

Faculty of Engineering

Course Outline

PTRL 5016 Well Completions and Stimulation

Professor Sheik Rahman

1. INFORMATION ABOUT THE COURSE

Course Code:	PTRL5016	Term:	T2, 2020	Level:	PG	Units/Oredits	6 UOC
Course Name:	Well Completions and Stimulation						

Course Convenor:							
Contact Details	School of Minerals and Energy	EMAIL:	Sheik.rahman@unsw.edu.au				
	Resources Engineering TETB 212	Phone:	+61 2 9385 5659				
Contact times	This course will be delivered online in T2. Please see Moodle for presentation times and requirements. Monday 13:00 16:00 (Weeks 1, 3-5, 7-11) Friday 14:00 17:00 (Weeks 5, 7)						

1.1. Course Description

The course covers the following aspects:

Interval selection and productivity considerations. Selection of completion design based on influence of reservoir heterogeneity, production methods and the required producing rate. Inflow performance analysis for oil and gas reservoirs (both Vogel and Fetkovich), summation of pressure drops (reservoir to well heads by nodal analysis) and matching completion with reservoir performance. Estimation forces (burst and collapse) on tubing due to various production operations including: different stages of production, well kill operation, squeeze cementing, hydraulic fracturing etc. Tubing packer movement due to the effect of various production operations and estimation of these forces as well as contraction and / or elongation of tubing due to these forces. Selection of tubing material and sizes based on forces on tubing. Selection of downhole equipment, tubing accessories and wellhead and wellhead equipment. Basics of perforation technique, selection of equipment and procedure for perforation of oil and gas well and estimation pressure losses in perforation tunnels and perforation interval. Causes of sand production, analysis of formation sand and prevention of sand production by managing production rate and pressure,

4.2. Learning Activities and Study Guide



Teaching Period1st June10th August 2020Study Period1113 August 2020Exam Period1427 August 2020

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

6.3 Project

The project will cover topics of well performance analysis and tubing design. It may require the use of Virtuwell.

6.4 Final Exam

Guidelines for helping the preparation for the final exam will be released prior to the exam.

7. STUDYING A PG COURSE IN UNSW MINERALS AND ENERGY RESOURCES ENGINEERING

7.1. How We Contact You

At times, the School or your course convenors may need to contact you about your course or your enrolment. Your course convenors 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: <u>https://www.it.unsw.edu.au/students/email/index.html</u>

7.2. How You Can Contact Us

We are always ready to assist you with your inquiries. To ensure your question is directed to the correct person, please use the email address below for:

Enrolment or other admin questions regarding your program: https://unswinsight.microsoftcrmportals.com/web-forms/

Course inquiries: these should be directed to the Course Convenor.

7.3. Computing Resources and Internet Access Requirements

UNSW Minerals and Energy Resources Engineering provides blended learning using the on-line 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: OMB G48/49 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:

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

More information about system requirements is available at <u>www.student.unsw.edu.au/moodle-</u> system-requirements

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 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: <u>www.moodle.telt.unsw.edu.au</u>

7.5. Assignment Submissions

The School has developed a guideline to help you when submitting a course assignment.

We encourage you to retain a copy of every assignment submitted

would need to re-enroll in the course.

7.9. Students Needing Additional Support

Course Convenor: