

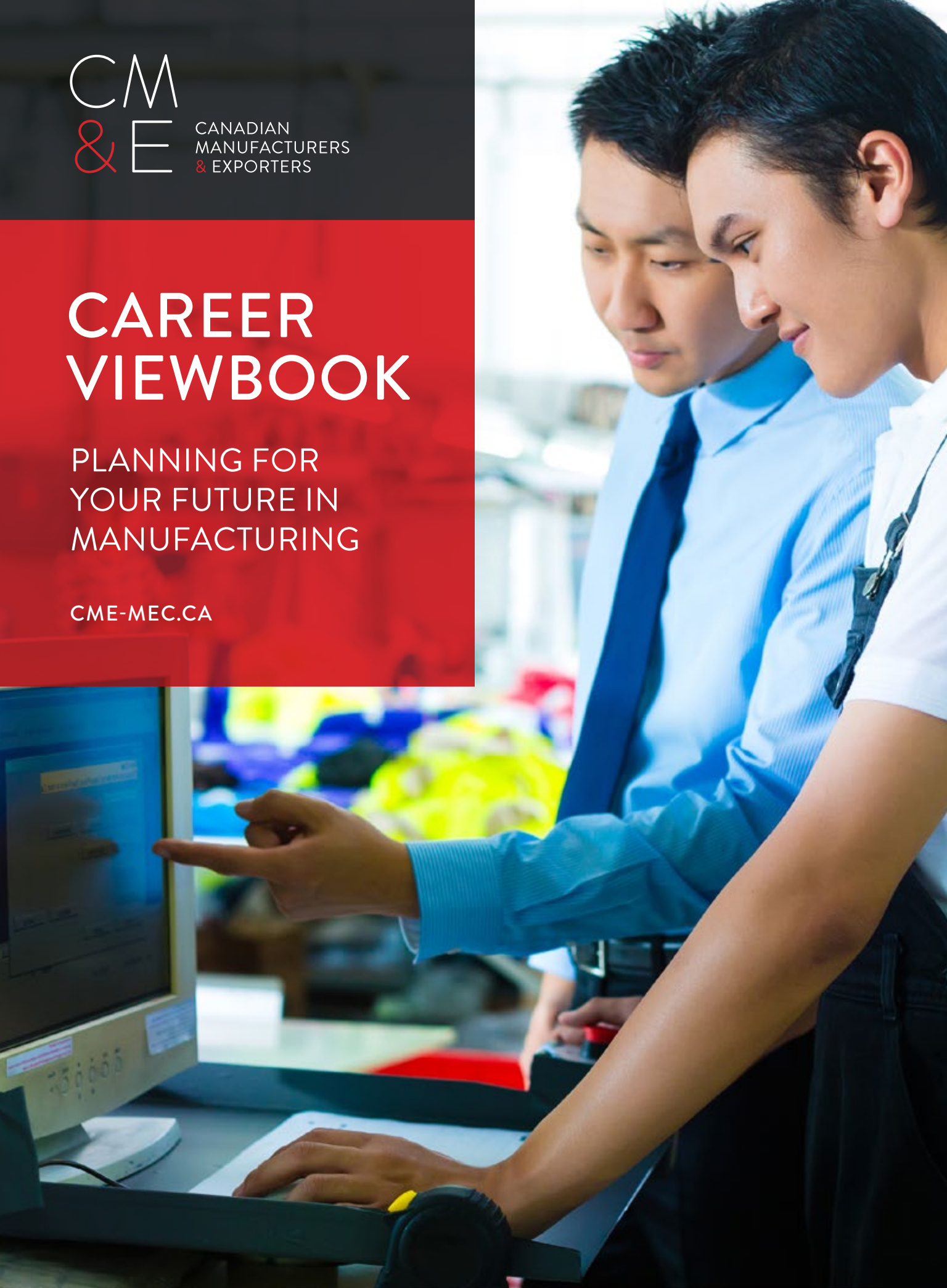


CANADIAN  
MANUFACTURERS  
& EXPORTERS

# CAREER VIEWBOOK

PLANNING FOR  
YOUR FUTURE IN  
MANUFACTURING

[CME-MEC.CA](http://CME-MEC.CA)



# EXPLORE YOUR CAREER OPTIONS WITH CME'S MANUFACTURING CAREER VIEWBOOK

## HOW TO USE THIS VIEWBOOK

Are you wondering what's next after high school? Maybe you've taken your next step but aren't entirely sure where it will take you? Thinking about building a career can be intimidating and it is important to collect as much information as you can in order to make some of these tough decisions. CME strives to

empower you with the ability to seek and find what inspires you every day, show you how you can build a career around what makes you tick – and more importantly – choose a career you can be proud of.

In your hands is a behind-the-scenes glimpse into the world of manufacturing and its many career paths. This book contains 15 profiles of in-demand careers across our province. These career profiles will allow you to explore a variety of opportunities that manufacturing has to offer, all from the comfort of your home or classroom. Each profile contains important information like career earnings potential, recommended education pathways and stories that will bring you into a day in the life of a manufacturing professional at various stages in their careers. The profiles reflect a mid-level position in the field of choice, and the salary ranges that are identified are based on Statistics Canada averages for those careers. It is important to note that these are not starting salaries, and that each company and each sector have pay scales that may differ from one another.

You'll also see cool products that we make in Manitoba and learn how you can get involved in opportunities such as tours, training and so much more! Read with a friend, a parent or take some time just for you to explore what the world of manufacturing has to offer!

