



# Board/Authority Authorised Course Mechanical Trades Sampler - Motorcycle Technician

School District/Independent School Authority Name	Kamloops/Thompson
School District/Independent School Authority Number	#73
Developed by	Allen Kotani
Date Developed	December 2013
School Name	NorKam Secondary School
Principal's Name (District)	Sheryl Lindquist
Superintendent Approval Date (for School Districts only)	
Superintendent Signature (for School Districts only)	
Board/Authority Approval Date	
Board/Authority Chair Signature	
Course Name	Mechanical Trades Sampler - Motorcycle Technician
Grade Level of Course	12
Number of Course Credits	4
Number of Hours of Instruction	120
Prerequisite(s)	Completion of Grade 10, as well as successful application process.



## Synopsis

This course has been developed to offer students the opportunity to gain theoretical and practical experience, examining four different mechanical trades. This Mechanical Sampler and initiative, set forth by The Ministry of Jobs, Tourism, and Skills Training, Ministry of Education, School District #73, and Thompson Rivers University (TRU) will explore four career paths: Automotive Service Technician, Heavy Duty Technician-Commercial Transport Technician, Motorcycle Technician, and Welding Trade. The Industry Training Authority (ITA) and Ministry of Education Instructional Resource Package have been used as guidelines for the content covered within this sampler.

## Rationale

This course is intended to introduce students to specific trades training in the area of Motorcycle Technician. This will provide students with an overview of the Foundations Motorcycle Technician program.

This program will explore:

- Introduction of safe work practices employed in a Mechanical/Instructional facility.
- Overview of the practices, skill sets needed for the Mechanical Trade.
- Theory and practical applications within Mechanical Trades.
- Direct exposure to Foundation Training content, Post-Secondary, and job-ready expectations; therefore, providing students with the ability to make informed choices regarding the direction they choose to embark during Senior Secondary School and/or thereafter.

Unit/Topic	Title	Time
Unit 1	Safety	10 hours
Unit 2	Fasteners/Tools/Equipment	10 hours
Unit 3	Wheels/Tires/Brakes	15 hours
Unit 4	Steering/Suspension/Frame	15 hours
Unit 5	Drivetrain	15 hours
Unit 6	Engine Management	35 hours
Unit 7	Support Systems/Accessories	20 hours
	Total Hours	120



## **Unit 1 – Safety**

Objective: Safe worksite practices are of utmost importance. Students need to be aware of safety-oriented rules and regulations, and be able to perform all industry tasks in a safe and responsible manner.

### **Prescribed Learning Outcomes**

Students will acquire skills and knowledge related to:

- WCB Regulation
- WorkSafeBC
- Workplace hazardous Materials Information System (WHMIS)
- Fire Safety and Prevention
- Hoisting, jacking, and supporting
- Personal Safety

## **Unit 2 – Fasteners/Tools/Equipment**

Objective: Trades and technology fields have a very strong practical component. Tools are used regularly and must be used properly, from basic hand tools to precision- measuring instruments.

### **Prescribed Learning Outcomes**

Students will acquire skills related to identification and use of:

1. Fasteners
  - Types of fasteners.
2. Tools
  - Hand
  - Electric
  - Portable power
  - Pneumatic
  - Hydraulic
  - Precision-measuring mathematical calculations
  - Engine Management
3. Equipment
  - Lifting
  - Supporting
  - Cutting/welding
  - Tire mounting
  - Tire balancing

## **Unit 3 – Wheels/Tires/Brakes**



## **Prescribed Learning Outcomes**

Students will acquire skills related to identification and use of:

1. Wheels and Tires
  - Bearings
  - Hubs
  - Wheels
  - Tires
  - Tire changing equipment
  - Tire balancing equipment
2. Brakes
  - Mechanical systems
  - Hydraulic Systems

## **Unit 4 – Steering/Suspension/Frame**

### **Prescribed Learning Outcomes**

Students will acquire skills related to identification and use of:

