



UNSW

UNSW Course Outline

PTRL5008 Petroleum Production Economics - 2024

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General Course Information

Course Code : PTRL5008

Year : 2024

Term : Term 1

Teaching Period : T1

Is a multi-term course? : No

Faculty : Faculty of Engineering

Academic Unit : School of Minerals & Energy Resources Engineering

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Postgraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

Students will learn how to carry out net cash flow analyses for petroleum industry investment decisions. The contents will include the definition and composition of cash flow, deriving net cash flow under tax/royalty systems and production sharing contracts, depreciation methods,

inflation, sunk costs.

Building on the net cash flow analyses mentioned above, students will study economic indicators (net present value, rate of return and other indicators), what they mean, and the issues associated with their application in practice.

Students will also carry out petroleum fiscal analyses, covering the nature of petroleum fiscal regimes, the effects of fiscal regimes on exploration and field development decision making and economic analyses of fiscal regimes in Australia and Indonesia.

Moreover, the course will cover how risk analysis is conducted in the oil and gas industry. The coverage will include risks in the oil industry, project risk and expected value, sensitivity analysis, probability analysis, Monte Carlo simulation, probabilistic reserves estimates, probabilistic economics, portfolio analysis, asset management, risk and discount rates.

Course Aims

The course aims to teach the techniques the petroleum industry uses in economic/financial analyses that back up exploration and development investment decisions. It gives an understanding of the issues involved in making those investment decisions.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Create before and after tax cash flow analyses
CLO2 : Employ economic indicators to analyse the economics of different options
CLO3 : Evaluate the effect of risk and uncertainty on project economics
CLO4 : Analyse, compare and contrast the effects of different fiscal regimes on project economics

Course Learning Outcomes	Assessment Item
CLO1 : Create before and after tax cash flow analyses	<ul style="list-style-type: none">• Mid-term Exam• In Class Quiz
CLO2 : Employ economic indicators to analyse the economics of different options	<ul style="list-style-type: none">• Mid-term Exam• In Class Quiz
CLO3 : Evaluate the effect of risk and uncertainty on project economics	<ul style="list-style-type: none">• Final Exam• In Class Quiz
CLO4 : Analyse, compare and contrast the effects of different fiscal regimes on project economics	<ul style="list-style-type: none">• Fiscal Regime Assignment• Final Exam• In Class Quiz

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Mid-term Exam Assessment Format: Individual	40%	Start Date: 26/03/2024 01:00 PM Due Date: 26/03/2024 03:00 PM
Fiscal Regime Assignment Assessment Format: Individual	10%	Start Date: 13/02/2024 04:00 PM Due Date: 05/04/2024 05:00 PM
In Class Quiz Assessment Format: Individual	10%	Start Date: Not Applicable Due Date: Not Applicable
Final Exam Assessment Format: Individual	40%	Start Date: To be announced Due Date: To be announced

Assessment Details

Mid-term Exam

Assessment Overview

This written 2-hour examination tests students' understanding of the topics covered in the first 5 weeks of the term. Exam marks will be provided within two weeks after the exam.

Course Learning Outcomes

- CLO1 : Create before and after tax cash flow analyses
- CLO2 : Employ economic indicators to analyse the economics of different options

Detailed Assessment Description

The topics covered in the exam include cash flow analysis, economic indicators and example applications.

Assessment Length

2 hours

Fiscal Regime Assignment

Assessment Overview

The fiscal report tests the students' understanding of the economics of petroleum fiscal terms in a given country. Report marks will be provided at the end of term. The fiscal report is expected to contain 1,000 words in total.

Course Learning Outcomes

- CLO4 : Analyse, compare and contrast the effects of different fiscal regimes on project economics

Detailed Assessment Description

The fiscal report tests the students' understanding of the economics of petroleum fiscal terms in a given country. Report marks will be provided at the end of term. The fiscal report is expected to contain a maximum of 1,000 words in total.

