



**Connecting Aboriginals to Manufacturing
Revised Training Program Model**

University of Winnipeg

The following Business Skills Program is seeking to provide a quality program that elaborates on essential skills, establishes business skills and supports the acquisition of employability skills within an experiential learning environment in order to ensure that program participants succeed in manufacturing careers. The goal is to build manufacturing capacity in Manitoba and in the community.

**Personal Capabilities & Life Skills, Cultural Awareness, Manufacturing Industry Overview
(Approximately 2 months)**

Introduction to Continuous Learning (36 hours, in Aboriginal Community)

This module will provide useful, practical strategies for reading texts, taking notes, getting the most out of classes, studying for tests and writing assignments. Students will gain an understanding of various learning styles, memory enhancement, and time management as well as develop essential skills in the areas of reading, document use, writing, oral communication, working with others, thinking, computer use and continuous learning. The intent of the module is to build students' confidence in managing their studies and to help them develop an appreciation for ongoing personal and career development.

Upon completion of this module, students will:

- Understand their own personal learning style and learning preferences.
- Be able to apply personal strategies that will enhance their ability to function effectively in a post-secondary environment.
- Understand and be able to apply practical and effective learning techniques and time management strategies.
- Have an improved ability to take notes, organize information, make short presentations, and conduct basic library and internet research.
- Be able to participate effectively in class.

Note: Eligible students who complete *Introduction to Continuous Learning* may challenge the UW course, *Introduction to University*, for degree credit, subject to the successful completion of the required assignments.

Life Skills: Developing Personal Capabilities (36 hours, in Aboriginal Community)

This module examines the characteristics of resiliency—how people bounce back when faced with adversity. Students will learn how to prepare to meet life's challenges and to become healthy and capable in times of rapid change. Key deliverables of this course include an increased sense of self esteem and growing self confidence. Strategies are introduced that will help students to create a balanced lifestyle between work/study, home, physical well-being and family expectations.

Upon completion of this module, students will:

- Explain how perceptions and interpretations impact emotions and behaviour, and will be able to provide personal examples.
- Understand the process of developing self-discipline through self-assessment and self-control.

- Understand and apply the principles of effective interpersonal communication (active listening, empathizing, cooperating, negotiating, and resolving conflict) through the use of role play and small group work.
- Be aware of the connection between personal and social responsibility.
- Understand the importance of decision-making that is based upon values and principles.

Cultural Awareness – Employers Culture to Candidates, Family, Community (36 hours, in Aboriginal Community)

This module is intended to present a cultural perspective of the manufacturing environment to students, families and communities. Understanding both the expectations in the manufacturing environment and the expectations in the learning environment will help the families and community understand how to support the student throughout the program and reinforce their individual value in the workplace thus building self worth and esteem. Employers input will be sought regarding content and career opportunities.

Upon completion of this module students, families and community members will:

- Understand the general organizational culture found in a manufacturing environment and see examples of different types of manufacturing environments.
- Understand that the manufacturing workplace is a structured environment.
- Understand the importance of work ethic to the employer, i.e. being on time.
- Understand the impact (value) of the individual employee in the workplace, i.e., if late, miss shift etc., union/non-union work models.
- Be aware of the expectations the university has of students in relation to course attendance, course homework and assignments, managing priorities and organizing workloads to meet deadlines.
- Be able to apply strategies to help support the student during a period of studies.
- Understand the important role that families and community play in the success of the student.

Cultural Awareness – Aboriginal Culture to Employers (14 hours, in Aboriginal Community)

This module is intended to present an Aboriginal cultural perspective to managers, supervisors and staff in the manufacturing environment. The module will feature a facilitative approach and rely on Elders and leaders who through experience and background own the right to share this knowledge. When available, the facilitators will collaborate with existing training programs and supports. Role-playing scenarios will be a key tool in communicating cultural perspectives.

Upon completion of this seminar, managers, supervisors and staff will:

- Understand how to create an environment that allows individuals from diverse cultural backgrounds to participate and contribute fully in the workplace.
- Understand the value of culture within the employers diversity program.
- Be aware of the diversity in the community, i.e. Ojibway, Cree, etc.
- Be presented with a brief history of peoples and the cultures that have thrived for thousands of years.
- Be able to examine and solve some of the misunderstandings that arise between people of different backgrounds. Be aware of the importance of not “over sensitizing” responses to employees, i.e. No stereotypes.
- Understand dealing with racism in the workplace.
- Broaden their perspective and understanding of cultural norms and learn the five competencies that will increase their Culture Intelligence (CI).
- Identify the purpose of cross cultural understanding.
- Have a better understanding of multi cultural norms.
- Understand how to deal with cultural barriers in the context of the workplace.
- Increase the ability to address some of the diversity challenges that affect a diverse and multi cultural workplace.
- Develop a personal action plan that focuses on change/impact in creating a more inclusive workplace while increasing cultural intelligence.