## WHAT IS MANUFACTURING, ANYWAY?

Manufacturing is the process of taking different materials and creating a new product, by hand or equipment. You might think of cars, furniture and windows, but do you also think of moccasins, french fries and hockey skates? If not, this book is here to help you understand the many career options that are available in Manitoba's biggest business sector.

More than 60,000 people in Manitoba work in manufacturing. They are working in modern, automated facilities. Manitoba manufacturers are committed to a green environmental footprint, to producing products that improve the lives of Canadians and to giving you the chance for an awesome career with unlimited possibilities!

## MANUFACTURING IS CHANGING

Manufacturing is in its 4th revolution, an era referred to as Advanced Manufacturing, Industry 4.0 or Smart Manufacturing. What does this mean? Basically, it means we're using more technologies and automation to improve communications and processes. Manufacturing is becoming high tech as we head into this new frontier. This is an exciting change as it means careers provide more opportunity to work with technology, solve problems and continually grow. You can find more information on manufacturing jobs of the future at the end of this book.

# ABOUT CME

Canadian Manufacturers & Exporters (CME) is the voice of manufacturers in Manitoba.

From the first industrial boom in Canada, CME has been advocating for and representing member interests. Nearly 150 years strong, we have a track record of working for and with 2,500 leading manufacturers from coast to coast to help their businesses grow. If it was made in Manitoba, chances are CME helped somewhere along the way.

CME is run by manufacturers, for manufacturers. We have our finger on the pulse of the sector. We help companies make products at home and showcase them on the world stage, in part by providing programs and supports that help companies build knowledge and capacity in key areas. These include Lean and productivity; trade and export; energy and environment; leadership development; safety and more.

CME works wherever you are – with chapters in every province, championed by local companies who are looking for the next generation of manufacturers – just like you!

Like what you hear? Visit our website at [CME-MEC.ca](http://CME-MEC.ca) for even more helpful information.

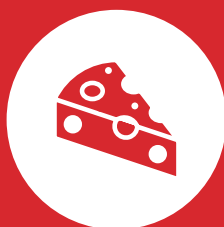


In the next  
**4 YEARS**  
the Manitoba  
manufacturing sector is  
looking to hire  
**12,798**  
employees



## MANUFACTURING IN MANITOBA

We make some pretty cool stuff in Manitoba. Manufacturing drives Manitoba's economy and creates jobs and opportunities for thousands of people in our province.





# ASSEMBLER

## TYPE OF JOB

Entry Level

## CAREER EARNING POTENTIAL

\$29,602 - \$44,403

## DEMAND FORECAST

↑ 339 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or equivalent

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
- English 40s

## POST-SECONDARY

- Not Required



## A DAY IN THE LIFE

Joe works in an electronics company that makes parts for driverless cars and farm equipment. He works evening shifts, which is best for his schedule since he's also taking college classes in the mornings. After receiving instructions for what he will be building that shift, Joe gathers the parts he needs. Using a guide, he assembles electronics into partially finished products. After his break, Joe completes pre-delivery inspections of completed products to make sure they meet both company quality control requirements as well as customer specifications. A half hour before he leaves for the day, Joe cleans and organizes his workstation and places an order for the parts he needs to have on hand for the next day.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Assemblers gather raw materials and use their expertise and specific tools to create a final product according to a customer order. They are responsible for following production schedules and working safely, efficiently and producing a high-quality product. An assembler's job is often a great entry point to learn about manufacturing, the business world and to see what other career pathways are available.

## WHY DOES THIS JOB MATTER?

Assemblers pull together the necessary pieces to create finished products to satisfy a customer's needs. They play a critical role in quality, production and efficiency and are essential team players.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Math, document reading, manual dexterity, communications

## OTHER JOBS LIKE THIS

Production Worker, Machine Operator, Warehouse Worker, Labourer

## CAREER JOURNEY

Assembler  
Skilled Trade  
Production Supervisor

Trainer  
Production Manager



ENTRY LEVEL



AVERAGE  
WAGE



H.S. DIPLOMA  
OR EQUIVALENT

# FORKLIFT OPERATOR/ MATERIALS HANDLER

## TYPE OF JOB

Production Operations

## CAREER EARNING POTENTIAL

\$35,837 - \$53,756

## DEMAND FORECAST

↑ 1,205 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or equivalent
- Most employers arrange for the required training post-hire

## HIGH SCHOOL COURSE REQUIREMENTS

- English 40s
- Math 40s

## POST-SECONDARY

- Not Required



## A DAY IN THE LIFE

Today, Theo will help the warehouse team unload a new shipment of parts from a supplier. He works in a busy production facility, with trucks unloading and loading a few times a day, most days of the week. The company runs two shifts a day, so Theo's shift starts early – 6 am. Other operators won't start their shift until 2 pm when Theo is off. Most of Theo's morning is spent operating winches and other loading devices to unload materials off trucks onto the warehouse loading dock. A trained forklift operator, Theo's afternoon is spent moving products from the loading dock to the departments that need the materials at different stages of the manufacturing process.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Using different types of powered mobile equipment, a forklift operator selects correct parts and materials and delivers them to the right workstations for assembly. They may also put finished goods on trailers or trains for shipping to the customer. They are required at both the front and back end of the manufacturing process. All forklift operators must be certified so they operate their equipment and load in a safe manner. Forklift operators are usually people who enjoy driving and the ability to continually be on the move.