Assessment Length

Maximum 1,000 words

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

In Class Quiz

Assessment Overview

The quizzes test the students' understanding of the topics covered in the previous lectures. Feedback is provided during the quizzes. The quizzes take approximately 3 hours of each student's time in total

Course Learning Outcomes

- CLO1 : Create before and after tax cash flow analyses
- CLO2 : Employ economic indicators to analyse the economics of different options
- CLO3 : Evaluate the effect of risk and uncertainty on project economics
- CLO4 : Analyse, compare and contrast the effects of different fiscal regimes on project economics

Detailed Assessment Description

At the start of each lecture, except in Weeks 1, 6, 7 and 10, individual students will be invited to respond verbally to quiz questions. Individual feedback will be provided during each quiz session. Therefore, students will receive feedback on their understanding of the subject before the census date. The quizzes take approximately 3 hours of each student's time in total over the term.

Assessment Length

The quizzes take approximately 3 hours of each student's time in total over the term.

Final Exam

Assessment Overview

This written 2-hour examination tests students' understanding of the topics covered in the second 5 weeks of the term. Exam marks will be provided at the end of term.

Course Learning Outcomes

- CLO3 : Evaluate the effect of risk and uncertainty on project economics
- CLO4 : Analyse, compare and contrast the effects of different fiscal regimes on project economics

Detailed Assessment Description

This written 2-hour examination tests students' understanding of the topics covered in the second 5 weeks of the term (petroleum risk analysis and petroleum fiscal analysis). Exam marks will be provided at the end of term.

Assessment Length

2 hours

General Assessment Information

Grading Basis

Standard

Requirements to pass course

Achieve a composite mark of 50 out of 100

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Cash Flow Analysis
Week 2 : 19 February - 25 February	Lecture	Cash Flow Analysis
Week 3 : 26 February - 3 March	Lecture	Economic Indicators
Week 4 : 4 March - 10 March	Lecture	Economic Indicators
Week 5 : 11 March - 17 March	Lecture	Example Applications
Week 6 : 18 March - 24 March	Other	Review
Week 7 : 25 March - 31 March	Assessment	Mid-Term Exam and Risk Analysis
Week 8 : 1 April - 7 April	Lecture	Risk Analysis
Week 9 : 8 April - 14 April	Lecture	Risk Analysis
Week 10 : 15 April - 21 April	Lecture	Fiscal Analysis

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Resources

Prescribed Resources

Course notes and exercises on Moodle

Course Evaluation and Development

Feedback during quizzes

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Guy Allinson		TETB	None	Lecture Times	No	Yes
Convenor	Furqan Le-Hussain		TETB		Lecture times	No	No

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)
- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning

environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: [https://www.unsw.edu.au/engineering/student-life/
student-resources/program-design](https://www.unsw.edu.au/engineering/student-life/student-resources/program-design).

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

Course completion

Course completion requires submission of all assessment items. Failure to submit all assessment items may result in the award of an Unsatisfactory Failure (UF) grade for the Course unless special consideration has been submitted and approved.

Submission of Assessment Tasks

We encourage you to retain a copy of every assignment submitted for your own record, either in hardcopy or electronic form. All assessments must have an assessment cover sheet attached.

Student Resources

The School has student resources section, containing useful advice and information to ensure you're able to focus on your studies.

Computing Resources and Internet Access Requirements

UNSW Minerals and Energy Resources Engineering provides blended learning using the online Moodle LMS (Learning Management System). Also see - Transitioning to Online Learning: www.covid19studyonline.unsw.edu.au

Note that some specialist engineering software is not available for Mac computers.

- Mining Engineering Students: OMB G48
- Petroleum Engineering Students: TETB LG34 & LG35

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

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

School Contact Information

School of Minerals and Energy Resources
Old Main Building, Level 1, 159 (K15)
UNSW SYDNEY NSW 2052 AUSTRALIA

For current students, all enquiries and assistance relating to enrolment, class registration, progression checks and other administrative matters, please see [The Nucleus: Student Hub](#).

Web & Important Links:

[School of Minerals and Energy Resources](#)

[The Nucleus: Student Hub](#)

[Moodle](#)

[UNSW Handbook](#)

[UNSW Timetable](#)

[Student Wellbeing](#)

[Urgent Mental Health & Support](#)

[Equitable Learning Services](#)