School of Minerals & Energy Resources Engineering // UNSW Engineering

PTRL5009

Well Drilling Equipment and Operations

Term One // 2021

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Zhixi Chen	zhixic@unsw.edu.au	Office hours	Office 211, Level 2, TETB	+61 2 9385 5182

Lecturers

Name				

Cour af تي□□□□□□□□□□□□تي□□□□ Ạ□□□□□□□□تي□□□
Zhixi Chen /7m800n.0000av e 9-9eTd 0000q v - 0.e 9n s w i c . e d u . 59.0 BT /F429.3400846283.6460000-0.55.00

Course Details

Credit Points 6

Summary of the Course

Courses of two parts: Lecture and computer simulation lab.

Lecture material include: Introduction to physical processes involved in drilling oil and gas wells. Rotary drilling rigs for both land and offshore operation. Drilling equipment including rig powering and transmission, hoisting, rotary systems, BOP equipment and hookup, drill pipes and collars. Drilling fluid circulating systems including pumps, mud tanks, mud mixtures and mud cleaners. Elements of rock mechanics and its application in drilling. Selection of drill bits and penetration rate optimisation. Rig sizing and selection. Special marine equipment for offshore drilling.

Drilling simulation laboratory include: understand general well planning for both land and offshore well completion, hook up of drilling equipment and preparing to undertake drilling, hook up of BOP equipment for control of well pressure, running drilling while maintain well pressure, procedure of controlling well pressure, and real life exercise for control of well pressure

Course Aims

This course is taught from a practical view with the aim that students will learn how to streamline and optimize rig operations and gain the technical skills to provide cost- effective solutions to common rig problems associated with day to day operations. Students enrolled in this course will be PTRL5009 Well Drilling Equipment and Operations T1 2020Page | 4given an in-depth view of the physical processes involved in drilling oil and gas wells, both on-shore and off-shore.

Course Learning Outcomes

4. Online learning support is also available through Moodle.

Assessment

Assessment Tasks

Assessment task	Weight	Due Date	Student Learning Outcomes Assessed
Assignments	25%	Assignments 1,2,3,4 due at the end of Weeks 3,5,7,9.	1, 2, 3
Midterm Exam	15%	Tuesday, Week 7	1, 2, 3
Lab	10%	Lab report due within two weeks after each lab session	1, 2, 3
Final Exam	40%	Within the exam period	1, 2, 3
Design Project	10%	End of Week 10	1, 2, 3

Assessment Details

Assessment 1: Assignments

Start date: Not Applicable

Details:4 individual assignments due at the end of Weeks 3,5,7,9 respectively; Tutorial exercises due weekly.

Additional details:

Ass1 covers Power System and Circulation System; Ass2 covers Hoisting System; Ass3 covers Drill String; Ass4 covers Rotary Drill Bits.

Tutorial exercises due weekly.

Guidelines for helping the preparation for the quiz will be released on Moodle prior to the quiz.

