DEPARTMENT OF MOTORCYCLE AND RECREATIONAL POWERSPORTS

COURSE OUTLINE – WINTER, SEMESTER 2

SM 255 Marine Outboard Shop

INSTRUCTOR:	Les Ashton	**PHONE:**	780.835.6687
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OFFICE HOURS:	Monday through Friday. 9:00 a.m. – 5:00 p.m.		

PREREQUISITE(S)/COREQUISITE: None.

REQUIRED TEXT/RESOURCE MATERIALS: None required.

Other Required Supplies:

- clipboard (legal size preferred)
- safety glasses (mandatory)
- suitable shop footwear; not open-toed; (safety footwear recommended)
- pencils
- coveralls (cotton) or shop coat (cotton)
- wireless enabled laptop computer (optional)

CALENDAR DESCRIPTION: Marine Outboard Shop is a hands on course developed to support the theory discussed in SM 250. Topics include: power-head function and overhaul (2 and 4 stroke), gear cases, PWC jet drives, EFI systems, engine cooling systems, fuel systems, lubrication systems, and diagnostic procedures used on marine electrical circuits and components. The student will also have the opportunity to evaluate engine performance by using a dynamometer. Trailer set-up, brakes, and rigging procedures will also be performed.

Delivery Option – Fairview Campus Only

CREDIT/CONTACT HOURS: 9.5 credits; 20 hours per week; 8 weeks; 160 hours.

DELIVERY MODE(S): Workshop projects; procedures; instructor led; hands on.

OBJECTIVES: The Outdoor Power Equipment Technician program has been developed to provide students with entry level skills in the marine 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: Shop Evaluation includes guidelines listed below.

1. Application of theory to shop practices. **2.** Safety: • organization and cleanliness. • eye protection. • proper procedures. • attitude and adherence. **3.** Use of Service Manuals: • recommended procedures. • special tool usage (as available). • specific information. **4.** Completion of Exercises: • worksheets filled in. • all procedures performed. • participation of all group members. **5.** Cooperation with fellow students, instructors and supervisors.	**6.** Use of Tools and Equipment: • safety and cleanliness. • reporting damage. • proper techniques. **7.** Application of Techniques: • ability to follow instructions. • Are repeat demonstrations required? **8.** Workmanship: • quality of work performed. • proper parts request information supplied. • correct procedure usage. • service procedures performed in a logical and orderly manner. • parts shortage. • time management. **9.** Request assistance when needed/ offer assistance as required.

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 (780.835.6744).
- 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:

Week 1	Identify boat parts and features using nautical terminology. Perform model identification. Practice boating safety procedures. Perform typical trailer rigging procedures including electric brakes. Familiarize with parts and service look up with both paper and computer.
Week 2	Perform 2-stroke power head disassembly and inspection. Inspect plain bearing crankshaft components and select correct inserts.
Week 3	Disassemble gear cases, inspect and service. Inspect water pump and verify correct cooling system operation. Remove PWC jet drives, inspect and service. Familiarize with flushing procedure and cooling system operation.
Week 4	Identify and test marine ignition systems and components. Types included are Mag and Bat CDI, TCI, breaker and maker. Service common types. Become familiar with special equipment required.
Week 5	Disassemble and inspect marine carburetors including float and diaphragm types. Identify and test marine fuel system components as found in remote and on board types. Identify and test EFI and DFI components.
Week 6	Disassemble and inspect manual and electric starters including safety interlocks. Perform voltage drop tests. Perform battery service and test procedures. Identify charging systems and perform test procedures. Install battery isolators.
Week 7	Perform tune up procedures including marine dynamometer usage. Perform rigging operations including propeller identification and installation..
Week 8	Project completion. Perform engine running trouble shooting. Winterization.