

DEPARTMENT OF HEAVY EQUIPMENT HEAVY EQUIPMENT SERVICE COURSE OUTLINE – WINTER 2014 JANUARY 6 – FEBRUARY 28, 2014

HES211 – STARTING AND CHARGING SYSTEMS – 2.0 (56 HOURS)

INSTRUCTOR: Rob Young **PHONE:** 780.835.6730

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OFFICE HOURS: 8.00am to 4.30pm

PREREQUISITE(S)/COREQUISITE: Successful completion of Semester 1.

REQUIRED TEXT/RESOURCE MATERIALS:

Caterpillar Material

Electrical Fundamentals:

Unit 4: Machine Electrical Systems
Lesson 2: Charging System

Lesson 3: Starting System

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

190205a - Charging System and Control Circuit Fundamentals

190205b - Charging System Testing and Service

190205c - Cranking System Fundamentals and Motor Drives

190205d – Cranking System Control Circuits

190205e - Cranking System Testing and Service

190205f – Non-Electric Cranking Systems

CALENDAR DESCRIPTION: This course examines 12 and 24 volt charging and 12, 24 and non-electrical starting systems. There is an emphasis on testing and troubleshooting.

Delivery Option: Fairview Campus Only

| CREDIT/CONTACT HOURS: Credits: 2.07 | Contact Hours: 56. |
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| DELIVERY MODE(S) : Lecture and Lab. | |
| TRANSFERABILITY: None. | |
| GRADING CRITERIA: Students must compl average of no less than 2.7 and no failing (F) minimum of 70%. | |
| Starting and Charging Systems | 56 / 240 hours = 23 % of Semester 2 mark |
| Exams Average = | x 45% |
| Class Assignments/Quizzes = | x 30% |
| Shop Total | x 25% |
| | HES 211 FINAL MARK = % |

| GRANDE PRAIRIE REGIONAL COLLEGE | | | |
|---------------------------------|-----------------------|--------------------------|-------------------------------------|
| GRADING CONVERSION CHART | | | |
| Alpha Grade | 4-point Equivalent | Percentage Guidelines | Designation |
| A ⁺ | 4.0 | 90 – 100 | EXCELLENT |
| Α | 4.0 | 85 – 89 | |
| A ⁻ | 3.7 | 80 – 84 | FIRST CLASS STANDING |
| B⁺ | 3.3 | 77 – 79 | |
| В | 3.0 | 73 – 76 | GOOD |
| B ⁻ | 2.7 | 70 – 72 | |
| F | 0.0 | 67 – 69 | |
| F | 0.0 | 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 the deadline |

STUDENT RESPONSIBILITIES:

This is an adult education environment. Enrolment at Grande Prairie Regional College assumes that the student will become a responsible citizen of the College. As such, each student will display a positive work ethic, take pride in and assist in the maintenance and preservation of Institute property, and assume responsibility for his/her education by researching academic requirements and policies, demonstrating courtesy and respect toward others; and respecting instructor expectations concerning attendance, classroom and shop rules, safety, assignments, deadlines and appointments. Students are learning skills to prepare them for the work environment.

Following the guidelines in "Student Rights and Responsibilities" in the GPRC College calendar assist us all in maintaining an adult learning environment. 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.

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the GPRC Calendar at http://www.gprc.ab.ca/programs/calendar/ Pages 44 to 46 or the College Policy on Student Misconduct: Plagiarism and Cheating at http://www.gprc.ab.ca/about/administration/policies/. **

^{**}Note: all Academic and Administrative policies are available on the same page.

COURSE SCHEDULE/TENTATIVE TIMELINE:

- 12, 24 and Series Parallel Systems
- Starting Motors
- Starter Drive Systems
- Thermal Protection
- Safety Systems
- Troubleshooting
- Alternators
- Generators
- Troubleshooting