## WHY DOES THIS JOB MATTER?

Materials and products are moved throughout manufacturing facilities by forklift operators. Forklifts allow for heavy loads to be moved safely and efficiently, which allows production to continue in a smooth and uninterrupted manner.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Math, spatial awareness, document reading, communications

## OTHER JOBS LIKE THIS

Shipper, Receiver, Inventory Parts Person

## CAREER JOURNEY

General Labourer  
Forklift Operator

Raw Materials or Inventory Supervisor  
Materials Manager



PRODUCTION  
OPERATIONS



AVERAGE  
WAGE



H.S. DIPLOMA  
OR EQUIVALENT

# CNC OPERATOR

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$52,069 - \$78,104

## DEMAND FORECAST

↑ 149 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 2-3 year college program
- High school apprenticeship

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
  - English 40s
- Recommended:*
- Computer
  - Mechanical
  - Design

## POST-SECONDARY

- Assiniboine Community College
- Manitoba Institute of Trades and Technology
- Red River College



## A DAY IN THE LIFE

Alicia works for an aerospace manufacturer. Alicia loves that with so many staff in the building, it feels like a campus as much as a workplace. She starts her day by heading to the shop floor to program her CNC machine, using computer programming inputs. Quality control is exceptionally important in Alicia's company, where lives are at stake. She has always been tech savvy and her next favourite thing to do after programming is to run production protocols; it means she works hard to make sure the machine is operating precisely – there is no room for error. Because of this, her next task is to check the quality of the pieces the machine is delivering. Everything must precisely align with the specifications she programmed using computer aided design (CAD) systems.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

A Computer Numerical Control (CNC) Operator uses computer technology to perform drilling, cutting, or milling of various materials. This position is often found right on the manufacturing floor and produces a critical change to the material as part of the overall manufacturing process. Years ago, this job would have been dangerous and done manually, but today the operator runs a computer instead of a saw or drill.

## WHY DOES THIS JOB MATTER?

CNC equipment allows for large production runs with little to no variance, which means efficiencies, cost savings and most importantly a high-quality product.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Programming, monitoring, operation monitoring, judgement and decision making, critical thinking, writing, complex problem solving, systems analysis, mathematics, reading comprehension, communications

## OTHER JOBS LIKE THIS

Millwright, Machine Operator, Machinist, Manufacturing Production Technicians

## CAREER JOURNEY

Saw or Drilling Operator

CNC Operator

Manufacturing or Mechanical Engineer (with continued education)



SKILLED  
TRADE



AVERAGE  
WAGE



POST-  
SECONDARY



# INDUSTRIAL ELECTRICIAN

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$66,755 - \$100,132

## DEMAND FORECAST

↑ 218 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 4-5 Year Industrial Electrician Apprenticeship Program

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
- English 40s

## POST-SECONDARY

- Assiniboine Community College
- Manitoba Institute of Trades and Technology
- Red River College
- University College of the North



## A DAY IN THE LIFE

Madison loves solving problems and working with her hands. Today she is working on a building expansion: her company has invested millions renovating the production floor, expanding the shop and bringing in new equipment from Germany. As she has for the past few weeks, she starts her day reading through drawings, schematics, blueprints and electrical code requirements to lay out new electrical lines in the new building. She double checks yesterday's installation of switch boxes, feeders and other electrical components and tests hookups for continuity, current, voltage and resistance. She works with her team to troubleshoot and repairs any defects. She runs fiberoptic cable through the plant and completes her paperwork. After the documentation is done, Madison finishes up by organizing the inventory of electrical supplies.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

An industrial electrician specializes in electrical wiring. They typically install, maintain and test new electrical equipment, as well as troubleshoot and repair old electrical installations to ensure a facility is running smoothly. An industrial electrician enjoys working fairly independently and is a good problem solver.

## WHY DOES THIS JOB MATTER?

The world is powered by electricity and the industrial electrician is the one who maintains that system. A manufacturing facility would come to a standstill without this support.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Troubleshooting, repairing, critical thinking, active listening, judgement and decision making, installation, communications

## OTHER JOBS LIKE THIS

CNC Programmer, Electrical Engineer, Mechanical Engineer, Millwright

## CAREER JOURNEY

Apprentice  
Red Seal Industrial Electrician  
Master Electrician



SKILLED  
TRADE



AVERAGE  
WAGE



POST-  
SECONDARY

# INDUSTRIAL PAINTER

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$37,599 - \$56,398

## DEMAND FORECAST

↑ 307 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
- English 40s

## POST-SECONDARY

- Not Required



## A DAY IN THE LIFE

Jovana loves cars and art was her favorite subject throughout school. Today, she works as an industrial painter for a manufacturer of truck body parts. After getting ready, which means putting on her personal protective equipment, she heads to the shop floor to prepare the surface to be painted. Once it's prepped, she operates a painting machine, tests the formula to get the paint colour just right, and uses brushes and spray equipment to apply paint on to the truck. Jovana's attention to detail helps her excel in this job every day. She's also responsible for polishing metallic surfaces in the final step of the painting process, adding a professional touch that impresses the final customer.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Industrial painters use and test formulas to create paints and finishes, use sprayers to apply paint to various surfaces that require protective coatings, and trouble shoot formulas and equipment repairs along the way. You can find many of these jobs in companies that manufacture vehicles, such as buses, airplanes, cars, farm equipment and more.

