
| 2173 – Software Engineers & Designers  | Conestoga College          | Software Engineering Technician                             |
|  |                            | Software Engineering Technology                             |
|  | University of Guelph       | Software Engineering  |
|  | University of Waterloo     | Software Engineering  |
|  | Wilfrid Laurier University | Software Systems for Ubiquitous Computing                   |
|  |                            | Software Engineering  |
| 2174 – Computer Programmers and Interactive Media Developers                   | University of Waterloo     | Digital Experience Innovation                               |
| 2232 – Mechanical Engineering Technologist & Technicians                       | Conestoga College          | Bachelor of Mechanical Systems Engineering                  |
|  |                            | Mechanical Engineering Technology – Automated Manufacturing |
|  |                            | Mechanical Engineering Technology – Design and Analysis     |
|  |                            | Mechanical Engineering Technology – Robotics and Automation |

**Automotive Region – Cambridge/Kitchener/Waterloo: Engineers/Technical/Managers**

| NOC Code – Occupation   | Institution   | Program Name                                     |
|---|---|--|
| 2232 – Mechanical Engineering Technologist & Technicians                      | Conestoga College   | Robotics and Industrial Automation               |
|   | Georgian College  | Mechanical Engineering Technology                |
|   |   | Mechanical Technician – Precision Skills         |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | Conestoga College   | CAD for Design and Manufacturing                 |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | Conestoga College   | Applied Electrical Motion and Control Management |
|   |   | Bachelor of Electrical Systems Engineering       |
|   |   | Computer Engineering Technology                  |
|   |   | Electrical Engineering Technician                |
|   |   | Electrical Engineering Technology                |
|   |   | Electronics Engineering Technician               |
|   |   | Electronics Engineering Technology               |
|   |   | Electromechanical Maintenance                    |
|   |   | Embedded Systems Development                     |
|   | Mechanical Techniques – Electro-Mechanical Maintenance Bridge |  |
|   | Georgian College  | Electrical Engineering Technician                |
| Electrical Engineering Technology   |   |  |
| 2243 – Industrial Instrument Technicians and Mechanics                        | Conestoga College   | Industrial Engineering – Basics                  |
|   |   | Instrumentation and Control Technician           |

**b) Skilled Trades**

**Automotive Region – Cambridge/Kitchener/Waterloo: Skilled Trades**

| NOC Code – Occupation                                 | NOC Code – Occupation | NOC Code – Occupation                                       |
|---|-----------------------|---|
| 7231 – Machinist and Machining and Tooling Inspectors | Conestoga College     | General Machinist   |
|   |                       | Mechanical Technician – General Machinist                   |
|   |                       | Practical CNC Machining                                     |
|   | Georgian College      | General Machinist   |
| 7232 – Tool and Die Makers                            | Conestoga College     | Machine Tool Builder and Integrator                         |
|   |                       | Mechanical Technician – Tool and Die/Tool Maker             |
|   |                       | Tool and Die Maker  |
|   | Georgian College      | Tool and Die Maker  |
| 7237 – Welders and Related Machine Operators          | Conestoga College     | Manufacturing Engineering Technology – Welding and Robotics |
|   |                       | Pre-Apprenticeship Welder                                   |
|   |                       | Welder  |
|   |                       | Welding and Fabrication Technician                          |
|   |                       | Welding Engineering Technology – Inspection                 |
| Welding Techniques                                    |                       |   |

| Automotive Region - Cambridge/Kitchener/Waterloo: Skilled Trades |                       |   |
|--|-----------------------|---|
| NOC Code – Occupation  | NOC Code – Occupation | NOC Code – Occupation                         |
| 7237 – Welders and Related Machine Operators                     | Georgian College      | Welding Techniques                            |
|  | LJP Skills Training   | General Welding Skills                        |
|  |                       | Pipe Welding                                  |
|  |                       | Pipe Welding for Welders                      |
|  |                       | Professional Pipe Welding Plus                |
| 7242 – Industrial Electricians                                   | Conestoga College     | Electrician – Industrial                      |
|  |                       | Electrical Technician – Industrial            |
|  | Georgian College      | Electrician – Industrial                      |
| 7311 – Construction Millwrights and Industrial Electricians      | Conestoga College     | Industrial Mechanic (Millwright)              |
|  |                       | Mechanical Techniques – Industrial Millwright |
|  |                       | Pre-Apprenticeship Millwright and Electrical  |

