

## Course Description Form

<b>1. Course Name:</b>					
Seismic Exploration					
<b>2. Course Code:</b>					
GS 3409					
<b>3. Semester / Year:</b>					
Second/Fourth					
<b>4. Description Preparation Date:</b>					
2024					
<b>5. Available Attendance Forms:</b>					
Attendance					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
60 hours (3.5 units)					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Prof. Dr. Emad Abdulrahman Mohammad Salih Email: emadsalah@uoanbar.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>•Familiarize the student with the principles of exploration seismology</li> <li>•Informing students on how to acquire refractive and reflective seismic data</li> <li>•Enabling students to understand ways to process reflective seismic data</li> <li>•The student acquires knowledge of the methods and methods of interpre seismic data</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the discussions, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering types of simple experiments involving some sampling activities that are interesting to the students.</p>				
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>

1	2	Student Briefing on the Basics of Seismic Survey	Essentials of seismic survey	Lecture	Quick Test
2	4	To inform the student of the laws and principles governing the propagation of the wave and ray as well as acquire knowledge of the processes to which the seismic ray is exposed from refraction, reflection, diffraction and attenuation.	Seismic waves and seismic rays	Lecture Lab	Quick Test Assessment the resolution the laboratory problem
3	4	The student acquires knowledge of the basics of the refraction seismic survey	Refraction seismic survey	Lecture Lab	Oral Questions Assessment the Lab
4	4	The student learns to interpret the refraction seismic data by the thickness or depth of the layers and the velocity of the seismic waves	Interpretation of refraction seismic data	Lecture Lab	Quick Test Assessment the solution the Lab
5	4	The student is aware of the problems facing the refraction survey and how to solve them	Interpretation of real travel time data	Lecture Lab	Quick Test Assessment the solution the Lab

6	4	Student acquires knowledge of the basics of reflection seismic survey	Fundamentals of reflection seismic survey	Lecture Lab	Quick Test Assessment the solution the Lab
7	2				Midterm test 1
8	4	Students learn the concept of seismic data processing and processing steps	Reflection seismic data processing	Lecture Lab	Quick Test Assessment the solution the Lab
9	4	Students learn the concept of seismic velocity analysis and seismic velocity types	Reflection seismic data processing	Lecture Lab	Quick Test Assessment the solution the Lab
10	4	Student acquires knowledge of how to restore seismic signals to their real locations	Reflection seismic data processing: Migration	Lecture Lab	Quick Test Assessment the solution the Lab
11	4	The student acquires knowledge of the basics of interpretation reflection seismic data	Interpretation of reflection seismic data	Lecture Lab	Quick Test Assessment the solution the Lab
12	4	Students learn the tools of structural interpretation of reflection seismic data	Structural interpretation of reflection seismic data	Lecture Lab	Quick Test Assessment the solution the Lab
13	4	The student acquires knowledge of the basics of seismic stratigraphy and the tools of the stratigraphic	Seismic Stratigraphy and Stratigraphic Interpretation of Reflection Seismic Data	Lecture Lab	Quick Test Assessment the solution the Lab

		interpretation.			
14					Midterm test 2
15			Review		
<b>11. Course Evaluation</b>					
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 Monthly exams 22% Laboratory: 18% Pursuit: 40 Final exam: 60% Theoretical: 40% Lab: 20%					
<b>12. Learning and Teaching Resources</b>					
Required textbooks (curricular books, if any)		Hamid N. Al-Sadi (2017) Seismology and Hydrocarbon Exploration. Springer International Publishing Switzerland			
Main references (sources)		Hamid N. Al-Sadi (1980) Seismology and Hydrocarbon Exploration : Technique and Processing. Springer Basel AG			
Recommended books and references (scientific journals, reports...)		Journal of Geophysical research Journal of Seismology Geophysical Journal			
Electronic References, Websites		<a href="https://seg.org">https://seg.org</a> <a href="https://www.ig.utexas.edu">https://www.ig.utexas.edu</a> <a href="https://www.agu.org">https://www.agu.org</a>			