## WHY DOES THIS JOB MATTER?

All metal and wood products get some sort of coating to protect them from the elements and to make them beautiful. It is important that the right formula is applied in the right way to shield the equipment or product from the elements. The paint protects customers and their investments.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Math, procedure reading, manual dexterity, eye for detail, communications

## OTHER JOBS LIKE THIS

Industrial Coating Sprayer, House Painter, Insulation Sprayer

## CAREER JOURNEY

General Labourer  
Industrial Painter

Production Supervisor  
Production Manager



SKILLED  
TRADE



AVERAGE  
WAGE



H.S. DIPLOMA  
OR EQUIVALENT



# MACHINIST

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$47,145 - \$70,718

## DEMAND FORECAST

↑ 334 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 4-Year Apprenticeship
- Red Seal

## HIGH SCHOOL COURSE REQUIREMENTS

- Applied Math 40s
- English 40s
- Recommended:*
- Science
- Machining Technology
- Computers
- Design

## POST-SECONDARY

- Red River College



## A DAY IN THE LIFE

As a machinist at a local company that makes vehicles for emergency responders, Rhonda starts her day programming machines to meet precision product specifications. To do this, she needs to read and interpret engineering drawings, blueprints, charts and tables to determine the machining operation to be performed and plan the best sequence of operations. Mid-morning, her manager asks for her to help troubleshoot software issues on a multi-million-dollar piece of equipment. After lunch, she jumps back into her earlier task, machining the parts for a new brake line that needs to perform in extreme weather and in intense conditions. There's no room for error, but Rhonda lays out work pieces, sets up, operates and maintains both high and low-tech equipment with precision.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Using power equipment, machinists design and build parts as well as repair and rebuild broken equipment. A machine operator is responsible for making sure a machine produces consistent quality parts and products. Relying on problem solving and creativity, no two days look the same for a machinist.

## WHY DOES THIS JOB MATTER?

Manufacturing runs on machining. Employees rely on working equipment in order to complete their schedule of orders. Any shutdown of equipment means lost money to the company and the employees.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Programming, monitoring, operation monitoring, mathematics, reading comprehension, active learning, judgement and decision making, critical thinking, writing, complex problem solving, communications

## OTHER JOBS LIKE THIS

Millwright, Electrician, Pipefitter, Ironworker, Machine Operator

## CAREER JOURNEY

Machine Operator  
Machine Set Up Operator

Apprentice  
Red Seal Machinist



SKILLED  
TRADE



AVERAGE  
WAGE



POST-  
SECONDARY

# MILLWRIGHT

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$63,367 - \$95,050

## DEMAND FORECAST

↑ 477 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 3-4 Year Apprenticeship Program
- Combination of 5 years of work experience, some high school, college or industry courses

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
- English 40s

## POST-SECONDARY

- Manitoba Institute of Trades and Technology
- University College of the North



## A DAY IN THE LIFE

Tan loves to problem solve and work with his hands. As a kid, he was always taking apart toys and electronics to see how they worked. Today, Tan's work as a millwright lets him do more of the same. This morning, he kicked off his day welding machinery pieces according to blueprints and design he was given by his supervisor, testing to make sure the finished product worked as designed. His second task of the day was to program a specialized machine on the assembly line with the help of a co-worker – an engineer. When heavy machinery breaks down, Tan is the first person the assembly line calls. Today, he inspects and repairs a broken machine press, and examines three other pieces of similar equipment to detect and investigate irregularities and malfunctions before they become bigger problems. Today, like most days, Tan worked with machine tools such as lathes and grinders during overhaul, maintenance and set-up of machinery.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

A millwright is a skilled tradesperson who is responsible for the installation, location, and repair of industrial equipment within a facility. They are able to assemble (and disassemble) large machinery, according to blueprints and layout plans, as well as conduct routine tasks involving preventative maintenance duties. Millwrights have a keen eye for detail and enjoy working with machines and precision instruments.

## WHY DOES THIS JOB MATTER?

Millwrights ensure that the equipment and machinery in a modern-day manufacturing plant are installed and run safely and reliably. This ensures that employees have working equipment to get their products made and allows companies to invest in new equipment which allows them to remain competitive year over year.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Installation (of equipment), equipment maintenance, operation monitoring, critical thinking, troubleshooting, time management, continuous learning, communications

## OTHER JOBS LIKE THIS

Welder, Ironworker, Electrician, Industrial Mechanic, Machinist

## CAREER JOURNEY

Apprentice  
Red Seal Millwright



SKILLED  
TRADE



AVERAGE  
WAGE



POST-  
SECONDARY

# TOOL + DIE MAKER

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$50,691 - \$76,036

## DEMAND FORECAST

↑ 58 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 4-5 Year Tool & Die Apprenticeship Program
- Combination of over 5 years of work experience in the trade and some high school, college or industry courses in tool & die making

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
- English 40s

*Recommended:*

- Science
- Computers
- Mechanical
- Design

## POST-SECONDARY

- Assiniboine Community College
- Manitoba Institute of Trades and Technology
- Red River College



SKILLED  
TRADE



AVERAGE  
WAGE



POST-  
SECONDARY



## A DAY IN THE LIFE

As a tool and die maker, most of Jayden's day is spent computing and verifying dimensions, sizes, shapes, and tolerances of workpieces. Today is no different. He is setting up a machine tool to make a new metal piece that will be used in electric busses, which will be shipped all over the world. The template is based on sketches Jayden developed last week after reviewing the product specifications and schematics with the engineering team. Next, he'll make metal molds for molding plastics. After his lunch break, he'll be heading to a safety training workshop on CNC machine safety. Much of Jayden's work involves high-tech, million-dollar equipment and working safely is job number one.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Tool and die makers are machinists who create jigs, molds, gauges and other templates that allow for precise and repeatable manufacturing processes. These skilled craftspeople often work in toolrooms, in a more flexible environment than you might find on the production floor, and usually work quite independently.

