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| Course Code: | PTRL4021/5011 | Term: | T2 | Level: | UG/G | Units/Credits | 6 UOC |
| Course Name: | | | | | | | |

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| Course Convenor: | <i>Dr. Ryan Armstrong</i> | | | | | | |
| Contact Details | School of Minerals and Energy Resources Engineering | EMAIL: | ryan.armstrong@unsw.edu.au | | | | |
| | | Phone: | Email only | | | | |

The aim of this course is to provide insight on production engineering including the basic physics that governs the process and common problems associated with oil and gas production.

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

- The production flow system from reservoir to surface
- The mechanical energy balance equation associated with production engineering
- Artificial lift (gas lift and various pumping methods)
- Problems associated with production of formation fluids
- Formation damage/production impairment prediction, prevention and removal
- Problem Diagnosis and workover

Support material for this course including, whenever available, copies of lecture notes, recommended readings, etc. can be found on Moodle.

The lecture note may be viewed and downloaded from the UNSW-Moodle <http://moodle.telt.unsw.edu.au/>.

Following are the recommended books for this course.

- ◁ *Petroleum Engineering Handbook* Volume IV "Production Operations Engineering" J.D. Clegg - Editor
- ◁ Other readings will be posted on Moodle.



Links to websites etc.

The University and the Faculty provide a wide range of support services for students, including:

- ◁ UNSW Learning Centre (<http://www.lc.unsw.edu.au>)
- ◁ Counselling support - <http://www.counselling.unsw.edu.au>
- ◁ Library training and support services - <http://www.library.unsw.edu.au/>
- ◁ OnePetro – (<http://www.onepetro.org>)

There are numerous articles / information sources on EOR on the web. Many of them are technically correct, but many are either very lightweight or contain errors. Be very careful in your choice of web

sources. Remember, UNSW librarians are usually happy to help you locate articles or make suggestions regarding possible material to help you in your academic work. You can also access basic online help at <http://www.library.unsw.edu.au/>

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1. Introduction to production engineering
 2. Flow in Pipes
 3. Multiphase flow
 4. Inflow and outflow performance
 5. Artificial lift
 6. Well diagnosis and workover
 7. Common production problems



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Other UNSW Key dates: <https://student.unsw.edu.au/new-calendar-dates>

An in-class exam will be conducted during Week 6. The exam will cover materials from Weeks 1-4. The final exam will be conducted by the UNSW exams unit. The final exam will cover all material from the course.

Students need to address and explain one type of problem encountered during production. They should explain the causes of the problem, provide an analysis of the predictive tools available, and explain methods available for mitigation of the problem. Overall, they need to explain the _____, _____, and _____. Presentations will be 20 minutes plus an additional 10 minutes for questions. Each presentation will be a group project of 3-5 students.

Specific topics will be posted to Moodle.

One HW assignment will be given.

At times, the School or your course conveners may need to contact you about your course or your enrolment. Your course conveners will use the email function within Moodle or we will contact you on your @student.unsw.edu.au email address.

We understand that you may have an existing email account and would prefer for your UNSW emails to be redirected to your preferred account. Please see these instructions on how to redirect your UNSW emails: <https://www.it.unsw.edu.au/students/email/index.html>

The Student Equity and Disabilities Unit (SEADU) aims to provide all students with support and