



Board/Authority Authorised Course Equipment Certification

School District/Independent School Authority Name	Kamloops/Thompson
School District/Independent School Authority Number	#73
Developed by	Carl Smith
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	Equipment Certification
Grade Level of Course	11 and 12
Number of Course Credits	4
Number of Hours of Instruction	120
Prerequisite(s)	Age and License Requirements

Synopsis

This course gives the student the opportunity to gain experience on equipment that is used in a variety of industries. Certificates will be given to students who demonstrate the skills and aptitudes to operate specific equipment. This course is a hands- on course with a portion of theory specific to the equipment being used.



Rationale

Why is it important the student take this course?

The student will:

- Learn safety and correct procedures to work with and around large pieces of construction equipment.
- Collect a number of certificates to allow the student to operate specific equipment.
- Learn about air brakes and receive an air brake endorsement on their Class 7 License.

Unit/Topic	Title	Time
Unit 1	Equipment in Industry	5 hours
Unit 2	Warehouse Equipment Operation	5 hours
Unit 3	Air Brake Endorsement	30 hours
Unit 4	Skid Steer Certification	30 hours
Unit 5	Construction Site Equipment Operation	40 hours
Unit 6	Flagging and Traffic Control Certification	10 hours
	Total Hours	120

Unit 1 – Equipment in Industry

Objective: This unit examines the history, the evolution of, and the use of equipment in industry. You find many different types of equipment on any given work site and each piece of equipment requires a different set of skills. This unit will give the student an understanding of many of those skills.

Prescribed Learning Outcomes

Students will learn:

- The types of equipment used in construction, mining, oil, and road building.
- The types of equipment used in retail and warehousing.
- The dangers of working in and around equipment in general.
- The safety measures required when working within proximity of equipment.
- The need for a continuous maintenance program and vigilance when using equipment.
- Ergonomics of working on, in, and with equipment.



Unit 2 – Warehouse Equipment Operation

Objective: This unit allows the student to work with equipment that is often found in the service industry. Students working in the service industry may be in grocery stores, warehouses, or factories. The equipment used in these businesses is very similar and this unit will allow the student to become familiar with them.

Prescribed Learning Outcomes

Students will learn:

- The safety precautions required to work with warehouse equipment.
- How to use hand trucks and non-powered pallet movers.
- The proper use of battery-powered pallet movers.
- High-lift battery-powered pallet movers.
- Required safety precautions using battery-powered tools.
- Correct methods of recharging and the dangers of batteries being charged.
- To operate small (hard-tired) counter balanced forklifts in confines of a warehouse.
- Learn the dangers of working with propane or gas-powered counter-balanced forklifts and how to fuel a forklift safely.

Unit 3 – Air brake Certification

Objective: This unit has been designed to prepare students for the ICBC written examination for an air brake endorsement to operate air brake equipped highway vehicles. Emphasis is placed on safe operating procedures, and ongoing maintenance for air brake systems.

This course includes the air brake pre-trip exam and the use of the truck for this test.

Upon successful completion of this course, students have **90 days** to write their air brake endorsement exam at the ICBC Driver Services Centre.

Prescribed Learning Outcomes

Students will learn:

- The air brake system and components.
- The importance of proper inspection of air brake equipped vehicles.
- Provincial and Federal requirements related to drivers, operators and companies.
- To make brake adjustments and how to recognize when an adjustment is necessary.
- To complete an air brake pre-trip inspection

Unit 4 – Skid Steer Certification

Objective: This unit, through a combination of theory and practical training, provides the student with the necessary knowledge and skills required to safely operate a skid steer loader.



Prescribed Learning Outcomes

Students will learn:

- To plan the work for the prevailing working conditions.
- To use the controls and operating systems to manage operation of the equipment.
- To locate the load, identify the load characteristics, and safely move the load.
- To monitor the controls, to stop the equipment, to shut down, and to secure the equipment at the completion of the operation.

Unit 5 – Construction Site Equipment Operation

Objective: In this unit students will experience hands-on, relevant training enhancing their knowledge of equipment safety and procedures, equipment operation introduction, and practical work experience. The skill learned in this unit will be transferable to various industries that use similar equipment.

Prescribed Learning Outcomes

The student will learn to safely operate:

- Compact tractors – commonly called bobcats.
 - Pneumatic tired.
 - Track style
 - Bucket and backhoe styles and other applications as available.
- High-lift equipment.
 - Scissor lifts, aerial lifts, aerial platforms, truck-style cherry pickers
- Large construction-style forklifts (pneumatic tired).
- Backhoes.
- Small loaders.
- Tampers, pneumatic jackhammers and drills, and trailer-style compressors.
- Portable sawmill.

Upon completion of this unit and satisfactory operation of the different forklifts and aerial lifts, the student will receive a Forklift Certificate and an Aerial Lift Certificate.

Unit 6 – Flagging and Traffic Control Certification

Objective: This unit makes the student aware of the fact that flagging and traffic control is one of the most dangerous types of work that an employee may do. The life of the traffic control person (TCP) is always at risk and the TCP is also responsible for fellow employees that are working in the danger area controlled by TCP.

Prescribed Learning Outcomes

The student will learn:

- The newest Ministry of Transportation Standards & WorkSafeBC regulations and standards
- Personal protective equipment and devices
- Safe traffic control procedures and set-ups



- Communication
- Traffic control zones through classroom theory and on-road practical work

Upon completion of the unit, the student will receive a TCP Certificate after passing the exam.

