THOMPSON RIVERS UNIVERSITY
Trades & Technology

Tk’emlúps te Secwépemc

Mechanical Sampler

PROGRAM OVERVIEW

- Math Upgrading
- Introduction to Welding
- Introduction to Auto
- Introduction to Millwright
- Safety Tickets

Date: January 2024

Location: TteS and TRU

Course Description and Details

The Mechanical Sampler program provides learners with a comprehensive, exploratory experience that will enable students to try a variety of mechanical trades, in a safe and supportive environment. The program focus will be on safety, while providing an immersive hands-on experience. The program will be delivered at TRU – School of Trades and Technology (Automotive, Millwright, and tickets) and T Tk'emlúps te Secwepemc (Welding – Mobile Training Unit).

The program will provide learners with access to the SkillPlan Math and Literacy online course which will help them increase their numeracy and literacy skills using real life trades and work scenarios as examples prior to the start of the hands-on components. This module will start November 27 and allow the students to "Get Trade Ready". Beginning in the New Year, students will participate in a two-week math upgrading course at TteS. This module will be offered face to face, three hours per day. The students will then transition to TRU where they will obtain their First Aid Level 1 with a Transportation Endorsement, followed by their Forklift Certification. Students will spend three weeks of experiential, hands on learning in our millwright and machinist shop.

Following Millwright, students will ladder to a week of tours to local employers who hire mechanical trades people, workshops on resume writing, interview skills, WHMIS, and a math refresher class. Next, the students will begin a two-week module covering automotive basics where they will have the opportunity to explore many facets of an automotive technician. Following Automotive, the students will return to TteS and complete a three-week welding module in the TRU Mobile Welding Unit (MTU). The MTU will be set up at TteS. Students will require access to washroom facilities. Following the three-week welding module, TteS, with support from TRU, will connect students with a one-week job shadowing opportunity which will allow students to gain further understanding of the trade of their choice and employer expectations. A completion celebration will be held at the end of their program, recognizing the students' accomplishments and their next steps into employment or further education.

Math Upgrading:

Course description: This math upgrading class is designed for students who want to upgrade their skills and knowledge in preparation for trades training in fields like millwright, automotive, welding, and others. The curriculum is practical, engaging, and relevant to their future education and careers.

Course Duration: 2 weeks, (part-time)

Week 1: Foundations of Trade Math

- Overview of the importance of math in trades.
- Basic arithmetic and practical applications.
- Metric and imperial units, conversions.
- Length, area, and volume measurements.
- Basic geometry concepts for trades.
- Calculating shape areas and volumes.

- Using ratios in trade contexts.
- Problem-solving with ratios.
- Collaborative problem-solving with trade scenarios.

Week 2: Advanced Trade Math

- Algebraic equations for trade variables.
- Hands-on problem-solving.
- Trigonometry basics and trade applications.
- Solving right triangle problems.
- Data analysis using charts and graphs.
- Interpreting trade-related data.

This condensed schedule retains the focus on practical math skills needed in trade professions while providing a clear structure for the two-week class. Skillplan materials and TRU Trades Math handouts will be provided.

Introduction to Millwright:

Course Description: Are you intrigued by machinery, mechanical systems, and the idea of maintaining and repairing complex industrial equipment? Our three-week "Introduction to Millwright" course is tailored for individuals considering a career in this versatile field. This full-time program provides foundational knowledge and hands-on experience to help you explore the world of millwrighting and make an informed decision about pursuing it as a career.

Course Duration: 3 weeks (Full-Time)

Course Objectives:

- Provide a strong foundation in millwrighting principles and practices.
- Offer hands-on experience in working with industrial machinery.
- Explore the roles and responsibilities of a millwright.
- Help you assess whether a career in millwrighting aligns with your interests and goals.
- Prepare students for further training or apprenticeship in the field, if desired.

Course Outline:

Week 1: Millwrighting Fundamentals and Safety

- Introduction to millwrighting and its importance in industry.
- Safety procedures and regulations in industrial settings.
- Overview of hand and power tools used by millwrights.
- Identifying and understanding basic mechanical components.

Week 2: Machinery Maintenance and Basic Repairs

- Basic maintenance tasks for industrial machinery (lubrication, alignment, etc.).
- Identifying common issues in industrial equipment.

- Hands-on practice in performing routine maintenance and minor repairs.
- Introduction to precision measurement and alignment techniques.
- Individuals interested in exploring a career in millwrighting.
- Anyone with a mechanical aptitude who wants to understand the basics of millwrighting.

Prerequisites: No prior millwrighting experience is necessary. Students should have a keen interest in machinery and be physically capable of working in an industrial environment.

Course Benefits:

- Gain practical millwrighting skills and hands-on experience.
- Learn in a supervised and well-equipped industrial workshop.
- Explore career opportunities in the field of millwrighting.
- Receive guidance on further education and apprenticeship options.

Instructors: Our experienced instructors are seasoned millwrights with a wealth of knowledge in industrial machinery maintenance and repair. They are dedicated to providing hands-on instruction, individualized feedback, and a safe learning environment.

This "Introduction to Millwright" course is the perfect starting point for those interested in the field of industrial machinery maintenance and repair. Whether they are considering a career as a millwright or simply want to gain mechanical skills and insights, this program equips students with the knowledge and experience needed to take the next steps in their journey toward a career in millwrighting.

Introduction to Welding:

Course Description: The Introduction to Welding program is designed to give students a comprehensive and hands-on introduction to the world of welding. This course is perfect for individuals who want to explore the art and science of welding, gain essential skills, and determine if welding is the right career path for them.

Course Duration: 3 weeks (Full-Time)

Course Objectives:

- Provide a strong foundation in welding fundamentals and safety.
- Offer hands-on experience in various welding processes.
- Explore different welding materials, techniques, and applications.
- Develop the skills necessary to make informed decisions about a welding career.
- Prepare students for further training or certification in welding, if desired.

Course Outline:

- **Week 1: Safety and Welding Basics**
    - Introduction to welding processes and equipment.
    - Safety procedures, including personal protective equipment (PPE).
    - Overview of welding materials, joints, and positions.

- **Week 2: Hands-On Welding Practice**
    - Guided practice in MIG, TIG, and Stick welding processes.
    - Welding techniques, joint types, and positions.
    - Proper machine setup and material preparation.

- **Week 3: Advanced Techniques and Testing**
    - Advanced welding positions and techniques.
    - Weld quality control, inspection, and testing.
    - Welding for real-world applications.

Prerequisites: No prior welding experience is necessary. Students should be physically able to work in a shop environment and follow safety guidelines.

Course Benefits:

- Gain practical welding skills and hands-on experience.
- Learn in a safe and supervised environment.
- Discover potential career paths in welding.
- Receive guidance and support for further education or certification.

Introduction to Automotive:

Course Description: This module will provide a comprehensive introduction to automotive systems and repair. This two-week, full-time program provides hands-on experience and foundational knowledge to help learners make informed decisions about pursuing a career in automotive mechanics.

Course Duration: 2 weeks (Full-Time)

Course Objectives:
• Provide a solid foundation in automotive systems and components.
• Offer hands-on experience in basic vehicle maintenance and repair tasks.
• Explore the roles and responsibilities of an automotive mechanic.
• Help you assess whether a career in automotive mechanics is the right fit for you.
• Prepare students for further training or certification in the automotive field, if desired.

Course Outline:
Week 1: Automotive Fundamentals and Safety
• Introduction to automotive systems and components.
• Safety guidelines and regulations in an automotive workshop.
• Overview of hand tools and equipment used in automotive repair.
• Identifying common automotive parts and their functions.

Week 2: Vehicle Maintenance and Basic Repairs
• Basic automotive maintenance tasks (oil change, tire rotation, filter replacement).
• Identifying and diagnosing common vehicle issues.

• Hands-on practice in performing routine maintenance and minor repairs.
• Introduction to engine diagnostics and scanning tools.

Prerequisites: No prior automotive experience is required. Students should have a strong interest in automobiles and be physically able to work in an automotive shop environment.

Course Benefits:
• Gain practical automotive maintenance and repair skills.
• Learn in a supervised and well-equipped automotive workshop.
• Explore career opportunities in the automotive industry.
• Receive guidance on further education and certification options.

Worksite Safety Certifications:

Course Duration: 1 week (Full-Time)

- First Aid and Transportation Endorsement (2 days)
- Forklift Certification (3 days)
- WHMIS (Online)

Work Placements:

Students will be placed in a one-week job-shadowing, work practicum in one of the three trades explored in this program. TteS will leverage their partnership with local industry. TRU will assist in securing the student practicums.

Schedule (tentative)

Tentative Mechanical Sampler				
Week	**Dates**	**Description**	**Instructor**	**Location**
PRE	November 27 - December 15	Get Trade Ready	Skill Plan	Online
Week 1	January 2 - 5	Math Upgrading	3 hr/day in class	TteS
Week 2	January 8 - 12	Math Upgrading	3 hr/day in class	TteS
Week 3	January 15 - 19	Certifications	Marie	TRU
Week 4	January 22 - 26	Millwright	Mike or Paul	TRU
Week 5	January 29 - February 2	Millwright	Mike or Paul	TRU
Week 6	February 5 - 9	Millwright	Mike or Paul	TRU
Week 7	February 12 - 16	Tours, Math, Resume Writing	STT Team	TRU
Week 8	Feb 19 - 23	Automotive	Cam Jepson	TRU
Week 9	Feb 26 March 1	Automotive	Cam Jepson	TRU
Week 10	March 4 - 8	Welding	Steve Jackson	TteS
Week 11	March 11 - 15	Welding	Steve Jackson	TteS
Week 12	March 18 - 22	Welding	Steve Jackson	TteS
Week 13	March 25 - 29	Work Placements	Terri, assisted by TRU	Ttes