

1. Calendar Information

ENCH 609 Natural Gas Processing Technology

A detailed review of the design and operating criteria applicable to the handling and processing of natural gas, its impurities and byproducts. Topics include gas gathering, separation, compression and refrigeration, gas sweetening, dehydration and dewpoint control, liquid recovery and fractionation, sulphur recovery, cryogenic processes, and an overview of environmental issues in natural gas processing.

Course Hours: H(3-0)

2. Learning Outcomes

At the end of this course, you will be able to:

- Understand the key processing steps required to make saleable products from raw gas.
- Be able to describe a variety of gas processes and discuss the merits and applicability of each process.
- Be able to develop process flow diagrams for gas processing units and prepare material balances.
- Be able to use process simulation software to make design studies and material and energy balances, as well as extracting information from simulations as required for process evaluations and equipment specification.
- Be able to perform design calculations to size process equipment.

3. Timetable

Section	Days of the Week	Start Time	Duration (Minutes)	Location
L01	T	18:30	180	ENA 101

4. Course Instructors

Course Coordinator

Section	Name	Phone	Office	Email
L01	Jack Abrey, P.Eng	(403)271-2271		jandbabrey@rogers.com

Other Instructors

Section	Name	Phone	Office	Email

Teaching Assistants

Section	Name	Phone	Office	Email

5. Examinations

The following examinations will be held in this course:

- In-class final exam.

The examination will be open book.

Note: The timetable for Registrar Scheduled exams can be found at the University's Enrolment Services website, <http://www.ucalgary.ca/registrar/>.

6. Use of Calculators in Examinations

Calculators may be used during examinations. Laptop computers and cell phones will not be allowed during examinations.

7. Final Grade Determination

The final grade in this course will be based on the following components:

Component	Weight
Assignments	40 %
Final Examination	60 %
TOTAL	100 %

Notes:

- a) It is not necessary to earn a passing grade on the final exam in order to pass the course as a whole.
- b) Conversion from a score out of 100 to a letter grade will be done using a scale determined after the final examination has been marked. This allows the creation of a scale appropriate to the relative difficulty or easiness of the term work and the final exam.

8. Textbook

The following textbooks are required for this course:

Title	GPSA Engineering Data Book
Author(s)	Various Authors
Edition, Year	12 th Edition SI Version (2 Volume Set)
Publisher	Gas Processors Suppliers Association

Title	Natural Gas Processing Principles and Technology ENCH 607 and ENCH 609 Lecture Notes
Author(s)	A. H. Younger
Edition, Year	1992
Publisher	The University Of Calgary, Department of Chemical & Petroleum Engineering

9. Course Policies

All Schulich School of Engineering students and instructors have a responsibility to familiarize themselves with the policies described in the Schulich School of Engineering Advising Syllabus available at:

<http://schulich.ucalgary.ca/undergraduate/advising>

10. Additional Course Information

A preliminary course outline by class is provided below:

Lecture	Date	Topic
1	January 10, 2012	Introduction
2	***	Gathering and Inlet facilities
3	January 31, 2012	Compression
4	***	Gas Treating
5	February 7, 2012	Dehydration and Dew Point Control
6	February 14, 2012	Refrigeration and NGL Recovery
7	February 28, 2012	Fractionation
8	March 6, 2012	Cryogenic Processes
9	March 13, 2012	Sulphur Recovery
10	March 20, 2012	Tail Gas Cleanup
11	March 27, 2012	Environmental Issues
12	April 3, 2012	Review
13	April 10, 2012	Final Exam

*** Due to instructor's schedule conflicts, lectures 2 and 4 will need to be conducted as make-up sessions. Exact dates are yet to be determined.

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