## WHY DOES THIS JOB MATTER?

The tools that are created allow an employee to work faster and more consistently, reducing variation and errors, therefore unexpected costs to the company.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Operation and control, critical thinking, quality control, operation monitoring, active listening, time management, communications

## OTHER JOBS LIKE THIS

Millwright, Welder, Pattern Maker

## CAREER JOURNEY

Apprentice  
Machine Operator  
Red Seal Tool and Die Maker



# WELDER

## TYPE OF JOB

Skilled Trade

## CAREER EARNING POTENTIAL

\$41,840 - \$62,760

## DEMAND FORECAST

↑ 1,105 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 3-4 Year Apprenticeship Program
- High School Apprenticeship Program
- College Certificate

## HIGH SCHOOL COURSE REQUIREMENTS

- Math 40s
- English 40s
- Science 30s

## POST-SECONDARY

- Assiniboine Community College
- Manitoba Institute of Trades and Technology
- Red River College
- University College of the North



### A DAY IN THE LIFE

Arjun's job as a welder is to join metal parts together, which isn't as simple as it sounds. In fact, only about a fifth of Arjun's day is spent welding: much of his time is spent interpreting blueprints, drawings and measurements and preparing for the project at hand. Before he starts on a project, he gears up with personal protective equipment, critical for this role since the tools of the trade include manual or semi-automatic welding equipment using many different techniques. Now safely attired, Arjun hits the shop floor where his first task is to study specifications to understand the full picture of the structure he is about to work on. Then he grabs his tools and starts to join metal pieces together. Throughout the day, Arjun will work with different metal shaping machines like brakes, shears and other metal straightening and bending machines. Quality and attention to detail are critical in welding. Arjun inspects and monitors progress to ensure that high and accurate standards are met at every step of the way.

### WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Welders are needed almost everywhere and those who want to advance their career can do so with additional schooling. Welders use heat to join metal parts and requires technical training, attention to quality and safety.

### WHY DOES THIS JOB MATTER?

The world relies on welding as an essential part of our every day lives. Welding is one of the essential skills for all fabrication in almost any industry. Welders play an important role in keeping us safe.

### WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Critical thinking, operation and control (equipment and systems), monitoring (yourself, others, organizations to make improvements), reading comprehension (following directions), active listening, communications, mathematics, time management

### OTHER JOBS LIKE THIS

Ironworker, Pipefitter, Sheet Metal Worker, Robotic Technicians

### CAREER JOURNEY

Apprentice  
Red Seal Welder  
Welding Inspector

CWB Certified Welder  
Welding Teacher (High School or Post-Secondary)



SKILLED  
TRADE



AVERAGE  
WAGE



POST-  
SECONDARY

# COMPUTER PROGRAMMER

## TYPE OF JOB

Technical

## CAREER EARNING POTENTIAL

\$60,058 - \$90,087

## DEMAND FORECAST

↑ 469 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- Bachelor's Degree in Applied Computer Science
- College Diploma in Computer Science

## HIGH SCHOOL COURSE REQUIREMENTS

- Applied math 40s or Pre-calculus 40s
- English 40s

*Recommended:*

- Science 40s

## POST-SECONDARY

- Manitoba Institute of Trades and Technology
- Red River College
- University of Manitoba
- University of Winnipeg



## A DAY IN THE LIFE

What Tyler likes best about his day is the chance to put on his headphones, open his laptop and start programming. Today is no different – he is creating a new system that will let the company's inventory control system "talk" to a vendor in Germany's database. He'll spend the rest of the day working on his computer. Here and there, he stops to test if the system is working the way it is supposed to. Most of Tyler's day is spent programming, but he does need to take a conference call with the vendor in Berlin and the company's CyberSecurity consultant in New York. Tomorrow will be a big day for him as he is presenting the new system to his manager and to the company's CEO.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

A computer programmer writes programs and creates the code for software applications and operating systems, testing and re-writing until it functions correctly. This career appeals to those who like to create, and see an idea built from the ground up. Often, you'll find computer programmers are continuous learners, who spend their personal time doing the same things they do at work, because that is where their passion is.

## WHY DOES THIS JOB MATTER?

Every aspect of a modern manufacturing operation relies on computer systems and programs to run its business. From communications to scheduling to bonus calculations to efficiencies and quality and so much more, computer programmers ensure a business runs 24/7.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Programming, reading comprehension, critical thinking, complex problem solving, quality control analysis, active listening, judgement and decision making, communications

## OTHER JOBS LIKE THIS

Software Developer, Computer Systems Analyst, Web Developer, Computer Support Specialist

## CAREER JOURNEY

Help Desk Support  
Computer Programmer  
IT Manager

Director of IT  
Chief Information Officer  
(CIO - Executive Level)



TECHNICAL



AVERAGE  
WAGE



POST-  
SECONDARY

# ENGINEER

## TYPE OF JOB

Technical

## CAREER EARNING POTENTIAL

\$76,293 - \$114,440

## DEMAND FORECAST

↑ 336 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- 2-3 Year College Program in Electrical or Electronics Engineering Technology, Industrial & Manufacturing Engineer Degree

## HIGH SCHOOL COURSE REQUIREMENTS

- English 40s
- Pre-calculus 40s
- Physics 40s
- Chemistry 40s

## POST-SECONDARY

- Red River College
- University of Manitoba



### A DAY IN THE LIFE

Cory loves complex problems – he's always been drawn to logic and puzzles. He arrives at the office and starts the day by meeting with his team walking the shop floor. Today, he's looking at two different paint processes to try to figure it out how to combine them into one. He collects data from each process, including measures of fluid mechanics, chemical reactions and material safety. The project takes the patience of a data scientist, math and science know-how and a little bit of trial and error to test different systems and measure results. Then he goes back to his office to put all the information together and run some calculations. He is meeting with the rest of the team to discuss potential solutions at the end of the day. Once they have a plan, Cory will identify suppliers and other companies, draft specifications and bring in the right supporters to help make the plan a reality.

### WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Electrical engineers design and test electrical systems and equipment. Industrial engineers search to optimize processes and systems. Manufacturing engineers drive continuous improvements in production environments. Engineers can work fairly independently but they rely on teamwork to bring their vision to reality and put to use. Much of an engineer's work is project-based with a clear start and end to address a challenge.

### WHY DOES THIS JOB MATTER?

Engineers are problem solvers who apply their education in science and math to make things better in their area of expertise. Engineers have the ability to research, optimize and improve the world around us.

### WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Aptitude for math, science, critical thinking, active listening, verbal communication, reading comprehension, active learning (the ability to incorporate new findings into your work), communications.

### OTHER JOBS LIKE THIS

Civil Engineers, Aerospace Engineers, Biomedical Engineers, Environmental Engineers

### CAREER JOURNEY

Engineer-in-Training  
Professional Engineer (Designation)  
Technical Specialist

Engineering Supervisor  
Engineering Manager



TECHNICAL



AVERAGE  
WAGE



POST-  
SECONDARY



# SAFETY PROFESSIONAL

## TYPE OF JOB

Business Operations

## CAREER EARNING POTENTIAL

\$55,270 - \$82,905

## DEMAND FORECAST

↑ 170 by 2024

## EDUCATIONAL PATHWAYS

- Occupational Health and Safety Certificate

## HIGH SCHOOL COURSE REQUIREMENTS

- English 40s
- Applied Math 40s
- Science 40s

## POST-SECONDARY

- Red River College



### A DAY IN THE LIFE

Bridgette is a safety manager whose job is to ensure that safety and health is a part of every day life at her company. Each morning, she meets with different department leaders and managers to talk through opportunities to improve safety and throughout the day she advises on safety concerns with the employees and management. The company is rolling out a safety orientation for brand new hires and this morning, Bridgette is developing the content. Later in the day, she'll meet with a group of team leads to talk through a near-miss incident from the week before. No one was hurt but Bridgette and the team will work together to improve the safety policies and communication to control any risks to keep everyone healthy and safe.

### WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Safety professionals ensure safety and health processes are running smoothly. They advise on safety and health concerns, including meeting with supervisors and managers to discuss program details and help improve or launch new health and safety activities and initiatives.

### WHY DOES THIS JOB MATTER?

Safety professionals add a measured and strategic approach as part of the leadership team to ensure that all employees return home to their families as good as or better than when they started their workday.

### WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Reading comprehension, active listening, speaking, writing, math, critical thinking, monitoring, decision making, coordination and communications.

### OTHER JOBS LIKE THIS

Safety Coordinator, Safety Manager, Safety Specialist, Safety Trainer, Safety Advisor, Industrial Hygienist

### CAREER JOURNEY

Safety Coordinator  
Safety Manager  
Safety Consultant



BUSINESS  
OPERATIONS



AVERAGE  
WAGE



POST-  
SECONDARY

# HUMAN RESOURCES PROFESSIONAL

## TYPE OF JOB

Business Operations

## CAREER EARNING POTENTIAL

\$55,916 - \$83,875

## DEMAND FORECAST

↑ 522 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- Bachelor's Degree in Human Resources or Business Administration
- College Diploma in Human Resources

## HIGH SCHOOL COURSE REQUIREMENTS

- Applied Math 40s or Pre-calculus 40s
- English 40s

*Recommended:*

- Computers
- Communication

## POST-SECONDARY

- Assiniboine Community College
- Brandon University
- Red River College
- University College of the North
- University of Manitoba
- University of Winnipeg



BUSINESS  
OPERATIONS



AVERAGE  
WAGE



POST-  
SECONDARY



## A DAY IN THE LIFE

Andrea is a human resources manager with a large furniture manufacturer. She kicks off her day by phoning applicants to schedule interviews for different roles the company is hiring for. Next, she meets with the production manager to review the salaries and bonuses for the production staff to make sure the company's wages are fair and competitive. Mid-morning, she meets with another manager to help coach an employee through an attendance problem. After lunch, Andrea's team meets to plan the company's annual employee recognition barbeque, which includes some event planning and working within a budget. In the hallway she's stopped by an employee who is struggling with some stress at home, which is affecting his performance at work. They create a plan so the employee feels supported and can focus again. Before she leaves for the day, she meets with the CEO to update her on the status of a new computerized HR system the company is putting into place.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

HR pros know a lot about legislation, company policies, and can understand culture and what motivates people. Human Resources exists to help a company hire, keep and motivate the best group of people for that organization. Most HR professionals find careers with larger companies in almost any sector, including manufacturing.