## AUTOMOTIVE REGION: LONDON

### a) Engineers/Technical/Managers

| Automotive Region – London: Engineers/Technical/Managers                      |                    |  |
|---|--------------------|--|
| NOC Code – Occupation   | Institution        | Program Name   |
| 2132 – Mechanical Engineers   | Western University | Mechanical Engineering                                     |
|   |                    | Mechanical and Materials Engineering                       |
|   |                    | Mechatronic Systems Engineering                            |
| 2133 – Electrical Engineers   | Western University | Electrical Devices for Ubiquitous Computing                |
|   |                    | Electrical Engineering                                     |
|   |                    | Electrical and Computer Engineering                        |
|   |                    | Electronic Devices for Ubiquitous Computing                |
| 2141 – Industrial & Manufacturing Engineers                                   | Western University | Design and Manufacturing Engineering                       |
|   |                    | Integrated Engineering                                     |
| 2173 – Software Engineers & Designers   | Western University | Artificial Intelligence                                    |
|   |                    | Software Engineering                                       |
| 2232 – Mechanical Engineering Technologist & Technicians                      | Fanshawe College   | Applied Mechanical Design                                  |
|   |                    | Mechanical Engineering Technician – Industrial Maintenance |
|   |                    | Mechanical Technician – CNC/CAM                            |
|   |                    | Mechanical Techniques                                      |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | Fanshawe College   | Manufacturing Engineering Technician                       |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | Fanshawe College   | Electrical Engineering Technician                          |
|   |                    | Electrical Engineering Technology                          |
|   |                    | Electrical Techniques                                      |
|   |                    | Electromechanical Engineering Technician                   |
|   |                    | Electronics Engineering Technician – Industrial Controls   |

### b) Skilled Trades

| Automotive Region – London: Skilled Trades                  |                  |                                    |
|---|------------------|------------------------------------|
| NOC Code – Occupation                                       | Institution      | Program Name                       |
| 7231 – Machinist and Machining and Tooling Inspectors       | Fanshawe College | General Machinist                  |
| 7232 – Tool and Die Makers                                  | Fanshawe College | Mechanical Technician – Tool & Die |
| 7237 – Welders and Related Machine Operators                | Fanshawe College | Welding Techniques                 |
| 7242 – Industrial Electricians                              | Fanshawe College | Industrial Electrician             |
| 7311 – Construction Millwrights and Industrial Electricians | Fanshawe College | Industrial Mechanic – Millwright   |

## AUTOMOTIVE REGION: EASTERN ONTARIO

### a) Engineers/Technical/Managers

| Automotive Region – Eastern Ontario: Engineers/Technical/Managers             |                      |   |
|---|----------------------|---|
| NOC Code – Occupation   | Institution          | Program Name  |
| 2132 – Mechanical Engineers   | Carlton University   | Mechanical Engineering                                  |
|   | Queen's University   | Mathematics and Engineering                             |
|   |                      | Mechanical and Materials Engineering                    |
|   | RMC of Canada        | Mechanical Engineering                                  |
|   | University of Ottawa | Mechanical Engineering                                  |
|   |                      | Mechanical Engineering and Computing Technology         |
| Mechanical Engineering, Engineering Management and Entrepreneurship           |                      |   |
| 2133 – Electrical Engineers   | Carlton University   | Electrical and Computer Engineering                     |
|   |                      | Electrical Engineering                                  |
|   |                      | Electronics   |
|   | Queen's University   | Electrical Engineering                                  |
|   | RMC of Canada        | Electrical and Computer Engineering                     |
|   | University of Ottawa | Electrical Engineering                                  |
|   |                      | Electrical and Computer Engineering                     |
|   |                      | Electrical Engineering and Computing Technology         |
| Electronic Business Technologies  |                      |   |
| 2141 – Industrial & Manufacturing Engineers                                   | Carlton University   | Industrial Design                                       |
|   |                      | Physics and Electrical Engineering                      |
| 2173 – Software Engineers & Designers   | Carlton University   | Software Engineering                                    |
|   | Queen's University   | Software Design   |
|   |                      | Software Engineering                                    |
|   | University of Ottawa | Software Engineering                                    |
| Software Engineering, Engineering Management and Entrepreneurship             |                      |   |
| 2232 – Mechanical Engineering Technologist & Technicians                      | Algonquin College    | Automation and Robotics                                 |
|   |                      | Building Automation Systems Operations                  |
|   |                      | Mechanical Engineering Technology                       |
|   |                      | Motive Power Technician                                 |
|   | Loyalist College     | Mechanical Techniques                                   |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | Algonquin College    | Manufacturing Engineering Technician                    |
|   | Loyalist College     | Manufacturing Engineering Technician                    |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | Algonquin College    | Electrical Engineering Technician                       |
|   |                      | Electro-Mechanical Engineering Technician               |
|   |                      | Information Technology – Photonics and Laser Technology |

