DEPARTMENT OF HEAVY EQUIPMENT PROGRAMS

COURSE OUTLINE – FALL SEMESTER 1

SAFETY, MATERIALS AND TOOLS

HE 1100 SAFETY, MATERIALS AND TOOLS – 5 (80 HOURS/16 WEEKS) 20 LECTURE - 60 LAB/SHOP

INSTRUCTOR:	Gaylord Toews	**PHONE:**	780 835 6729
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OFFICE HOURS:	Monday to Friday		

PREREQUISITE(S)/COREQUISITE:

English 20-1, English 20-2 or equivalent

Math 20-1, Math 20-2, Math 20-3 or equivalent

A 20-level Science or equivalent

Although a high school diploma is not required for entrance to this program, students should be aware that some employers may require a High School Diploma as a prerequisite to employment.

Applicants who do not meet these requirements may be admitted to the program but they will be required to pass the Apprenticeship & Industry Training (AIT) Trades Entrance Exam during the first semester, if choosing to pursue an apprenticeship.

REQUIRED TEXT/RESOURCE MATERIALS: 1st and 2nd Period Heavy Equipment Technician ILM Modules.

CALENDAR DESCRIPTION: Demonstrate communications skills and workshop safety as it pertains to Occupational Health and Safety Standards. Perform lifting operations using proper techniques and equipment as it pertains to Occupational Health and Safety Standards. Identify materials and fasteners commonly used in the trade. Demonstrate the correct use of hand, shop and power tools common to the trade. Demonstrate the correct use of measuring tools common to the trade. Perform metal cutting and heating operations safely using oxyacetylene equipment.

CREDIT/CONTACT HOURS: 5 Credits – 80 Contact Hours – 5 hours per week

DELIVERY MODE(S): Instructor led classroom theory (20 hours), instructor led lab/shop (60 hours)

OBJECTIVES (OPTIONAL):
The program has been developed to provide students with entry level skills as a Heavy Equipment Technician. After obtaining a requisite number of hours in the work force, the student would be eligible to continue with Alberta Apprenticeship and Industry training in the Heavy Equipment Technician trade towards journeyman certification.

TRANSFERABILITY: None

GRADING CRITERIA: A grade of 65% or higher is required to pass this course. Students must complete all required courses with a grade point average of no less than 2.0 and no failing (F) grades.

GRANDE PRAIRIE REGIONAL COLLEGE			
GRADING CONVERSION CHART			
Alpha Grade	**4-point Equivalent**	**Percentage Guidelines**	**Designation**
A+	**4.0**	**90 – 100**	**EXCELLENT**
A	**4.0**	**85 – 89**	
A-	**3.7**	**80 – 84**	**FIRST CLASS STANDING**
B+	**3.3**	**77 – 79**	
B	**3.0**	**73 – 76**	**GOOD**
B-	**2.7**	**70 – 72**	
C+	**2.3**	**67 – 69**	**SATISFACTORY**
C	**2.0**	**65 – 66**	
F	**0.0**	**60 – 64**	**FAIL**
F	**0.0**	**55 – 59**	
F	**0.0**	**50 – 54**	
F	**0.0**	**0 – 49**	
WF	**0.0**	**0**	**FAIL, withdrawal after deadline**

EVALUATIONS:

Theory portion will be made up of quizzes and tests worth 35%.

Shop portion will be made up of shop projects worth 65%.

Students who have successfully completed the program and also completed an acceptable Alberta Apprenticeship Prior Learning Assessment Application (fee payable to Alberta Apprenticeship) may have the opportunity to challenge the Alberta Apprenticeship and Industry Training (AIT) first year Heavy Equipment Technician apprentice exam.

STUDENT RESPONSIBILITIES:

Please refer to the Student Rights and Responsibilities policy in the Grande Prairie Regional College Calendar or at www.gprc.ab.ca/downloads/documents/StudentRightsandResponsbilities.pdf

STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to pages 49-50 of the College calendar regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

COURSE SCHEDULE/TENTATIVE TIMELINE:

A. Safety and Communications .....16 Hours
Outcome: Demonstrate communication skills and workshop safety as it pertains to Occupational Health and Safety standards.
1. Communicate trade-related information using standard terms for components and operations.
2. Identify key areas of responsibility that an employee has in regards to shop and trade safety.
3. Explain correct use of fire extinguishers.

B. Lifting Procedures and Wire Rope .....12 Hours
Outcome: Perform lifting operations using proper techniques and equipment as it pertains to Occupational Health and Safety standards.
1. Describe manual lifting operations using correct body mechanics.
2. Describe lifting equipment, grading, sizing and limits.
3. Select equipment for rigging typical loads.
4. Describe applications of wire rope on machinery following regulations set out by Occupational Health and Safety Act.
5. Demonstrate the correct use of jacking and blocking techniques common to off-road and on road equipment and, trailers.

C. Materials and Fastening Devices ..... 5 Hours
Outcome: Identify materials and fasteners commonly used in the trade.
1. Identify common metallic materials and their applications.
2. Identify common non-metallic materials and their applications.
3. Identify types of threaded fasteners and their applications.
4. Explain the torque procedures and precautions required when securing fastening devices.
5. Identify types of non-threaded fasteners and their applications.

D. Hand, Shop and Power Tools ..... 7 Hours
Outcome: Demonstrate the correct use of hand, shop and power tools common to the trade.
1. Describe types, uses and care of hand tools.
2. Describe the procedures required to safely operate various types and capacities of shop puller and pressing equipment.
3. Describe and use cutting hand tools common to the trade.
4. Demonstrate proper care and safe use of common power hand tools.

E. Measuring Tools ..... 10 Hours
Outcome: Demonstrate the correct use of measuring tools common to the trade.
1. Perform calculations related to measurement using imperial and metric units.
2. Perform linear measurements using basic measuring tools.
3. Perform linear measurements using precision measuring tools.
4. Perform accurate torque measurements using torquing tools.

F. Oxy-Fuel, Equipment, Heating and Cutting .....30 Hours
Outcome: Perform metal cutting and heating operations safely using oxyacetylene equipment.
1. Describe the characteristics and handling procedures for oxygen, propane and acetylene.
2. Demonstrate handling procedures for regulators and hoses.
3. Demonstrate the use, care, and maintenance of torches and tips.
4. Demonstrate the use of personal protective equipment.
5. Perform heating and cutting operations using oxygen and acetylene.
6. Demonstrate proper handling of arc welding equipment.
7. Perform various types of arc welding.