## WHY DOES THIS JOB MATTER?

HR uses strategy, hiring techniques, training, performance discussions, recognition and more to engage and inspire. People are the strength of any company, and HR provides the human touch needed to inspire and engage.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Reading comprehension, active listening, speaking, writing, critical thinking, service orientation, social perceptiveness, time management, monitoring, coordination and communications

## OTHER JOBS LIKE THIS

People and Culture Champion, Organizational Development Manager, Training and Development Manager

## CAREER JOURNEY

Administrative Assistant  
HR Coordinator  
HR Manager

HR Director  
Chief Human Resources Officer  
(CHRO - Executive Level)

# MARKETING PROFESSIONAL

## TYPE OF JOB

Business Operations

## CAREER EARNING POTENTIAL

\$45,000 - \$65,237

## DEMAND FORECAST

↑ 334 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- Bachelor's Degree in Marketing or Business Administration
- College Diploma in Marketing

## HIGH SCHOOL COURSE REQUIREMENTS

- Applied Math 40s or Pre-calculus 40s
- English 40s

*Recommended:*

- Communications/Media
- Design • Computers

## POST-SECONDARY

- Assiniboine Community College
- Brandon University
- Red River College
- University College of the North
- University of Manitoba
- University of Winnipeg



BUSINESS  
OPERATIONS



AVERAGE  
WAGE



POST-  
SECONDARY



## A DAY IN THE LIFE

Before he heads to the office, Rob heads downtown. He has a meeting with the marketing agency developing video about the company's newest product line. The agency needs Rob to approve the budget and sign off on locations for the shoot. Next, Rob heads the office, catches up on emails, monitors social media and puts the finishing touches on a media release about the new line. No two days, or even two projects are alike for Rob, and today is no different. After grabbing a coffee on the go, he's off to a lunch hour strategy meeting to decide which international trade shows the company should have a booth at next year, which he'll also attend. Last year was Last Vegas but the company is considering new markets in Hong Kong and Dubai. Before he leaves, Rob, checks the company's social media feeds to make sure there are no customer requests or complaints and heads home. Tomorrow will be something entirely different.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

Marketers wear a lot of hats in business and need to keep their finger on the customer's needs at all times. Whether it's product, place, price or promotion, marketers help the company position its brand, sell its products and satisfy its customers, all while keeping media, company leadership and others in the loop and in the know.

## WHY DOES THIS JOB MATTER?

Marketing uses strategy, communications, psychology, consumer behaviour and more to find customers and meet their needs. Every business needs creative minds to succeed and the marketing department combines business know how with creative services.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Reading comprehension, active learning, speaking, social perceptiveness, critical thinking, active listening, judgement and decision making, monitoring, persuasion, negotiation

## OTHER JOBS LIKE THIS

Sales, Advertising, Media and Public Relations

## CAREER JOURNEY

Marketing Assistant  
Marketing Coordinator  
Marketing Manager

Sales & Marketing Manager  
Vice President, Marketing



# PRODUCTION SCHEDULER

## TYPE OF JOB

Business Operations

## CAREER EARNING POTENTIAL

\$43,329 - \$64,994

## DEMAND FORECAST

↑ 234 by 2024

## EDUCATIONAL PATHWAYS

- High School Diploma or Equivalent
- College Diploma
- Business Diploma or Degree

## HIGH SCHOOL COURSE REQUIREMENTS

- Applied Math 40s or Pre-calculus 40s
- English 40s

*Recommended:*

- Computers

## POST-SECONDARY

- Assiniboine Community College
- Brandon University
- Red River College
- University College of the North
- University of Manitoba
- University of Winnipeg



BUSINESS  
OPERATIONS



AVERAGE  
WAGE



POST-  
SECONDARY



## A DAY IN THE LIFE

Jennifer starts her day by working through a series of complex Excel spreadsheets that bring together specifications from customers' orders with internal data that will help the company estimate the type and quantity of materials and labour required for the production of this weeks' projects. Jennifer loves data and can see patterns no one else notices. She has a keen eye for detail, which serves her well in this job. While most of Jennifer's job is spent at her desk, it's also important that she meet regularly with the production staff, so after she finishes the production schedule and emails the report to her manager, she heads down to the shop floor to meet with the continuous improvement team. This group is working on some actions to improve the time between order placement and delivery and Jennifer is excited to participate in the project. To wrap up her day, she heads back to her desk to call and email suppliers to request updated quotes on several key parts needed for daily production operations.

## WHAT DOES A CAREER IN THIS JOB LOOK LIKE?

The scheduler prioritizes customer orders for efficient flow through a production facility through creation of production schedules and reports. Ensuring the materials and people are available, the scheduler works to ensure everything runs smoothly in order to meet all customers' expectations of quality and delivery. More than ever this role is requiring the use of sophisticated software, which appeals to those who enjoy adding a human understanding of manufacturing and production to automated analysis and programming.

## WHY DOES THIS JOB MATTER?

The scheduler works to ensure that every resource is maximized with little downtime or outages. This means every employee gets a full paycheck and every customer gets the product they were expecting in the time frame they expected.

## WHAT SKILLS AND COMPETENCIES ARE NEEDED?

Reading comprehension, critical thinking, complex problem solving, systems evaluation, systems analysis, monitoring, active listening, judgement and decision making, speaking, writing, communications

## OTHER JOBS LIKE THIS

Master Scheduler, Production Planner, Production Analyst

## CAREER JOURNEY

Entry Level Skilled Trade  
Production Supervisor  
Production Scheduler

Production Manager  
Operations Manager

# THE FUTURE OF WORK

What does the future look like for manufacturing?

The field of manufacturing continues to evolve with each passing year.

Can you imagine a world without iPhones or the internet? Many of today's most in-demand jobs didn't exist 30 years ago. When your parents were your age, not only did careers like data scientist, blogger, and social media specialist not exist, it would have been nearly impossible to imagine what a day in the life of those jobs would look like, or what skills or training might be required.