**Automotive Region – Eastern Ontario: Engineers/Technical/Managers**

| NOC Code – Occupation   | Institution          | Program Name                                       |
|---|----------------------|--|
| 2241 – Electrical and Electronics Engineering Technologists and Technicians | Loyalist College     | Electrical Engineering Technician – Industrial     |
|   | St. Lawrence College | Electrical Engineering Technician                  |
| 2243 – Industrial Instrument Technicians and Mechanics                      | St. Lawrence College | Instrumentation and Control Engineering Technician |
|   |                      | Instrumentation and Control Engineering Technology |

**b) Skilled Trades**

**Automotive Region – Eastern Ontario: Skilled Trades**

| NOC Code – Occupation                                       | Institution          | Program Name                       |
|---|----------------------|------------------------------------|
| 7231 – Machinist and Machining and Tooling Inspectors       | St. Lawrence College | General Machinist                  |
| 7237 – Welders and Related Machine Operators                | Algonquin College    | Welding and Fabrication Techniques |
|   | Loyalist College     | Welding Techniques                 |
|   |                      | Welding and Fabrication Technician |
|   | St. Lawrence College | Welding and Fabrication Technician |
| Welding and Fabrication Techniques                          |                      |                                    |
| 7242 – Industrial Electricians                              | St. Lawrence College | Industrial Electrician             |
| 7311 – Construction Millwrights and Industrial Electricians | St. Lawrence College | Industrial Mechanic (Millwright)   |

## AUTOMOTIVE REGION: MONTREAL

### a) Engineers/Technical/Managers

| Automotive Region – Montreal: Engineers/Technical/Managers                    |                                     |   |
|---|-------------------------------------|---|
| NOC Code – Occupation   | Institution                         | Program Name  |
| 2132 – Mechanical Engineers   | Concordia University                | Mechanical Engineering                                      |
|   | École Polytechnique de Montréal     | Génie Mécanique   |
|   | McGill University                   | Mechanical Engineering                                      |
| 2133 – Electrical Engineers   | Concordia University                | Electrical Engineering                                      |
|   |                                     | Electrical and Computing Engineering                        |
|   | École Polytechnique de Montréal     | Génie électrique  |
| McGill University   | Electrical and Computer Engineering |   |
| 2141 – Industrial & Manufacturing Engineers                                   | Concordia University                | Industrial Engineering                                      |
|   | École Polytechnique de Montréal     | Génie industriel  |
| 2173 – Software Engineers & Designers   | McGill University                   | Software Engineering  |
| 2232 – Mechanical Engineering Technologist & Technicians                      | Cégep du Vieux Montréal             | Fabrication Mécanique                                       |
|   | Collège Gérald-Godin                | Electronique Programmable et Robotique                      |
|   | Dawson College                      | Mechanical Engineering Technology – Automated Manufacturing |
|   |                                     | Mechanical Engineering Technology – Design                  |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | College Ahuntsic                    | Dessin de conception mécanique                              |
|   | Dawson College                      | Technologie du génie industriel                             |
|   | College de Maisonneuve              | Procédés industriels  |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | College Ahuntsic                    | Le technologie en électronique industrielle                 |
|   | Dawson College                      | Electronics Engineering Technology                          |
| 2243 – Industrial Instrument Technicians and Mechanics                        | Cégep André-Laurendeau              | Industrial Electronics Technology                           |

