

Course Description Form

1. Course Name: Well logging	
Fundamentals of Well logging palpation and petrophysical characterization of formations, study, and experience of ARGI, borehole diameter probe, borehole diameter probe, self-potentiometric probe, caliber probe, electrical resistivity probes, gamma ray interactions, neutron logging, and porosity.	
2. Course Code:	
3. Semester / Year: Year	
First and Second Semester / Year 2024	
4. Description Preparation Date:	
14/ 03/ 2024	
5. Available Attendance Forms:	
My presence only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours per year. 2 hours per week / 4 units per year	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant. Teacher. Ali Kareem Jahid Abdulhassan Alawadi Email: alikaar.geo@sci.utq.edu.iq	
8. Course Objectives	
● -By studying the Earth's interior by studying variation in physical properties between layers of ● - Rock material objectives such as differences between the strengths and intensities of magnetic properties, electrical resistivity, thermal conductivity, gravity, and other geophysical properties. ● - Probe knowledge, porosity and permeability, drilling mud, Archie equation, borehole diameter probe Basic details of borehole material self-potentiometric probe	● - Electrical resistance logging, GR probe, neutron log, and density logs ● - Identify areas that contain oil and water ● - Calculate the volume of shale rocks in an oil reservoir ● - Studying the depths of formations more accurately than borehole data ● - Comparing rock cuttings with probe data to determine the oil and water content of a formation
9. Teaching and Learning Strategies	
Strategy	1- Collaborative concept mapping learning strategy. 2- Brainstorming teaching strategy. 3- Notebooking strategy

	4- Application Strategy for Mathematical Problems 5- Data collection, processing and interpretation of results				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2the	1-The student	What are sensors,	1- Explain the	Weekly, monthly, daily, and written exams and the end of the first-semester exam.
2	2the	recognizes the	The purpose of	theoretical	
3	2the	methods of oil	using sensors,	material through	
4	2the	exploration	Applications,	lectures and the	
5	2the	2- Knowing the	Porosity and	use of video and	
6	2the	types of	permeability, Wat	visual simulation	
7	2the	exploratory wells	saturation and	to understand	
8	2the	and their	resistivity, Drilling	evolution.	
9	2the	importance	mud, Well	2- Making	
10	2the	3- Determine the	contamination,	quarterly report	
11	2the	physical properti	Wellbore	for each student	
12	2the	of oil formations	environment,	and discussing	
13	2the	4-Method of	First exam	them to increase	
14	2the	measuring the	Borehole	research and	
15	2the	caliber probe and	contamination an	scientific	
Holiday	2the	identifying the	resistivity profiles	knowledge.	
16	2the	contaminated an	Arrighi equation,	3- Scientific and	
17	2the	uncontaminated	Borehole diamete	applied travels t	
18	2the	area	probe, Calculation	develop student	
19	2the	5- Recognize the	of borehole	thinking	
20	2the	automatic voltage	diameter and	4- Practic	
21	2the	sensor	drilling mud,	application a	
22	2the	6- Interpreting	Self-voltage probe	mathematical	
23	2the	resistivity probe	Calculation of	issues on pap	
24	2the	data and knowing	formation water	and using mode	
25	2the	the oil and water	resistivity,	programs f	
26	2the	content	Second exam	processing a	
27	2the	7- Measuring the		interpretation	
28	2the	shale volume rati	Electrostatic		
29	2the	in oil formations	Resistivity Probes		
30	2the	through the gamr	Active Electrostat		
		ray probe	Current		
		8- Determine the	Concentration, Tr		
		total and seconda	Depth of		
		porosity of the	Exploration,		
			Induction Probes,		

		formation using t density probe 9- Knowing the permeability property of each formation through the neutron probe 10- Interpreting the results of petroleum sensor and making simulations of formations to draw a map of subsurface petroleum formations 8- Recognize drilling problems and ways to address them	GR Probe, Gamma Ray Interactions, NGT Elements, Neutron Log, first exam Density Probes, Porosity Determination, Density Formation Measurement, Photoelectric Influence Measurement, LD Parameters, Porosity Logs, Use of CNT, Interpretation Borehole Data, Simulations of Subsurface Formation for Borehole Data Second exam		second-semester exam.
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11. Course Evaluation

The distribution is as follows: 50 marks for monthly and daily exams and reports for the theoretical side of the first semester. 50 marks for monthly and daily exams and reports for the theoretical side of the second semester. 100 marks for final exams

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Oil Well Palpation for Geology (Fadel Numas Al-Saadoun and Ali Jawad A 1988).
Main references (sources)	Subsurface Geology in map (LeRoy L) (1998) Subsurface Geology in map (Daniel and Richard) Subsurface Geology in map (Johu D)
Recommended books and references (scientific journals, reports...)	Subsurface Geology in map (Noran j), Subsurface Geology in map (LeRoy L), Subsurface Geology in map (Johu D) (2002),

	● Subsurface Geology in map (Daniel and Richard)
Electronic References, Websites	https://books.google.iq/books?id=6HZLBAAQBAJ&source=gbs_book_other_versions https://www.researchgate.net/profile/Ali-Jaheed/research.net