Submission notes: Online Moodle submission

Turnitin setting: This is not a Turnitin assignment

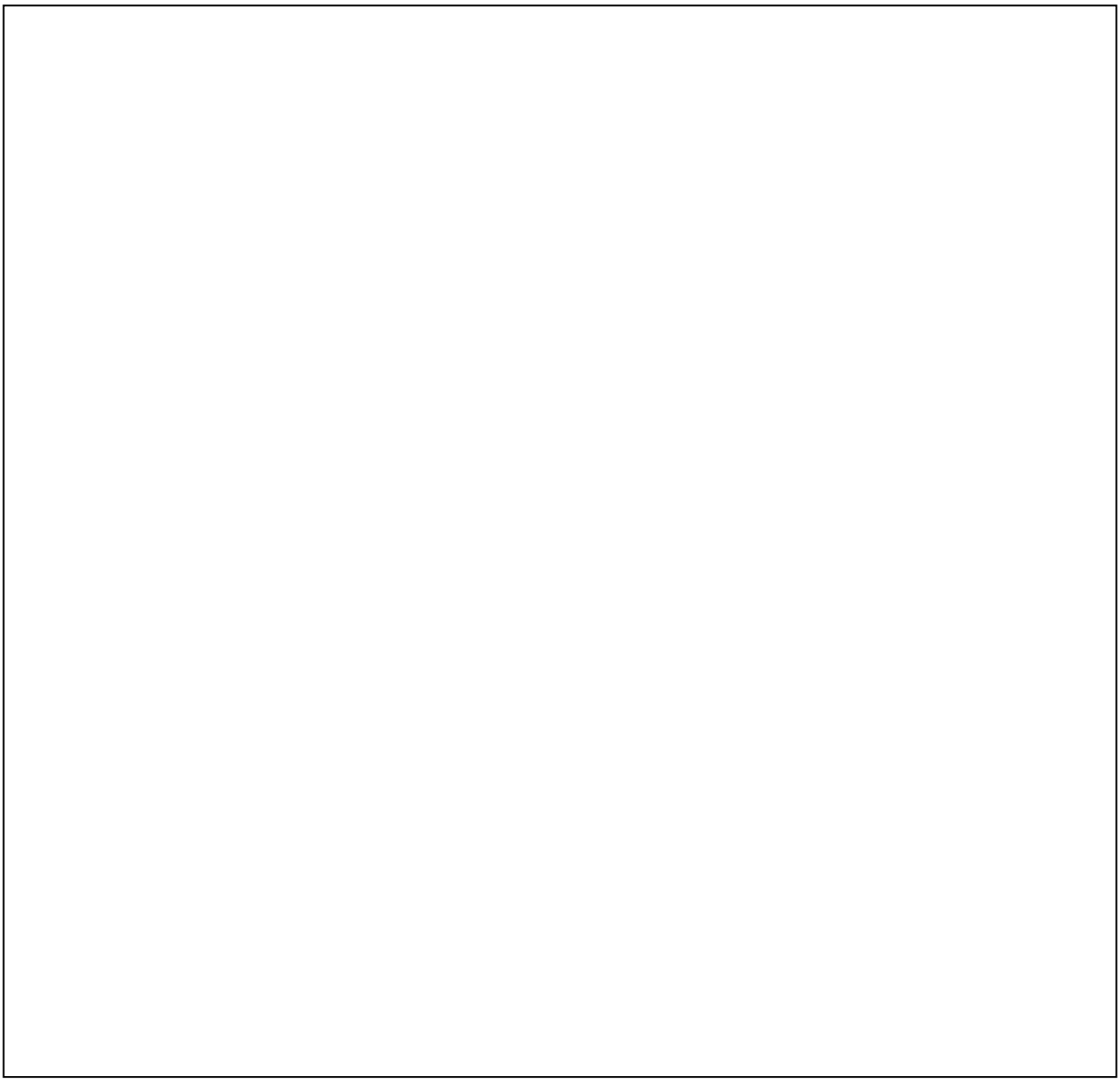
Assessment 3: Lab

Start date: Not Applicable

Details:Activity involves simulation of drilling and well control operations in the Drilling Simulator Laboratory. Individual lab report due after each lab session.

Additional details:

Turnitin setting: This assignment is submitted through Turnitin and students can see Turnitin similarity reports.



Resources

Prescribed Resources

Support material for this course including, whenever available, copies of lecture notes, lecture slides, recommended readings, etc. can be found on Moodle.
The lecture notes/slides may be viewed and downloaded from the UNSW-Moodle:
http://moodle.telt.unsw.edu.au/

Recommended Resources

Followings are the recommended books for this course:

- Applied Drilling Engineering AT Bourgoyne Jr, ME Chenevert, KK Millheim and FS Young Jr. SPE Textbook Series, Vol. 2, 2nd Edition (1991)
-

mission of Assessment Tasks

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

ncourage you to retain a copy of every assignment submitted for assessment for your own record in hardcopy or electronic form.

sessments must have an assessment cover sheet attached.

rse completion

se completion requires submission of all assessment items. Failure to submit all assessment items esult in the award of an Unsatisfactory Failure (UF) grade for the Course unless special deration has been submitted and approved. Please note, a competency hurdle of 50% is applied to nal assessment.

e Submission of an Assignment

narks for an assignment are only possible when an assignment is received by the due date.

nderstand that at times you may not be able to submit an assignment on time, and the School will mmodate any fair and reasonable extension. We would recommend you review the UNSW Special ideration guidelines – see section below.

submission will not be accepted and will be considered as no submission.

cial Consideration

an apply for special consideration through The Nucleus Student Hub when illness or other mstances interfere with your assessment performance. Sickness, misadventure or other mstances beyond your control may:

- Prevent you from completing a course requirement
- Keep you from attending an assessable activity
- mitting assessable work for a course
- fect your performance in assessable work, be it a formal end-of-semester class test, a laboratory test, a seminar presentation or any other form of

lease contact the Course Convenor immediately once you have completed the special application, no later than one week from submission.

More details on special consideration can be found at: www.student.unsw.edu.au/special-consideration

- UNSW Learning Centre - www.lc.unsw.edu.au
- Counselling support - www.counselling.unsw.edu.au

Equitable Learning Services aims to provide all students with a free and confidential service that provides practical support to ensure that your health condition doesn't adversely affect your studies. https://student.unsw.edu.au/els

Academic Honesty and Plagiarism

Your lecturer and the University will expect your submitted assignments are truly your own work. UNSW has very clear guidelines on what plagiarism is and how to avoid it. Plagiarism is using the words or ideas of others and presenting them 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. The University has adopted an educative approach to plagiarism and has developed a range of resources to support students. All the details on plagiarism, including some useful resources, can be found at www.student.unsw.edu.au/plagiarism.

All Mining Engineering students are required to complete a student declaration for academic integrity which is outlined in the assignment cover sheets. By signing this declaration, you agree that your work is your own original work.

If you need some additional support with your writing skills, please contact the Learning Centre or view some of the resources on their website: www.lc.unsw.edu.au. The Learning Centre is designed to help 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.

Academic Information

Course Results

For details on UNSW assessment policy, please visit: 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 grade result of either:

- LE – indicates you have not completed one or more items of assessment; or
- WD – indicates there is an issue with one or more assignment; or
- WC – which indicates you have applied for Special Consideration due to illness or misadventure and the course results have not been finalised.

In either event it would be your responsibility to contact the Course Convener as soon as practicable but no later than five (5) days after release of the course result. If you don't contact the convener on time, you may be required to re-submit an assignment or re-sit the final exam and may result in you failing the course. You would also have a NC (course not completed) mark on your transcript and would need to re-enroll in the course.

Studying a course in the School of Minerals and Energy Resources Engineering at UNSW

Report writing guide

The School has a Report Writing Guide (RWG) available. A copy of this is available on the course Moodle site.

Computing Resources and Internet Access Requirements

UNSW Minerals and Energy Resources Engineering provides blended learning using the on-line Moodle LMS (Learning Management System). Also see - Transitioning to Online Learning: www.covid19studyonline.unsw.edu.au

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
- Petroleum Engineering Students: TETB LG34 & LG 35

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:

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.