Board/Authority Authorised Course Industry Certification for Mining and Oil

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	Industry Certification for Mining and Oil
Grade Level of Course	11 and 12
Number of Course Credits	4
Number of Hours of Instruction	120
Prerequisite(s)	None

Synopsis

This course is one of four certification courses developed to give the student the opportunity to gain the knowledge and experience needed to work in the petro, chemical, and mining industry as an entry level employee. The course introduces the student to the requirements and rigors of the mining and oil industries. It provides certifications in H2S Alive, dangerous goods and confined spaces.

Rationale

Why is it important the student take this course?

- Upon completion of this course the student will have an understanding and awareness of what is involved in working in the oil or mining industry.
- The student will have gained sufficient safety knowledge to protect not only the student as a new employee on the job site but also fellow employees.
- The student will display specific work site attitudes and skills that an employer in either the mining or oil industry will find to be an asset and not a liability to their company. These attitudes and skills should give the student a head start over other job seekers in these industries.
- The student will have attained certification in H2S Alive, Dangerous Goods, and Confined Spaces which will offer potential employers an entry level employee with potentially less training costs.

Unit/Topic	Title	Time
Unit 1	Introduction to Surface, Underground, and Mineral Processing	60 hours
Unit 2	H2S Alive Certification	10 hours
Unit 3	Transportation of Dangerous Goods Certification	10 hours
Unit 4	Confined Spaces Certification	10 hours
Unit 5	Introduction to the Oil and Gas Industry and Enform Certification	30 hours
	Total Hours	120

Unit 1 – Introduction to Surface, Underground, and Mineral Processing

Objective: This unit introduces the student to various types of mining: surface, underground, and mineral processing.

Prescribed Learning Outcomes

Students will learn:

- The history of mining.
- The impact on society of mining on the populace – the stakeholders including the First Nations.
- The economic importance of mining to the local, national, and world's population.
- The different methods of exploration – underground, placer, and open pit.

- The environmental impacts.
- The need for responsible mining including reclamation.

Unit 2 – H2S Alive Certification

Objective: This unit provides the student with the necessary understanding of the dangers of the possible exposure to hydrogen Sulphide (H2S) and the protection required.

Prescribed Learning Outcomes

Students will learn:

- The physical properties of hydrogen sulphide gas (H2S).
- The health hazards of H2S.
- Methods of protection from H2S.
- Basic rescue methods including:
    - Operating self- contained breathing apparatus
    - Using a detector tube device
    - Rescue breathing

The student will receive the H2S Industry Standard Certificate valid for three years if the student demonstrates the required skills and passes the written examination.

Unit 3 – Transportation of Dangerous Goods Certification

Objective: This unit prepares the student to handle and transport dangerous goods (TDG). It also instructs the student in the correct procedures when responding to emergencies that can occur when dangerous goods are being moved.

Prescribed Learning Outcomes

Students will learn:

- The basics of TDG legislation history, act, regulations, and responsibilities.
- To identify the classification system of the nine classes of dangerous goods and their associated hazards.
- The shipping names, classes, UN Number and packing groups for dangerous goods encountered on the job.
- To understand the information required on shipping documents.
- The requirements regarding mixed loads, segregation of dangerous good, and choosing the proper means of containment.
- The proper use of all equipment that is used in the handling or transportation of dangerous goods.

Students will receive a certificate upon completion of course and a pass of 70% or better of the examination.

Unit 4 – Confined Space Certification

Objective: This unit addresses the dangers of working in confined spaces. Entry into tanks and other confined spaces by workers is necessary for many industrial operations. From experience, it is well known that entry into such confined spaces may present a hazard to the worker. It is designed to create awareness of hazards, precautions, and the regulations associated with confined spaces.

Prescribed Learning Outcomes

Students will:

- Understand confined spaces and their types.
- Comprehend the responsibilities of the employers and workers.
- Explore the major provisions of WorkSafeBC in regard to confined spaces.
- Recognize hazards associated with permit-required confined spaces and their precautions.
- Learn about ventilation, work permits, safety equipment, and industrial ovens.
- Look at the wastewater hazards/precautions (MSDS).

A certificate will be awarded to the student upon demonstration of the full understanding of the above and the passing of the written exam with 70% or better

Unit 5 – Introduction to the Oil and Gas Industry and Enform Certification

Objective: This unit introduces the student to the various types of oil and gas exploration and transportation.

Prescribed Learning Outcomes

Students will learn:

- The scientific origins of oil and gas.
- The commercial issues underpinning hydrocarbon exploration and development.
- The role of government and its agencies and oil and gas terminology.
- The environment.
- The technological process of exploration.
- The technological process of drilling.
- The technology of the oil sands.
- The technological process of production.
    - fracking
    - refineries
- The methods and challenges of transporting oil and gas.
    - pipeline
    - rail
    - ship

- The challenges of decommissioning and reclamation.
- The challenges of working in the oil and gas industry.
- To use a portable drilling rig.

The student will also, in this unit, complete the Enform PST 2.0 program - an interactive, multi-media program that provides a general introduction of health and safety hazards and how to control them so that work can be completed safely. It discusses the legal framework that employers must follow and focuses on workers' and employers' responsibilities with respect to health and safety at work in the oil industry.

The student will learn:

- Petroleum Industry Processes
- Rights and Responsibilities
- Hazard Recognition, Assessment and Control
- Personal Protective Equipment and Clothing
- Education, Training and Competency
- Safety Communication
- Emergency Response Planning and Incident Reporting
- Special topics in the petroleum Industry
- Personal well-being

Upon completion of the PST 2.0 training, the student will receive the Enform certification.

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, and 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 that has demonstrated a full understanding, a good attitude, and has attained all the necessary certification 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 industry and the community
- Industry job site visits

Recommended Resources

- Industry Training Authority (ITA) www.itabc.ca
- Mining Association of Canada www.mining.ca Towards sustainable mining course
- Canadian Association of Petroleum Producers www.capp.ca
- Workplace Hazardous Materials Information System (WHMIS) and First Aid http://www.hcsc.gc.ca/ewh-semt/occup-travail/whmis-simdut/index-eng.php
- WorkSafeBC (WCB) http://www.worksafebc.com
- British Columbia crown publications http://www.crownpub.bc.ca/
- Progressive Educational Systems http://www.simlog.com/simlognews/progressive-canada-2013-11-07.html
- BC Construction Safety Alliance https://www.bccsa.ca/
- Enform The Safety Association for Canadian Upstream Oil and Gas Industry http://www.enform.ca/training/E-Learning_Course_Details/petroleum-safetytraining_details.aspx
- Southern Interior Construction Association 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 all 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” 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
- 20 + 1 instructor computer stations c/w voice and sound capabilities with
- ear phones
- 20 + 1 instructor self-contained breathing apparatus suitable for H2S
- 20 + 1 instructor H2S detector tubes
- 10 + 1 instructor CPR dolls
- Padded Floor mats adequate for CPR floor work
- Portable drill rig - http://www.aandddrillingsupply.myipsites.com/ and attachments
- PPE for 20 students