Faculty of Engineering

School of Minerals and Energy Resources Engineering

Postgraduate Course Outline

PTRL5010
Natural Gas Engineering
Dr Habib Zughbi

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1. INFORMATION ABOUT THE COURSE

Course Code:	PTRL5010	Term:	T1 2020	Level:	PG	Units/Credits	6 UOC
Course Name:	Natural Gas Engineering						

Course Convenor:			
Contact Details	School of Minerals and Energy Resources Engineering TETB	EMAIL:	h.zughbi@unsw.edu.au
		Phone:	+61 043 174 62 78
Contact times	Lecture: Mon 6-9pm, ChemSc M18 Tutorial: Wed 6-8pm, TETB G16		

1.1. Course Description

This course focusses on three key areas in the development of natural gas projects. First, the course provides an introduction to the various types of natural gas resources including conventional and unconventional gas resources. Secondly, the majority of the course examines the thermodynamics of natural gases and the estimation of their behaviour using cubic equations of state. Thirdly, the course explores briefly the methods of processing produced gas and getting it to market.

1.2. Course Completion

Course completion requires submission of all assessment items; failure to submit all assessment items can result in the award of an Unsatisfactory Failure (UF) grade for the Course.

1.3. Assumed Knowledge

Prerequisite: MATH1231 or MATH1241

2. AIMS, LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

2.1. Course Aims

Natural gas is becoming an increasingly important part of Australia's and the world's energy supply. Further, natural gas is put forward as a low emission alternative to other fossil fuels. Finally, the development of technologies to allow the development of unconventional gas resources has further added to the expansion in the supply and demand for natural gas. It is important that Petroleum Engineering graduates understand the technical, economic and social issues at play in the development of natural gas resources.

The technical aspects of natural gas developments are covered throughout the Petroleum Engineering Program as part of other reservoir engineering, geology, drilling and production courses. This course complements these other courses by aiming to:

1. Combine students existing knowledge of fluid flow with a thorough grounding in the analysis and prediction of the PVT behaviour of natural gases through the application of the thermodynamic concepts and equations of state by applying these concepts to selected unit operations,
2. Introduce students to the types of natural gas resources and the economic and social context of their development.

2.2. Learning Outcomes

At the conclusion of this course, students should be able to:

1. Apply thermodynamic theory to predict & explain the properties and PVT behaviour of natural gases.
2. Perform preliminary design/analysis calculations for common unit operations in natural gas handling.
3. Critically engage in contemporary debates around the development of the various types of natural gas resources.

2.3. Graduate Attributes

UNSW aspires to develop graduates who are rigorous scholars, capable leaders, profession practitioners and global citizens.

The University has articulated a comprehensive list of Graduate Attributes (GAs) as a set of desired

5. COURSE ASSESSMENT

5.1. Assessment Summary

Assessment task	Due date / week	Weight	Assessment	Learning outcomes assessed
1				

More information about system requirements is available at www.student.unsw.edu.au/moodle-system-requirements

7.4. Accessing Course Materials Through Moodle

Course outlines, support materials are uploaded to Moodle, the university standard Learning Management System (LMS). In addition, on-line assignment submissions are made using the assignment dropbox facility provided in Moodle. All enrolled students are automatically included in Moodle for each course. To access these documents and other course resources, please visit: www.moodle.telt.unsw.edu.au

7.5. Assignment Submissions

The School has developed a guideline to help you when submitting a course assignment.