Effective Oral Communications (36 hours, in Aboriginal Community)

This module will create a safe environment for students that utilizes role playing to build confidence and effectiveness in oral communication. Within this environment, students will become comfortable giving effective feedback on skill development personally and within the group. Students will also become comfortable accepting effective feedback as a method to increase awareness and capacity.

Upon completion of this module students will know how to:

- Plan, create, organize and deliver an effective oral presentation.
- Use effective techniques and tools that engage audiences.
- Increase your confidence when giving oral presentations.
- Plan, organize and run productive meetings.
- Respond effectively to workplace conflict and other communication challenges.

Effective Business Writing (18 hours, in Aboriginal Community)

Students will undergo a pre-screening process to ensure a minimum competency standard in order to qualify for the abbreviated writing component.

This module is intended to build on the student's essential writing skill level relative to the way in which they will be expected to communicate on the manufacturing floor or in related departments. Students will require basic computer skills in the area of keyboard and mouse use and basic word processing tools.

Upon completion of this module students will be able to:

- Create effective emails, progress reports and project related requests using organizational standards and document templates.
- Execute effective writing strategies, such as organizing content, summarizing effectively, writing for clarity and conciseness.
- Employ plain language strategies, avoiding jargon.
- Construct powerful sentences and paragraphs using correct grammar and punctuation.
- Adopt accepted grammar and usage guidelines.

Introduction to Manufacturing (18 hours, in Aboriginal Community)

This module is intended to provide an understanding of the manufacturing environment and its processes. The module includes a tour/field trip to a manufacturer to complement the classroom based instruction.

Upon completion of this module students will:

- Be aware, at a high level perspective, of the whole product realization process, including product concept, performance criteria, mechanical design and analysis, materials selection, process planning and modeling, production control, automation and assembly.
- Understand the world of work in general, including how manufacturing fits within the business world.
- Understand that the manufacturing environment is in business to be profitable.
- Be aware of the role of management and the importance of promoting teamwork among all departments that contribute to design, marketing, purchasing, production, quality, and manufacturing functions.
- Be exposed to examples of realistic, efficient manufacturing models.

Organizational Behaviour (14 hours, in Aboriginal Community)

Students will be introduced to the work world as a multi-cultural environment. As appropriate, students will have an opportunity for team based role playing to understand the constructive conflict resolution process in creating an open outlet to relieve frustration.

Upon completion of this module students will:

- Understand the concepts of organizational behaviour.
- Be aware of individual behaviours in the workplace and the effects of motivation.
- Recognize group and team dynamics and the skills needed to manage in these arenas.
- Recognize management systems and their effects on behaviours.
- Be aware of and recognize change agents in organizational environments.
- Understand the value and fit of the individual within the manufacturing environment.

Project Management Fundamentals (14 hours, in Aboriginal Community)

This seminar will provide students with a basic understanding of the generally recognized knowledge areas and best practices of project management.

Upon successful completion of this module students will:

- Understand the basic processes of initiating, planning, executing, monitoring and controlling, and closing a project.
- Be familiar with the basic terminology.
- Be familiar with tools, techniques, and templates used in the development of a basic project plan in a team environment.
- Be aware of risk analysis techniques and risk strategies.
- Be exposed to the project planning process as it relates to product costing, production, financial tracking and monitoring, logistics and supply chain management through procurement processes.
- Have a greater understanding of the impact of product costs, supply chain and logistics on the manufacturing process.

Employment Preparation & Readiness (36 hours, in Aboriginal Community)

Upon completion of this module, students will be able to:

- Compile a detailed inventory of relevant skills and deliver these in results-oriented statements that capture recruiters' attention.
- Research prospective employers and analyze the business need behind a job posting.
- Write employer-centered cover letters that invite attention to your resume.
- Prepare for an employment interview using both hypothetical and behaviour description techniques.
- Build confidence in preparing for interviews through role-playing and practice.

Winnipeg Technical College

Manufacturing Workplace Core Competencies (Approximately 5 months)

These modules are designed to provide manufacturing workplace core competencies to Aboriginal program students to prepare them for entry level positions within the manufacturing sector. Essential Skills are embedded within the curriculum and the competencies present an introduction to manufacturing, greater awareness of the complexity of the industry, as well as the skills and practices relevant to the needs of employers. Each student would be issued a transcript of marks and a Certificate of Achievement based upon successful completion of the program. Credit could be applied towards future training with Winnipeg Technical College.

