



Faculty of Engineering

**School of Minerals and Energy Resources Engineering**

Undergraduate Course Outline

PTRL4010

Integrated Oil Gas Field Evaluation

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## 1. INFORMATION ABOUT THE COURSE

Course Code: PTRL4010 Term: T1,2020 Level: UG Units/Credits 6



### 3.3. Other Resources

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

### 3.4. Online Resources

Society of Petroleum Engineers:	<a href="http://www.spe.org">http://www.spe.org</a>
Australian Petroleum Production and Exploration Association:	<a href="http://www.appea.com.au">http://www.appea.com.au</a>
American Association of Petroleum Geologists:	<a href="http://www.geobyte.com">http://www.geobyte.com</a>
Petroleum Exploration Society of Australia:	<a href="http://www.pesa.com.au">http://www.pesa.com.au</a>
American Petroleum Institute – For Petroleum Standards	<a href="http://www.api.org">www.api.org</a>
Society of Petrophysicists & Well Log Analysts	<a href="http://www.spwla.org">www.spwla.org</a>
European Association of Geoscientists & Engineers	<a href="http://www.eage.org">www.eage.org</a>
The Society of Exploration Geophysicists	<a href="http://www.seg.org">www.seg.org</a>

### 3.5. Report Writing Guide

Use these notes as a general guide to the layout of your reports. In particular –

- The main text should be in Calibri 11 point.
- The left hand side headers should read "PTRL4010 – Topic".
- The right hand side headers should read "Page X"
- You should put a line under the header.
- The left hand side footer should show your group name
- The right hand side footer should show the date (for example, "26 March 2018")
- You should put a line above the footer.
- Headers and footers should be in Calibri 11 point.

Report Guide

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## 4. COURSE CONTENT AND LEARNING ACTIVITIES

### 4.1. Course Content

## 4.2. Learning Activities Summary

Week	Lecture period	Workshops	Away work
1	<ul style="list-style-type: none"> <li>x Project outline</li> <li>x Tasks and deadlines</li> <li>x Overview of geological modelling</li> <li>x Field Geology and Formations stratigraphy</li> </ul>	<ul style="list-style-type: none"> <li>x Group selection</li> <li>x Group to assign team leader</li> <li>x Discuss the main task allocations</li> <li>x PETREL environment</li> <li>x PETREL data import including Well heads, Well deviation survey and Well tops</li> </ul>	<ul style="list-style-type: none"> <li>x Identification of issues, tasks, and priorities</li> <li>x Allocation of tasks to group members</li> <li>x Start reviewing completion/drilling reports provided</li> <li>x Practice on PETREL data importing using videos provided</li> </ul>
2	<ul style="list-style-type: none"> <li>x Seismic interpretation</li> <li>x Velocity model</li> </ul>	<ul style="list-style-type: none"> <li>x Familiarization with Seismic interpretation and visualisation</li> <li>x Velocity model selection</li> </ul>	<ul style="list-style-type: none"> <li>x Familiarization with regional and field geology</li> <li>x Practice on seismic interpretation, visualisation and velocity models</li> </ul>
3	<ul style="list-style-type: none"> <li>x Fundamental well logging and well correlation</li> </ul>	<ul style="list-style-type: none"> <li>x Well correlation</li> <li>x Well top analysis</li> </ul>	<ul style="list-style-type: none"> <li>x Understanding well log requirements</li> <li>x Well correlation analysis for the field under investigation</li> </ul>
4	<ul style="list-style-type: none"> <li>x Structural modelling and Geostatistics</li> </ul>	<ul style="list-style-type: none"> <li>x Fault modelling</li> <li>x Pillar gridding</li> </ul>	<ul style="list-style-type: none"> <li>x Fault modelling analysis for the field under investigation</li> <li>x Geostatistics recap</li> </ul>
5	<ul style="list-style-type: none"> <li>x Petrophysical modelling and geostatistics (porosity)</li> </ul>	<ul style="list-style-type: none"> <li>x Continue Pillar gridding</li> <li>x Make horizons/zones/layers</li> </ul>	<ul style="list-style-type: none"> <li>x Pillar gridding for field under investigation</li> <li>x Grid generation</li> </ul>
6	<ul style="list-style-type: none"> <li>x No lecture</li> </ul>	<ul style="list-style-type: none"> <li>x Porosity upscaling</li> <li>x Geostatistical analysis including variogram construction and modelling</li> </ul>	<ul style="list-style-type: none"> <li>x Porosity upscaling for the field under investigation</li> <li>x Variogram construction and modelling</li> </ul>
7	<ul style="list-style-type: none"> <li>x DST and permeability</li> </ul>	<ul style="list-style-type: none"> <li>x Detail of DST and permeability upscaling</li> <li>x PETREL model</li> </ul>	<ul style="list-style-type: none"> <li>x Continue PETREL model</li> <li>x Working on individual model</li> </ul>
8	<ul style="list-style-type: none"> <li>x Water saturation and shaliness</li> </ul>	<ul style="list-style-type: none"> <li>x Detail of water saturation and shaliness upscaling</li> <li>x Continue PETREL model</li> </ul>	<ul style="list-style-type: none"> <li>x Continue PETREL model</li> <li>x Working on individual model</li> </ul>

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## 5. COURSE ASSESSMENT

### 5.1. Assessment Summary





### 7.3. Computing Resources and Internet Access Requirements

UNSW Minerals and Energy Resources Engineering provides blended learning using the online Moodle LMS (Learning Management System).

It is essential that you have access to a PC or notebook computer. Mobile devices such as smart phones and tablets may compliment learning, but access to a PC or notebook computer is also required. Note that some specialist engineering software is not available for Mac computers.

Mining Engineering Students: OMBG48/49  
Petroleum Engineering Students: TETB

It is recommended that you have regular internet access to participate in forum discussion and group work. To run Moodle most effectively, you should have:

- x broadband connection (256Kbit/sec or faster)
- x ability to view streaming video (high or low definition UNSW TV options)

More information about system requirements is available at [www.student.unsw.edu.au/moodle/systemrequirements](http://www.student.unsw.edu.au/moodle/systemrequirements)

### 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 drop box 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](http://www.moodle.telt.unsw.edu.au)

### 7.5. Assignment Submissions

The School has developed P

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Submissions

Submissions (Access) TT6 1 Tf 2.75 0 TD 0 Tc <0003>D -.0

- x Stop you submitting assessable work for a course,
- x 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)

## 7.8. Course Results

For detail 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 as a result of an examination. For more information, please refer to the UNSW Assessment Policy.

you improve your academic writing and communication skills. Some students use the Centre services because they are finding their assignments a challenge, others because they want to improve an already successful academic performance.

### 7.11. Continual Course Improvement

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.

## 8. SCHOOL ASSESSMENT COVER SHEET

Course Convenor: \_\_\_\_\_  
Course Code: \_\_\_\_\_ Course Title: \_\_\_\_\_  
Assignment: \_\_\_\_\_  
Due Date: \_\_\_\_\_  
Student \_\_\_\_\_