



School of Minerals and Energy Resources Engineering



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Course Code:	PTRL4010	Term:	T1, 2021	Level:	UG	Units/Credits	6 UOC
Course Name:							

Course Convenor:							
Contact Details	School of Minerals and Energy Resources Engineering TETB 221	EMAIL:	h.roshan@unsw.edu.au				
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Contact times	Lectures are held online on Tuesdays from 10:00-11:00 AM Sydney time followed by the first tutorial from 11:00 AM to 1:00 PM on the same day. The second tutorial will be run on Thursdays from 3:00-5:00 PM Sydney time. The PETREL software is used in this course that can be accessed from MyAccess. Please save your files on your UNSW local drive to have higher speed. The computer Lab (TETB LG35) is also booked during above times for students who are in Sydney. Any changes will be announced on Moodle during the course.						
Course Tutor							

Field Geology and stratigraphy analysis

Well correlation and Structural modelling

Petro-physical modelling

Geo-statistics, and

PETREL software

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.

Prerequisite: PTRL 2010, PTRL 3002, PTRL3003, PTRL 3022, PTRL 3023, PTRL3025

To pass this course it is expected that you will attend at least 80% of tutorials and lectures. \_\_\_\_\_. Attendance will be recorded

The aim of this course is to enable you to construct a structural model, distribute the petro-physical properties in the model and assess the oil/gas in-place of an actual oil/gas field.

One of the main aims of "Thesis" is to give you the opportunity of self-directed learning. That is what you will face in real life where the critical decisions need to be made often with insufficient data. The responsibilities for any decision rest with you and your group where a proper way of researching and communicating is the key to success in these tasks.

This subject will involve the complete evaluation of a field off-shore Australia with the learning outcomes including a) the understanding of Field Geology Investigation, b) Structural modelling, c) Petro-physical modelling, and d) geo-statistics for properties distribution estimation

Geoscience Australia: <http://www.ga.gov.au>

In addition to the given references, data on the study area will be found on "Moodle" for this subject.

#### Well Completion Reports

Several basic and interpretative Well Completion Reports will be available on Moodle for all wells.

#### Digital Well Logs



Digital well logs (LAS format) for all wells drilled in the field will be available on Moodle.

#### Others

Temperature and geochemical data will be available from open-files databases. Some of these

Students seeking resources can also obtain assistance from the UNSW Library. One starting point for assistance is: <https://www.library.unsw.edu.au/>

Society of Petroleum Engineers (SPE) <http://www.spe.org/>  
Australian Petroleum Production and Exploration Association: <http://www.appea.com.au>  
American Association of Petroleum Geologists: <http://www.geobyte.com>  
Petroleum Exploration Society of Australia: <http://www.pesa.com.au>  
American Petroleum Institute – For Petroleum Standards [www.api.org](http://www.api.org)




The students gain hands-on experience of the complete geological modelling and evaluation of a field in off-shore Australia (note that the study field may change e.g. you will be informed in the first lecture of the field under study). Both individual and team works are required to deliver a successful outcome on time. In particular, team work is an important component of this course. This is essential in industry practices where the success of every project heavily relies on communication between team members. Therefore students are required to form the groups of four members at the beginning of the subject. All submissions expect the final submission is group submission (final submission is individual). The assessment is based on both team and individual performance. Therefore, you should be very careful with your team member selection.

The subject will start with the Geology review. You will search through the existing body of the literature to make yourself familiar with the overall geology of the area (Regional geology) and then more focus, Field Geology. In the field geology section, you will need to review the geological information available at the field scale and link it to regional geology through detail analysis of different reports provided.

One of the main steps in geological modelling involves the seismic interpretation especially to pick up horizons and faults. As seismic interpretation is part of Geophysics course, the detail of Seismic interpretation will not be discussed, but videos of interpretation will be provided for students' familiarity with PETREL software. In the next part of geological modelling, the geological structures (zones, layers, etc) are constructed and petrophysical modelling is then performed.

Eventually, you will be given a specific individual task to include in your PETREL model. The final report summarizing all information and model runs must be submitted on Moodle by specified deadline. All other5-5(r)-104(w)-4(i)-4(t)0.000008874 0 595.5 841.98 rf1 095 3s135(s2(her)-2s )1logy of the a



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- Project outline
- Tasks and deadlines
- Overview of geological modelling







- Stop you submitting assessable work for a course,
- Significantly affect your performance in assessable work, be it a formal end-of-semester examination, a class test, a laboratory test, a seminar presentation or any other form of assessment.

We ask that you please contact the Course Convenor immediately once you have completed the special consideration application, no later than one week from submission.

More details on special consideration can be found at: [www.student.unsw.edu.au/special-consideration](http://www.student.unsw.edu.au/special-consideration)

For details on UNSW assessment policy, please visit: [www.student.unsw.edu.au/assessment](http://www.student.unsw.edu.au/assessment)

In some instances your final course result may be withheld and not released on the UNSW planned date. This is indicated by a course