In manufacturing, new processes, tools and equipment are allowing companies to produce products faster, more safely and with better quality in a hyper-connected, global environment. Cyber security, artificial intelligence, 3D printing and more – technology is changing faster and faster every day. This is where advanced manufacturing comes into play.

“Advanced Manufacturing” is the term manufacturers are using to describe the future in our industry. It is the use of innovative technologies and methods to get better at what we do.

While we don't know what tomorrow's jobs will look like, we do know that certain skills will be required to succeed. Technical skills are important, but maybe more so are soft skills – like creativity, problem solving, teamwork and curiosity.

Tomorrow's manufacturers are here today. Manufacturing is high tech. It's sustainable. It's safe, cutting edge, higher skilled and well paying.

CME provides many supports in the area of advanced manufacturing, but you can also visit [coalitionmb.ca](http://coalitionmb.ca) for great information on the world of smart manufacturing, industry 4.0 and a peek at exciting technologies and changes on the horizon.

Manufacturing is a driving economic force in Canada, and the future is bright!



# HOW CME CAN HELP

CME can connect you with the world of work! With initiatives and programs that let you explore your future career options, we encourage you to learn more about the exciting things manufacturers are making. Connect with us today to learn more about:

## YOUTH IN MANUFACTURING

Exposes students to manufacturing processes from design to building and assembling a product, and ultimately the marketing and sales process.

## LEAN 101

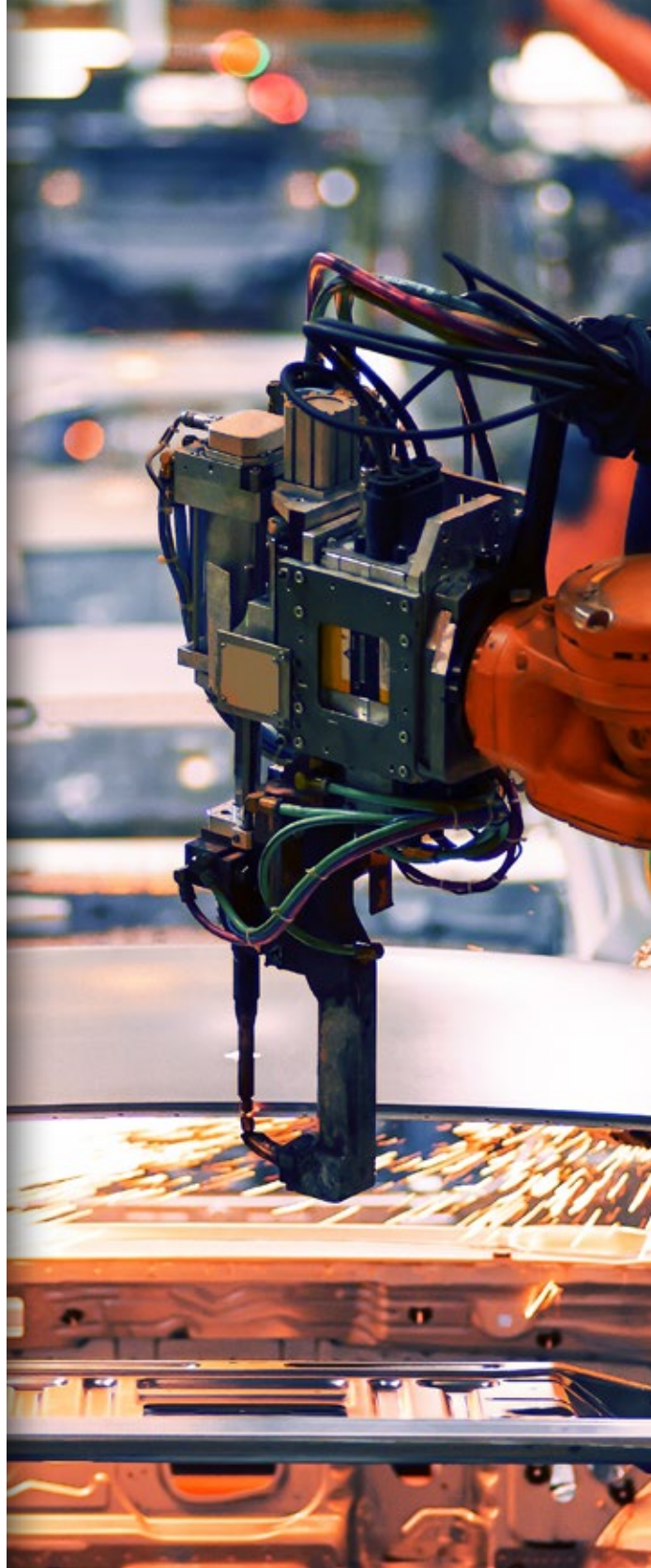
This one day, hands-on, “learning by doing”- style workshop discusses Lean concepts like customer focus, information and material flow, problem solving and waste elimination. Many manufacturers subscribe to Lean methodology, and this is a great chance to add something to your resume that will catch the eye of a future recruiter.

## CAREER DISCOVERY

Showcases a variety of workplace technologies and high demand careers available in the modern world of manufacturing. Students will participate in a highly interactive experience that simulates the manufacturing cycle from design through build and final assembly of a manufactured piece to take home.

## MANUFACTURING TOURS

Tour a local manufacturing company to learn about their processes and the careers available in the field. For most of us, it's hard to imagine something until we actually get a chance to see it. Join us for a behind-the-scenes look at some of Manitoba's most innovative manufacturers and see how it's made.



## CONNECT WITH US TODAY!

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