Course Description Form

1. Course Name:
Physics of the Earth
2. Course Code:
GS 3301
3. Semester / Year:
First/Third
4. Description Preparation Date:
2024
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (3.5 units)
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Emad Abdulrahman Mohammad Salih Email: emadsalah@uoanbar.edu.iq

8. Course Objectives	
Course Objectives	**-Familiarizing students with the concept of Earth's physics** **-Student Briefing on Physical Laws Governing Ground Operations** **-Enabling students to understand the applied aspects of geophysics.**

9. Teaching and Learning Strategies	
Strategy	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.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learning the	Introduction to	lecture	Oral test

		concept of Earth's physics	Earth Physics		
2	4	The student acquires knowledge of the structure of Earth interior and the chemical composition of the Earth	The structure Chemical Composition of the Earth Interior	Lecture Lab	Quick Test Assessment the resolution the laboratory problem
3	4	Acquiring knowledge of Earth's gravity	Gravity Field of Earth: Global Gravity, Gravity Potential, Earth Shape, Geode	Lecture Lab	Oral Questions Assessment the Lab
4	4	The student learns the concept of the gravity anomaly and its relationship with height	Earth's gravity field: global gravity anomaly, the relationship between gravity anomaly and topography	Lecture Lab	Quick Test Assessment the solution the Lab
5	4	The student acquires knowledge of the Earth's magnetic field and its sources	Earth's magnetic field: main field, internal field, external field, magnetic induction caused by magnetic bipolar	Lecture Lab	Quick Test Assessment the solution the Lab
6	4	Student learns changes in ground magnetic field and magnetization	Polar wondering and inversion, temporal variation of geomagnetic field	Lecture Lab	Quick Test Assessment the solution the Lab
7	4	The student learns the concept of seismology. Motion Equation	Seismology: historical considerations, introduction, stress and strain, equation of motion, P and S	Lecture Lab	Midterm test 1

			waves		
8	4	Student acquires knowledge of how to monitor earthquakes	Seismology: Seismology Recording, Observational Seismology	Lecture Lab	Quick Test Assessment the solution the Lab
9	4	Student acquires knowledge of how earthquakes occur	Seismology: Earthquake Depth, Earthquake Occurrence, Elastic Rebound Theory, Seismology and Plate Tectonics, Fault Plane Solution, Physical Seismology	Lecture Lab	Quick Test Assessment the solution the Lab
10	4	The student acquires knowledge of the Earth's thermal field. Earth Heat Source	Earth's Thermal Field	Lecture Lab	Quick Test Assessment the solution the Lab
11	4	The student acquires knowledge of the concept of radioactivity. Age Estimation	Earth's radioactive field	Lecture Lab	Quick Test Assessment the solution the Lab
12	4	The student acquires knowledge of plate tectonics concepts	Plate tectonics theory. Driving forces of plates	Lecture Lab	Quick Test Assessment the solution the Lab
13	4	The student acquires knowledge of geodynamic concepts	Geodynamic	Lecture Lab	Quick Test Assessment the solution the Lab
14					Midterm test 2
15			General review		

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
Monthly exams 22%
Laboratory: 18%
Pursuit: 40
Final exam: 60%
Theoretical: 40%
Lab: 20%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Frank Stacy (2008) Physics of the Earth. edition, Cambridge University Press
Main references (sources)	Sahil Alsinawi - Introduction to geophysics -
Recommended books and references (scientific journals, reports…)	Journal of Geophysical research Journal of Seismology Geophysical Journal
Electronic References, Websites	https://seg.org https://www.ig.utexas.edu https://www.agu.org