## Department of Motorcycle & Recreational Powersports

# PRE-EMPLOYMENT OUTDOOR POWER EQUIPMENT PROGRAM

## COURSE OUTLINE – FALL, SEMESTER 1

## SM 100 Power Equipment Theory


| | | | |
|---|---|---|---|
| **INSTRUCTOR:** | Les Ashton | **PHONE:** | 780.835.6687 |
| | Glyn Moffatt | | 780.835.6687 |
| | Mike Gamble | | 780.835.6628 |
| **OFFICE:** | FM6 111 | **E-MAIL:** | LAshton@GPRC.ab.ca |
| | FM6 111 | | GMoffatt@GPRC.ab.ca |
| | FM6 111 | | MGamble@GPRC.ab.ca |
| **OFFICE HOURS:** | Monday through Friday. 9:00 a.m. – 5:00 p.m. | | |


**PREREQUISITE(S)/COREQUISITE:** None.

## REQUIRED TEXT/RESOURCE MATERIALS:

Alberta Apprenticeship and Industry Training Individual Learning Modules [Heavy Equipment Technician (HET)]:

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|---|---|
| 090102b | Gas Metal Arc Welding (MIG Welding) |
| 190101a | Safety and Communications |
| 190101d | Hand, Shop and Power Tools |
| 190101e | Safety and Communications |

CSTS fee $30.00

Other Textbooks:

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|---|---|
| Small Gas Engines | Alfred C. Roth<br>ISBN -13: 978-1-59070-183-6 |
| Major Engine Failure Analysis | Briggs and Stratton |

Optional Textbooks:

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|---|---|
| Small Air Cooled Engines Service Manual 17th Edition | Intertec |
| Small AC Generator Service Manual *3rd Edition | Intertec |

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|---|---|
| Chain Saw Service Manual *8th Edition | Intertec |
| Fasteners Fundamentals of Service | Deere & Company |
| Electrical Systems Compact Equipment F.O.S. | Deere & Company |

Other Required Supplies:

- welding gloves
- welding beanie
- numerous 3-ring binders
- loose leaf paper
- pencils
- eraser
- clipboard for shop activities
- calculator

Headphones for library use

**CALENDAR DESCRIPTION:** Power Equipment Theory is a comprehensive introduction to technologies involved with internal combustion engines as used with today's power products. Topics of study include total engine rebuilding procedures, including cylinder reconditioning, and valve train repair. Fuel system operation, EFI fundamentals, diesel engine construction and operation, basic electrical, computerized parts management, MIG and gas welding, as well as engine performance modifications for competitive purposes are also covered at this time.

Delivery Option – Fairview Campus Only

**CREDIT/CONTACT HOURS:** 4.5 credits; 10 hours per week; 8 weeks; 80 hours.

**DELIVERY MODE(S):** Instructor led classroom theory.

**OBJECTIVES:** The Outdoor Power Equipment Technician program has been developed to provide students with entry level skills in the outdoor power equipment technologies.

**TRANSFERABILITY:** None.

**GRADING CRITERIA:** Students must complete all required courses with a grade point of 2.0 or higher; a percentage of 63% or higher; a "C" letter grade or higher, and

no failing grades. A student must pass each course individually in order to receive a Certificate of Achievement in Pre-Employment Outdoor Power Equipment Technician. Absence for tests will result in a score of zero.

| 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** | **63 – 66** | |
| **F** | **0.0** | **60 – 62** | **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:

| Areas of Evaluation | Percentage of Total Course Mark |
|---|---|
| Final Exam | 40% |
| Unit Tests | 60% |

## 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/StudentRightsandResponsibilities.pdf.

## ATTENDANCE REQUIREMENTS:

In addition, attendance will be graded as follows:

- Unavoidable absences should be relayed to the instructor prior to or immediately after the day in concern. If the instructors know the situation, it is easier to be compassionate to individual needs. If you are unable to contact the instructor, a message left at the Mech. 6 Tool Room will alert us to unexpected absences (780.835.6772).
- Note: Attendance is monitored for both shop and theory.
- Student attendance is recorded by the hour.
- If a student is late by 15 minutes = one hour missed.
- Students who are chronically late must meet with the Instructor or the Chair of the program.
- Chronic lateness will not be permitted.
- If six hours are missed the student must meet with the Instructor. A written and signed record of the meeting will be completed. A copy will be given to the student and the instructor will place a copy on the student's file.
- If 12 hours are missed the student must meet with the Chair of the program. A written and signed record of the meeting will be completed. A copy will be given to the student, the instructor and the Chair.
- If 18 hours are missed the student must meet with the Chair of the program again. Disciplinary action will be taken. Such disciplinary action may include, but is not limited to, a penalty assessed to the student's marks, placed on probation, or termination from the program.
- Absence for tests will result in a score of zero.

## STATEMENT ON PLAGIARISM AND CHEATING:

Please refer to www.gprc.ab.ca/downloads/documents/Student%20Misconduct%20Plagiarism%20and%20Cheating.pdf regarding plagiarism, cheating and the resultant penalties. These are serious issues and will be dealt with severely.

## COURSE SCHEDULE/TENTATIVE TIMELINE:

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|---|---|
| Week 1 | Hand tools, power tools, fasteners, thread repair, drill bits, sharpening. Safety and WHIMIS will be undertaken as independent study in library using CSTS outside of normal scheduled classes. Students will receive a provincially recognized certificate when successfully completed. |
| Week 2 | Safe operation of welding and cutting equipment. Introduction to MIG welding of mild steel including equipment set up and adjustment. |
| Week 3 | 4-Stroke theory of operation, parts nomenclature, special tools usage, disassembly and reassembly procedures, precision measuring, parts lookup. |
| Week 4 | 4-Stroke engine inspection and evaluation procedures, reconditioning procedures: valves, seats and guides, cylinders, crankshaft and bearings. |
| Week 5 | Fuel and lubrication systems, carburetor operation, governors, tune up. |
| Week 6 | 4-stroke motor oils characteristics and classifications, diesel engine design and theory of operation, diesel engine fuel system theory and servicing. |
| Week 7 | Two-stroke engine theory of operation, chain saw service and repair, diaphragm carburetors, string trimmers, brush cutters. |
| Week 8 | Meter usage, portable generator theory and repair, safety precautions. Electrical diagnosis and testing using various meters and schematic diagrams. |