



DEPARTMENT OF POWER ENGINEERING

COURSE OUTLINE – FALL 2012

POF 410 CHEMISTRY – 1.5(11/0/11)

INSTRUCTOR: Augustine Ebinu
OFFICE: PS 130
OFFICE HOURS: 8:00 am – 4:30 pm

PHONE: 780-835-6692
E-MAIL: AEbinu@GPRC.ab.ca

PREREQUISITE(S)/COREQUISITE:

A high school diploma including at least:

- 65% in English 20-1 or 20 -2, AND
- 65% in Math 20-1 or 20-2, AND
- 65% in any Science (Physics, Chemistry, Biology or Science) in the 20 stream, AND
- A Career Investigation (specified format)

OR

- Mature students not meeting the above requirements may request a review of their education and prior work skills by the Power Engineering Team at GPRC.

REQUIRED TEXT/RESOURCE MATERIALS:

- PE4A Book 1 & 2 Chapters 3-20, Unit 9 & 10-48
- PE4A Workbook #1 & 2
- PE3 section 1 chapters 12-13

CALENDAR DESCRIPTION:

This course covers basic chemical and physical properties. Included are water treatment and basic chemistry elements, the atom, molecules, chemical equations, basic concepts of matter, and properties of engineering materials

CREDIT/CONTACT HOURS:

1.5 Credits
22 Contact Hours

DELIVERY MODE(S): Fairview Campus only

OBJECTIVES:

1. Define and explain the importance and application of the following mechanical properties of a material: brittleness, hardness, ductility, malleability, plasticity, elasticity, and toughness.
2. Describe the following material tests: tension test, Brinell and Rockwell hardness tests, Charpy and Izod impact tests.
3. Describe the blast furnace and cupola furnace methods for iron production, and compare the characteristics of gray, white, malleable, and ductile cast iron.
4. Define steel and explain the compositions and characteristics of low carbon, medium carbon and high carbon steels.
5. Define alloy steels, and explain the benefits of each of the following alloying elements: nickel, chromium, molybdenum, vanadium, copper, lead, manganese and tungsten.
6. Explain the purposes for hot working, cold working and heat treating of metals.
7. Describe the production of carbon and alloy steel, using the open hearth, basic oxygen and electric-arc furnace processes.
8. Describe the properties and applications of non-ferrous metals and alloys.

Explain the basic structure, properties and applications of polymers, ceramics and composites.

TRANSFERABILITY: As per ABSA requirements

GRADING CRITERIA:

Method	Percentage	Minimum
Course assignments	15%	50%
CML quizzes	15%	50%
Unit Exams	30%	50%
Final Exam	40%	50%
	100%	50%
		65% average, with no mark below 50%

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	
C ⁻	1.7	60 – 62	
D ⁺	1.3	55 – 59	MINIMAL PASS
D	1.0	50 – 54	
F	0.0	0 – 49	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline

EXAMINATIONS: As per Power Engineering Student Manual

STUDENT RESPONSIBILITIES: As per Power Engineering Student Manual

STATEMENT ON PLAGIARISM AND CHEATING:

Refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at www.gprc.ab.ca/about/administration/policies/**

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

COURSE SCHEDULE/TENTATIVE TIMELINE:

Aug 30-Nov. 12, 2012

Wednesday's – 1430-1620

Thursday's – 1430-1620

Friday's – 0830-0930 & 1030-1120