### b) Skilled Trades

| Automotive Region – Montreal: Skilled Trades |                         |                           |
|--|-------------------------|---------------------------|
| NOC Code – Occupation                        | Institution             | Program Name              |
| 7242 – Industrial Electricians               | Cégep du Vieux Montréal | Électronique industrielle |

## AUTOMOTIVE REGION: VANCOUVER

### a) Engineers/Technical/Managers

| Automotive Region – Vancouver: Engineers/Technical/Managers                   |                                |   |
|---|--------------------------------|---|
| NOC Code – Occupation   | Institution                    | Program Name  |
| 2132 – Mechanical Engineers   | Simon Fraser University        | Mechatronic Systems Engineering   |
| 2133 – Electrical Engineers   | University of British Columbia | Electrical Engineering  |
|   |                                | Electrical and Computer Engineering   |
| 2141 – Industrial & Manufacturing Engineers                                   | University of British Columbia | Manufacturing Engineering   |
| 2173 – Software Engineers & Designers   | Vancouver Community College    | First-year University Transfer Computing Science and Software Systems Certificate |
|   | Simon Fraser University        | Software Systems  |
| 2232 – Mechanical Engineering Technologist & Technicians                      | Vancouver Community College    | First-year University Transfer Engineering Certificate – SFU Transfer             |
|   | Simon Fraser University        | Engineering Science   |
|   | Columbia College               | Engineering   |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | North Island College           | Industrial Automation Technician  |
|   |                                | Instrumentation, Industrial Automation Technician                                 |
|   | Sprott Shaw College            | Computer Aided Design Technology  |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | North Island College           | Electrical Control, Industrial Automation Technician                              |

### b) Skilled Trades

| Automotive Region – Vancouver: Skilled Trades |                      |                                    |
|---|----------------------|------------------------------------|
| NOC Code – Occupation                         | Institution          | Program Name                       |
| 7237 – Welders and Related Machine Operators  | North Island College | Welder Apprenticeship – Harmonized |
|   |                      | Welder Foundation – Harmonized     |
|   |                      | Welding Level B and A              |



## AUTOMOTIVE REGION: WINNIPEG

### a) Engineers/Technical/Managers

| Automotive Region – Winnipeg: Engineers/Technical/Managers                    |                        |   |
|---|------------------------|---|
| NOC Code – Occupation   | Institution            | Program Name                                |
| 2174 – Computer Programmers and Interactive Media Developers                  | University of Winnipeg | Applied Computer Science                    |
| 2232 – Mechanical Engineering Technologist & Technicians                      | Red River College      | Mechanical Engineering Technology           |
|   |                        | Power Engineering – 5th Class               |
|   |                        | Power Engineering Technology                |
| 2233 – Industrial Engineering and Manufacturing Technologists and Technicians | Red River College      | Manufacturing Computer Aided Drafting (CAD) |
|   |                        | Manufacturing Technician                    |
| 2241 – Electrical and Electronics Engineering Technologists and Technicians   | Red River College      | Electrical Engineering Technology           |

### b) Skilled Trades

| Automotive Region – Winnipeg: Skilled Trades |                   |              |
|--|-------------------|--------------|
| NOC Code – Occupation                        | Institution       | Program Name |
| 7237 – Welders and Related Machine Operators | Red River College | Welding      |

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## REFERENCES

Statistics Canada (2016). Classification of Instructional Programs (CIP) Canada 2016.

Retrieved from <https://www.statcan.gc.ca/eng/subjects/standard/cip/2016/introduction>

Statistics Canada (2019).

National Occupational Classification, 2016. Retrieved from

<http://noc.esdc.gc.ca/English/noc/welcome.aspx?ver=16>