Course Description Form

1. Course Name: Geophysics

2. Course Code: PE301

3. Semester / Year: Semester (1) 2024-2025

4. Description Preparation Date:24/12/2024

5. Available Attendance Forms: Attendance

6. Number of Credit Hours (Total) / Number of Units (Total)30hrs

7. Course administrator's name (mention all, if more than one name)

Name: Dr.murtadha Doghaim Abdullah
Email: murtadha.abdullah@alayen.edu.iq

8. Course Objectives

Course Objectives • Provides basic introductory definitions and concepts of various geophysical methods such as magnetic, gravity, seismic and electrical methods.

• Upon completion of the study period for this subject, the student will have the ability to know concepts and applications of geophysical methods in exploring oil reservoirs, know the type hydrocarbons present in those reservoirs and identify the geological structures that make up th reservoirs.

9. Teaching and Learning Strategies

Strategy	
	Teaching and learning strategies in geophysics aim to promote a deep understanding of geophysical concepts and their applications in practical life. Some effective strategies can be identified as follows: 1. Project-Based Learning: Through which geophysical concepts are applied to solve real-world problems, such as studying the impact of seismic activity or geophysical surveys at a specific site. This type of learning helps students link theory to practice. 2. Interactive learning and group discussions: Periodic discussion and review sessions of geophysical concepts can

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	be organized, which enhances students' ability to think critically and interact with peers. 3. Use of simulation and graphical visualization techniques: Graphical simulations and three-dimensional visualizations of geophysical data such as seismic velocity measurements at oil field sites or electrical resistivity measurements provide an opportunity for students to understand the behavior of the Earth in a visual and interactive way. 4. Continuous assessment and feedback: Students are encouraged to regularly evaluate their performance through short tests, class discussions, and projects, which enables them to learn from their mistakes and improve their skills. 5. Self-paced and interactive learning: Encourage students to use electronic resources such as educational videos, research articles, and open resources to deepen their knowledge of geophysical concepts and broaden their horizons. These strategies enhance the learning experience in geophysics, and help students acquire the skills necessary for geophysical analysis and its application in real-world work situations.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
			• Oil exploration methods • Physical properties of the earth • Physics basics (wavelength, frequency) Elastic waves (S, P, Surface waves)		

			• Gravity methods basics • Magnetic methods basics • Electrical methods • Applications of electrical methods • Reflection methods • Applications of reflection methods • Midterm exam • Refraction methods • Applications of refraction methods • Types of seismic wave sources		

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc
Daily exams 10
Presentation 5
Class activities and daily preparation 5
Intermediate exam 20
Final exam 60

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbook: Aminzadeh, F., & Dasgupta, S. N. (2013)
Main references (sources)	

	Geophysics for petroleum engineers. Newness مبادئ الطرق الجيوفيزيائية في الاستكشافات الجيولوجية ا د مهنا متعب احمد.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	