

Identification	Subject	PETE 551 Design and development of oil and gas fields 8 ECTS	
	Department	Petroleum Engineering	
	Program	Undergraduate	
	Term	Spring, 2023	
	Instructor	Grigorii Penkov	
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	Classroom/hours	TBC	
	Office hours	Monday 10:00-17:00	
Prerequisites	Consent of instructor		
Language	English		
Compulsory/Elective	Required		
Required textbooks and course materials	<p>1. <i>Reservoir engineering: Heriot-Watt University, Department of Petroleum Engineering, Edinburgh, UK 2004, 814 p.</i></p> <p>2. <i>Alvarado, Vladimir, and Eduardo Manrique. Enhanced oil recovery: field planning and development strategies. Gulf Professional Publishing, 2010.</i></p> <p>3. <i>Ma, Y. Zee, and Stephen Holditch. Unconventional oil and gas resources handbook: Evaluation and development. Gulf professional publishing, 2015.</i></p> <p>4. <i>Devold, Havard. Oil and gas production handbook: an introduction to oil and gas production. Lulu. com, 2013.</i></p> <p>5. <i>Laik, Sukumar. Offshore petroleum drilling and production. CRC Press, 2018.</i></p>		
Course outline	The course aims to provide students with an in-depth understanding of the principles, methodologies, and best practices involved in the design and development of oil and gas fields. Through a combination of theoretical learning, case studies, and practical exercises, students will gain the necessary knowledge and skills to plan, execute, and manage field development projects effectively.		
Course objectives	<p>The purpose of teaching disciplines is to acquire knowledge in the field of oil and gas field development as the basis for studying the oil and gas business.</p> <p>The main task of studying the disciplines is representatives of student ideas about the basics of the development of onshore/offshore oil and gas fields and development of unconventional oil and gas resources</p>		
Learning outcomes	<ul style="list-style-type: none"> • To cover drilling materials from previous semester • Basics of development of onshore/offshore oil and gas fields; • Basics of development of unconventional oil and gas resources • Basics of upstream/midstream/downstream process • Basics of enhanced oil recovery 		
Teaching methods	Lecture		X
	Group discussion		X
	Experiential exercise		X
	Case analysis		X
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		30
	Class Participation		5
	Assignment and quizzes	Week 7,15	10
	Project	1st week of May 2024	15
	Final Exam		40
	Total		100

<p>Policy</p>	<ul style="list-style-type: none"> • A midterm exam is an exam given near the middle of an academic grading term or near the middle of any given quarter or semester. The purpose of the examination is that students have a better idea of whether they're advancing well in the course. • The student receives 5 bonus points at the end of the semester if they attend all classes and follow all course policies and procedures. • Assessment of the participant's activity in lectures, practical classes, and in the learning process in general. • A quiz is a quick assessment of student knowledge to test a students' level of comprehension briefly regarding course material, providing teachers with insights into student progress and any existing knowledge gaps. • A project is a collaborative activity of students relating to scientific research. The reasons for including projects in the subject course is to show prospective students and research activity on the subject. • A final examination is an examination administered at the end of an academic term, with a set of questions or exercises evaluating the skill or knowledge of students given to students at the end of a course of study. <ul style="list-style-type: none"> ▪ Class assignments Class assignments will be provided during class. The contents will be based on the calculation of formation properties etc. ▪ Project Research skills and the techniques learnt during class assignments and practical exercises will be the tools to complete the projects. ▪ Quizzes Quizzes will cover the materials studied in previous classes. There will be 2 quizzes during the semester. ▪ Preparation for class The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. ▪ Withdrawal (pass/fail) A student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. ▪ Cheating/plagiarism Cheating or other plagiarism during the Quizzes, Mid-term, and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations. After identification of cheating or plagiarism, any chance will not be given for correction and rewriting of the report. ▪ Professional behavior guidelines The students shall behave in a way to creates favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. ▪ Ethics Students must not be late to class. All mobile phones must be turned off and put away during the class. ▪ Expected behavior Includes attending all class activities; meeting deadlines; observing common courtesies to fellow students, teachers, and staff; being honest; making a diligent effort to learn; and does not engage in any disruptive irresponsible manner. Legitimate collaboration is encouraged but academic collusion or dishonesty will not be tolerated. ▪ Illness Students with an illness may miss a quiz or presentation. This might be because the
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		student needs to go to the hospital, recover at home, or attend regular medical appointments. In this case, the student must inform the instructor in advance about the illness and must present a document from their doctor. After considering the situation, the instructor may set a new date for the quiz or project presentation. Only one opportunity will be given to the student. The students who do not inform the instructor in advance will not be given a chance to retake the quiz or give a presentation.	
Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments
1	Week 1	Cover petroleum engineering design from previous semester	Book 1 Chapters 2-10
2	Week 2	Reserve estimating	Book 1 Chapter 1
3	Week 3	Upstream process	Book 4 Chapter 2
4	Week 4	Midstream process	Book 4 Chapters 2,4
5	Week 5	Downstream process	Book 4 Chapters 2,4
6	Week 6	NOVRUZ HOLIDAY	
7	Week 7	Enhanced oil recovery	Book 2 Chapters 1-8
8	Week 8	Secondary and tertiary recovery methods	Lectures notes
9	Week 9	Mid-Term Exam	
10	Week 10	Unconventional oil and gas resources	Book 3 Chapter 1
11	Week 11	Exploration of unconventional oil and gas resources	Book 3 Chapters 1-8
12	Week 12	Production of unconventional oil and gas resources	Book 3 Chapters 1-8
13	Week 13	Offshore oil and gas industry	Book 5 Chapter 1
14	Week 14	Offshore drilling and production platforms/units	Book 5 Chapters 2-6
15	Week 15	Offshore Pipeline	Book 5 Chapter 8
16	Week 16	Overall revision and preparation for exam	
	TBA	Final Exam	

This syllabus is a guide for the course and any modifications to it will be announced in advance.