An experiential learning environment would provide a flexible and supportive approach that would encourage students to be directly involved in their educational experience including an emphasis on practical skills such as project-based learning. This learner-centered approach encourages participation and engagement as well as continuous reflection. The program would support the development of the students' knowledge and skills required for entry level manufacturing positions as well as empowering students to continue to build on lifelong learning opportunities.

Health and Safety in Manufacturing (80 hours, in Aboriginal Community)

This module introduces students to health and safety requirements as well as WHMIS, MSDS, and working safely with various machinery and equipment. Students will be able to apply health and safety regulations and safe work practices in the workplace

Upon completion of this module students will be able to:

- Practice safe work procedures as per WHMIS, Workplace Health and Safety, and program policies

- Identify the main types of hazards and accidents
- Identify dangerous work situations and provide explanations of the appropriate procedures to follow
- Identify Personal Protective Equipment (PPE)
- Follow correct procedures in the use of safety glasses, footwear, and Personal Protective Equipment
- Explain the importance of maintaining a safe work environment
- Define and identify chemical safety fundamentals
- Describe safety rules to follow when using various tools
- Identify material handling procedures
- Describe procedures for working safely with machinery
- Safely lift and move machinery and equipment using appropriate tools and devices
- Identify fire safety

Instruction in this course is delivered by use of different methods including:

- Lectures, Individual or small group demonstrations, Small group demonstrations, Individual or small group written assignment, Guest speakers/presenters

The following Essential Skills have been imbedded in **Health and Safety in Manufacturing**: Reading Text, Document Use, Writing, Oral Communication, Working With Others, Thinking Skills, Computer Use, and Continuous Learning.

Math and Measurement in Manufacturing (30 hours, in Aboriginal Community)

This module involves an understanding of the mathematical concepts and the application of those concepts within the manufacturing field and includes algebra, ratio, proportion, and geometrical operations. Students will be introduced to precision measuring tools and basis of measurement. Students will be able to understand trade related math

Upon completion of this module students will be able to:

- Identify specific math concepts used in the manufacturing field
- Perform basic mathematical operations, linear measurements and conversions
- Solve problems in trade related algebra and geometry
- Demonstrate an understanding of ratio and proportion as it relates to the field
- Identify precision measuring tools and the basis of measurement

Instruction in this module is delivered by use of different methods including:

- Lectures, Individual demonstrations, Small group demonstrations

The following Essential Skills have been imbedded in to **Math and Measurement in Manufacturing**: Reading Text, Numeracy, Thinking Skills, Continuous Learning.

Blueprint Reading in Manufacturing (110 hours, in Aboriginal Community)

This module focuses on basic blueprint terminology and principles as well as the basic functions of AutoCAD. Students gain knowledge and skills required to extract basic information from blueprints and develop basic sketching techniques. Students will have the knowledge and skills necessary to use blueprints when dealing with machine assembly and installation.

Upon completion of this module students will be able to:

- Identify principles of basic blueprint reading in terms of visualization and interpretation of the blueprint

- Extract basic information from blueprints
- Demonstrate basic freehand sketches
- Describe orthographic projection (representing a three-dimensional object in two dimensions)
- Describe the use of a variety of lines
- Identify basic machining symbols commonly used on blueprints
- Describe the procedures used in dimensioning
- Describe specifications found on blueprints
- Describe the use of AutoCAD to produce drawings of objects
- Describe basic functions of AutoCAD
- Identify the relationship between AutoCAD and CNC machines

Instruction in this course is delivered by use of different methods including: Lectures, Individual demonstrations, Small group demonstrations, Individual or small group written assignment

The following Essential Skills have been imbedded in to **Blueprint Reading in Manufacturing**: Reading Text, Document Use, Writing, Oral Communication, Numeracy, Working With Others, Thinking Skills, Continuous Learning.

Introduction to Welding in Manufacturing (95 hours, in Facility)

This module focuses on appropriate use of oxy-fuel equipment in brazing, soldering, cutting, and welding operations. The module will also introduce students to oxyacetylene welding, brazing and cutting as well as oxyacetylene safety. This module is designed to provide students with the knowledge and skills to explain the safe use of welding equipment and processes. This knowledge will be reinforced by using these skills in a practical project.

Upon completion of this module students will be able to:

- Practice safe work procedures as they relate to welding
- Describe the safety precautions when transporting oxy-fuel equipment, as well as storage and handling and operating pressure of this equipment
- Describe safe oxyacetylene set up and start up
- Explain the proper set up and operation of arc welding equipment
- Define flame cutting start up and procedures
- Describe procedures for cutting metals with oxy-fuel equipment
- Describe procedures for welding in the flat, vertical, and horizontal positions
- Describe and demonstrate set up procedures and basic operation of GMAW equipment
- Describe procedures using the plasma arc process
- Assess certain joining techniques concerning their different characteristics
- Assess special advantages and disadvantages of the discussed joining techniques as well as handling of products
- Demonstrate safe oxyacetylene set up and start up
- Perform oxyacetylene welding with sheet metal in flat and vertical positions
- Cut various metal thicknesses using oxyacetylene
- Design a joining area especially for the particular joining technique
- Perform brazing with sheet metal in the flat and vertical positions

Instruction in this module is delivered by use of different methods including: Lectures, Individual or small group demonstrations, Guest speakers/presenters, Project work

The following Essential Skills have been imbedded in to **Introduction to Welding in Manufacturing**: Reading Text, Numeracy, Thinking Skills, Continuous Learning.

Tools and Material Application in Manufacturing (90 hours, in Facility)

This module will identify manufacturing materials including plastic, metal, wood and composite materials as well as the manufacturing processes. Students will gain knowledge of the safe and effective use of trade related hand and power tools as well as measurement and measuring devices. This knowledge will be reinforced by using these skills in a practical project.

Upon completion of this module Students will be able to:

- Describe manufactured structural elements/processes
- Identify plastic, metal, wood and composite products used in the trade (with presentations by industry experts)
- Demonstrate and describe how to handle products based on specification sheets
- Practice safe work practices and procedures as they relate to hand and power tools
- Identify measuring tools in the metric and Imperial systems
- Identify hand tools, cutting tools and power tools used in the trade, including pneumatic tool
- Describe proper maintenance of power tools
- Identify industrial adhesives, sealants, fillers and connectors, and their uses
- Demonstrate the safe use of hand and power tools
- Select and use the appropriate hand and power tools for specific tasks

Instruction in this course is delivered by use of different methods including: Lectures, Individual or small group demonstrations, Guest speakers/presenters, Project work

The following Essential Skills have been imbedded in to **Tools and Material Application in Manufacturing**: Reading Text, Document Use, Oral Communication, Numeracy, Working With Others, Thinking Skills, Continuous Learning.

Introduction to Electrical in Manufacturing (75 hours, in Aboriginal Community)

Students will gain a general understanding of basic electrical concepts and components including electrical production and its use in the manufacturing industry. Students will be introduced to the terms and concepts involved in electricity including electrical components and equipment. Students will have a general understanding of electricity and its use and will be able to apply the theory in practical applications.

Upon completion of this module students will be able to:

- Demonstrate safe work practices and procedures as they relate to electrical equipment and controls
- Identify basic electrical concepts
- Describe electrical production and use
- Describe the use of electricity in production in the manufacturing industry
- Identify electrical components
- Describe the procedures used in testing components and systems

Instruction in this course is delivered by use of different methods including: Lectures Guest speakers/presenters, Individual or small group written assignment

The following Essential Skills have been imbedded in to **Introduction to Electrical in Manufacturing**: Reading Text, Writing, Oral Communication, Thinking Skills, and Continuous Learning.

Manufacturing Technician (90 hours, in Workplace)

Employer specific information, field trips and work practicum will provide students with the opportunity to observe, practice and refine technical and employability skills relevant to employment in the manufacturing industry and gain an understanding of employer expectations. Students will have demonstrated employability skills and will enhance his/her skills by being exposed to employer specific training as well as a workplace environment.

Upon completion of this module students will be able to:

- Identify employer specific training
- Apply theoretical and practical skills required in the manufacturing industry
- Practice safe work procedures as per WHMIS, Workplace Health and Safety, and workplace policies
- Review employer specific information In collaboration with the manufacturing industry
- Describe workflow and expectations through the observation of two industrial manufacturing firms
- Practice and refine employability skills relevant to the industry
- Obtain full-time or part-time employment or references that can become part of a resume

Instruction in this course is delivered by use of different methods including: Guest speakers/presenters
Field trips, Assessment and observation.

The instructor will work with stakeholders to assist in student placements with appropriate employers. The supervisor of the worksite will provide guidance to the students, and the instructor will provide reinforcement through worksite visitations.

The following Essential Skills have been imbedded into **Manufacturing Technician**: Oral Communication, Working With Others, Thinking Skills, Continuous Learning.