



UNSW Course Outline

PTRL4021 Petroleum Production Engineering - 2024

Published on the 27 May 2024

General Course Information

Course Code : PTRL4021

Year : 2024

Term : Term 2

Teaching Period : T2

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 : Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

Components of the petroleum production systems. Well inflow performance and deliverability analysis. Production from both saturated and undersaturated oil reservoirs. Production from two phase reservoirs. Production from gas reservoirs. Pseudo critical properties of natural gases.

Gas well deliverability for non-Darcy flow. The near-wellbore condition and wellbore skin characterisation. Well head surface gathering systems. Artificial lift systems. Horizontal well production. Production chemistry basics (wax, scale, corrosion, emulsions).

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.
CLO2 : Apply the mechanical energy balance equation to predict pressures and flow rates for production systems.
CLO3 : Analyse of common production problems and propose possible solutions.
CLO4 : Design artificial lift systems based on fluid and reservoir properties.
CLO5 : Evaluate common formation damage issues and common prevention methods
CLO6 : Solve for pressure and flow in production systems using nodal analysis.

Course Learning Outcomes	Assessment Item
CLO1 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.	<ul style="list-style-type: none"> • Quiz 1 • Presentation • HW • Quiz 2
CLO2 : Apply the mechanical energy balance equation to predict pressures and flow rates for production systems.	
CLO3 : Analyse of common production problems and propose possible solutions.	
CLO4 : Design artificial lift systems based on fluid and reservoir properties.	
CLO5 : Evaluate common formation damage issues and common prevention methods	
CLO6 : Solve for pressure and flow in production systems using nodal analysis.	

Learning and Teaching Technologies

Moodle - Learning Management System

Additional Course Information

CLO1 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.

- Assessment 1 : Quiz 1
- Assessment 2 : Presentation
- Assessment 3 : HW
- Assessment 4 : Quiz 2

CL02 : Apply the mechanical energy balance equation to predict pressures and flow rates for production systems.

- Assessment 1 : Quiz 1
- Assessment 2 : Presentation
- Assessment 3 : HW
- Assessment 4 : Quiz 2

CL03 : Analyse of common production problems and propose possible solutions.

- Assessment 1 : Quiz 1
- Assessment 2 : Presentation
- Assessment 3 : HW
- Assessment 4 : Quiz 2

CL04 : Design artificial lift systems based on fluid and reservoir properties.

- Assessment 1 : Quiz 1
- Assessment 2 : Presentation
- Assessment 3 : HW
- Assessment 4 : Quiz 2

CL05 : Evaluate common formation damage issues and common prevention methods

- Assessment 1 : Quiz 1
- Assessment 2 : Presentation
- Assessment 3 : HW
- Assessment 4 : Quiz 2

CL06 : Solve for pressure and flow in production systems using nodal analysis.

- Assessment 1 : Quiz 1
- Assessment 2 : Presentation
- Assessment 3 : HW
- Assessment 4 : Quiz 2

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Quiz 1	25%	Due Date: Week 4: 17 June - 23 June
Presentation	15%	Due Date: Week 10: 29 July - 04 August
HW	20%	Due Date: Week 10: 29 July - 04 August
Quiz 2	40%	Due Date: Week 12: 12 August - 18 August

Assessment Details

Quiz 1

Assessment Overview

first half of course

Course Learning Outcomes

- CL01 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.

Assessment Length

2 Hours

Presentation

Assessment Overview

Students will give presentation on one common production problem issue.

Course Learning Outcomes

- CL01 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.

Assessment Length

30 minutes

HW

Assessment Overview

Flow through pipes focused on mechanical energy balance equation Inflow/outflow performance and nodal analysis Diagnostics of common production problems Well stimulation and workover Design of Artificial lift

Course Learning Outcomes

- CL01 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.

Submission notes

Specific information about this assessment will be provided on course Moodle

Quiz 2

Assessment Overview

all material in course

Course Learning Outcomes

- CL01 : Understand reservoir conditions and production system designs that influencing the production of oil and gas wells.

Assessment Length

2 Hours

General Assessment Information

Grading Basis

Standard

Course Schedule

Attendance Requirements

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

General Schedule Information

General schedule information will be provided on Moodle.

Course Resources

Course Evaluation and Development

At the end of each course, all students will have the opportunity to complete a course evaluation form. These anonymous surveys help us understand your views of the course, your lecturers and the course materials. We are continuously improving our courses based on student feedback, and your perspective is valuable.

Feedback is given via <https://student.unsw.edu.au/myexperience> and you will be notified when

this is available for you to complete.

We also encourage all students to share any feedback they have any time during the course - if you have a concern, please contact us immediately.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Administrator	Ryan Armstrong		TETB Rm 224			No	Yes
Lecturer	Mohammad Ebadi		TETB lvl2 - R225	61447170584		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 policies. 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>.

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 (if required).

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 Engineering
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](#)