Instructional Component

- Direct instruction including individual and class instruction
- Independent instruction- self-directed
- Experiential Learning
- Group and peer learning
- Computer-based learning
- Modeling
- Project work

Assessment Component

- Journals and log books by student
- Self-evaluation
 - Formative assessment
 - Summative assessment
- Observation by instructor
 - Anecdotal
 - Checklists
- Employability checklist
- Completed written and practical assignments
- Written quizzes – daily, unit, semester finals, course final
- Certificate specific exams

To pass the course, the student must attain a minimum of 50% overall. The course involves both theory and practical work. The weighting of each will vary within the unit of study.

To qualify for the individual certificates in the units the student must pass by the minimum required by the issuing body. This may vary from a minimum of 70% to a maximum of 100%.

Upon completion of the course, the student who has demonstrated a full understanding, a good attitude, and has attained all the necessary certifications, will receive a recommendation based upon his work done plus the appropriate letter grade.

Learning Resource

- Industry-supplied manuals and information packages
- Thompson Rivers University course-specific information
- Web-based programs specific to the unit subjects



- WorkSafeBC
- Instructor-supplied materials
- Guest instructors and speakers from the industry and the community.
- Industry job site visits.

Recommended Resources

- Industry Training Authority (ITA) www.itabc.ca
- Road Builders and Heavy Construction Foundation Program
 - Module A – Industry Orientation and Overview
 - Module B – Tools and Equipment Operations and Maintenance
 - Module C – Civil Engineering Principles
 - Module D – Worksite Preparation
- Transportation Career Development Association of BC www.tcda.ca
- Heavy Equipment Operator Training participant Guide
- BC Construction Industry Training organization www.bccito.com
- WorkSafeBC (WCB) <http://www.worksafebc.com>
- British Columbia crown publications <http://www.crownpub.bc.ca/>
- ICBC <http://www.icbc.com>
- TRU <http://www.tru.ca/trades/>
- Roadsmart Training Institute Ltd. <http://www.roadsmartraining.com>
- Mission School District Warehouse BAA Program
<http://www.mpsd.ca/schools/baacourses.aspx> Warehousing 12A, B,C
- Progressive Educational Systems
<http://www.simlog.com/simlognews/progressive-canada-2013-11-07.html>
- BC Construction Safety Alliance
<https://www.bccsa.ca/>
- Southern Interior Construction Association
[https://www.sica.bc.ca/page/calendar/ezlist_events_f=85061804-76fe-\\$\\$\\$b2-ac59-6ddf1062a5bc.aspx](https://www.sica.bc.ca/page/calendar/ezlist_events_f=85061804-76fe-$$$b2-ac59-6ddf1062a5bc.aspx)

Facility Requirements

Classroom Area

- Minimum 30 square feet per student.
- Comfortable seating and tables suitable for learning.
- Compliance with the Local and National Fire Code and occupational safety requirements.
- Meets applicable municipal zoning bylaws for technical instruction and education facilities.
- Overhead and multimedia projectors with a projection screen and associated computer equipment.
- Whiteboard with marking pens and erasers.
- Lighting controls to allow easy visibility of the projection screen while allowing students to take notes.



- Windows must have shades or blinds to adjust sunlight.
- Heating/air conditioning for comfort year round.
- Acoustics in the room must allow audibility of the instructor.

Shop Area

- Minimum 2400 square feet of shop area including a tool crib and work stations.
- Minimum 15' 6" ceiling height in shop areas.
- Adequate heating, lighting, and ventilation.
- Acoustics in the room must allow audibility of the instructor.
- Refuse and recycling bins for used shop materials.
- First-aid equipment.

Lab Requirements

- Minimum 2400 square feet in lab.
- Minimum 15' 6" foot ceiling in lab areas.
- Adequate heating, lighting and ventilation.
- Acoustics in the room must allow audibility of the instructor.
- Refuse and recycling bins for used lab material.

Student Facilities

- Adequate eating area as per WorkSafeBC requirements (4.84 OHS Regulation and Guidelines)
- Adequate washroom facilities as per WorkSafeBC requirements (4.85 OHS Regulation and Guidelines)
- Minimum 10 cu. ft. personal storage lockers

Instructor's Office Space

- Adequate office space for student consultation
- Desk and filing space
- Computer
- Internet access
- Printer access
- Adequate storage facilities for material and training aids
- Access to photocopier/scanner
- Telephone

Equipment

- Air brake system demonstration board and various individual components.
- Flagging and traffic control devices, signs, cones, flares, etc.
- Warehouse equipment – hand trucks, hand pallet movers, powered pallet movers, propane hard-tired counter-balanced fork lift.



- Construction equipment- compact tractors both pneumatic tired and track style, bucket attachment, backhoe attachment, pneumatic tired construction-style forklift, skid steer loader, scissor lifts, aerial lifts, aerial platforms, truck- style cherry pickers (bucket lifts) (cranes), backhoes, small loaders, tampers (handheld, stand alone, propelled and ride-on), pneumatic jackhammers and drills, trailer-style compressors, and portable saw mill.
- 20 + 1 instructor computer stations that come with voice and sound capabilities with earphones.