1. Steering
  - Steering components
2. Suspension
  - Suspension components
  - Suspension systems
3. Frame
  - Frame types
  - Frame service

## **Unit 5 – Drivetrain**

### **Prescribed Learning Outcomes**

Students will acquire skills related to identification and use of:

1. Primary drive systems
2. Secondary drive systems
3. Automatic drive systems
4. Manual transmissions

## **Unit 6 – Engine Management**

### **Prescribed Learning Outcomes**

Students will acquire skills related to identification and use of:

1. Fuel Injection
  - Theory of operation



- Technical service information
  - Tune-up
  - Scan tools/test equipment
2. Ignition Systems
- Theory of operation.
  - Technical service information.
  - Tune up.
  - Scan tools/test equipment.

## **Unit 7 – Support Systems**

### **Prescribed Learning Outcomes**

Students will acquire skills related to identification and use of:

1. Charging/Starting Systems
  - 12 volt batteries
  - Charging systems
  - Starting systems
2. Cooling Systems
  - Principles of heat transfer
  - Cooling systems
  - Cooling system components
3. Lubrication Systems
  - Lubrication systems
  - Lubrication system components
4. Electrical Systems
  - Principles of electronics
  - Common electrical and electronic components
  - Electrical diagrams
  - Multimeters/test equipment
5. Accessories.
  - Accessory types
  - Accessory installation

### **Instructional Component**

- Direct instruction
- Indirect instruction
- Interactive (peer) instruction
- Independent instruction
- Modeling
- Practical creativity



- Brainstorming
- Group work
- Analysis of own and classmates' project work
- Project-based learning

### **Assessment Component**

- Daily quizzes
- Unit quizzes
- Demonstration of skills related to practical activities

Eighty per cent (80%) of the grade will be based on safety tests and project evaluations throughout the course. This portion of the grade will reflect the students' most consistent level of achievement throughout the course although special consideration will be given to the more recent evidence of achievement.

Twenty per cent (20%) of the grade will be based on student research, documentation, reflection, and demonstration of proper employability skills (proper industrial work habits ranging from the safe use of equipment to good "Housekeeping" techniques).

### **Learning Resource**

- Teacher handouts
- Guest speakers from the community in related fields
- Visit/interview local trades people in related fields
- ILMs

### **Facility Requirements**

#### **Classroom Area**

- Comfortable seating and tables for training, teaching, lecturing.
- Compliance with all Local and National Fire Code and occupational safety requirements.
- Lighting controls to allow easy visibility of projection screen allowing students to take notes.
- Windows must have shades or blinds to adjust sunlight
- Heating/air conditioning for comfort all year round.
- In-room temperature regulation and ventilation to ensure comfortable room temperature.
- Acoustics in the room must allow the instructor to be heard.
- White marking board with pens and eraser (optional: flipchart in similar size).
- Projection screen or projection area at front of classroom.
- Overhead projector and/or multimedia projector.

#### **Shop Area**

- Ceiling must be minimum height of 15' 6" or as varied by good engineering practices and code.
- Appropriate lifting devices (hoists) used in industry.
- Suitable demonstration area.



- Lighting appropriate for good vision in ambient light.
- Compliance with all Local and National Fire Code and occupational safety requirements.
- Must meet Municipal and Provincial bylaws in regard to waste water management and environmental laws.
- Adequate hoist-to-student ratio.

### **Reference Materials**

Alberta Apprenticeship Resource Package, Crown Publications

Motorcycles, Johns & Edmunston

Industry Training Authority (ITA), [www.itabc.ca](http://www.itabc.ca)

Ministry of Education, Instructional Resource Package (IRP), [www.bced.gov.bc.ca](http://www.bced.gov.bc.ca)

WorkSafeBC, workers' Compensation Board of BC (WCB), [www.worksafebc.com](http://www.worksafebc.com)

Workplace Hazardous Materials Information System (WHMIS), [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca)