

Academic Program Description Form



Name of University : University of Wasit
College/Institute : College of Sciences
Science Department : Geology Department
Academic or Professional program Name : Bachelor
Final Certificate Name : Bachelor of Science in Geology
Academic System : Courses
Description preparation Date : 2025/10/1
Form Completion Date : 2025/10/1

Assist.prof.Dr.Ali Jabbar Fraih
Deputy Dean For Scientific
Affairs and Postgraduate studies

Signature

Head of Department Name :
Assist. Prof. Sattar Obaid Maios

Signature

Scientific Associate Name :
Assist Prof. Dr. Ali Jabbar Fraieh

File Checked by

Department of Quality assurance and University Performance

Director of Department : Teacher Assist Dr. Dunya Fadhil Abbas

Signature :
مسؤول شعبة ضمان الجودة والاداء الجامعي

Date : 2025/10/1

Approval of the Dean

Assist Prof
Dr. Fakhri Hassan Hassan

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

Course Description Form

1. Course Name:
General Geology 1
2. Course Code:
3. Semester / Year:
The first – 2025/ 2026
4. Description Preparation Date:
1/10/2025
5. Available Attendance Forms:
Actual Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
(2 Hours Theory) and (2 hours practical)
7. Course administrator's name (mention all, if more than one name)

8. Course Objectives	
Course Objectives	It includes learning about geology in general and its relationship with other sciences. It is used for the purpose of identifying the composition of the Earth's interior, including minerals, rocks, ground and surface water, and the various layers of the Earth. It also studies the lives of living organisms that lived and died millions of years ago and the most important earth movements that build mountains

9. Teaching and Learning Strategies

Strategy	a. Group discussions and assignments b. Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods c. Research projects d. Interdisciplinary discussion circles e. Incorporating teaching methods that utilize educational technology f. Encouraging students for self-directed learning
----------	---

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Introducing geology and its relationship to other sciences	Introducing geology and its relationship to other sciences	Daily preparation and oral exam and Discussion
2	4	=	Theories of the emergence of the solar system and the Earth	Mineral composition	Daily preparation and oral exam and Discussion
3	4	=	Earth spheres	Mineral features	Daily preparation and oral exam and Discussion
4	4	=	Crust of the Earth	Chemical properties of minerals	Daily preparation and oral exam and Discussion
5	4	=	Mantle and core of the Earth	Physical properties of minerals	Daily preparation and oral exam and Discussion
6	4	=	Matter, atoms, chemical bonds, and composition of minerals	Physical properties of minerals that depends on light	Daily preparation and oral exam and Discussion
7	4	=	Chemical properties of minerals	Physical properties of minerals That depends on hardness	Exam.

8	4	=	Exam	Exam	Daily preparation and oral exam and Discussion
9	4	=	Rocks, types of rocks, rock cycle in nature	Hardness Mohs scale	Daily preparation and oral exam and Discussion
10	4	=	Erosion of rocks and soil	Silicates minerals	Daily preparation and oral exam and Discussion
11	4	=	Physical (mechanical) erosion, chemical erosion	Non- Silicates minerals	Daily preparation and oral exam and Discussion
12	4	=	Soil, soil classification	Mineral components of soil types	Daily preparation and oral exam and Discussion
13	4	=	Components of mature soil	Components of mature soil	Daily preparation and oral exam and Discussion
14	4	=	Physical properties of minerals	Physical properties of minerals	Daily preparation and oral exam and Discussion
15	4	=	Review and prepare for the exam	Review and prepare for the exam	Exam.

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	General Geology (University of Baghdad), General Geology (University of Mosul)
Main references (sources)	Physical Geology(S.Zayer and Gollf,2006)
Recommended books and references (scientific journals, reports...)	The Iraqi Geological Journal published by the Iraqi Geologists union
Electronic References, Websites	Publications and reports of the Iraqi Geological Survey

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

وصف المقرر الدراسي

1- اسم المقرر	
اللغة العربية	
2- رمز المقرر	
قسم علوم الأرض / المرحلة الأولى	
3- الفصل / السنة	
الأول / الثانية	
4- تاريخ إعداد هذا الوصف	
2025/9/15	
5- أشكال الحضور المتاحة	
حضور و إلكتروني	
6- عدد الساعات الدراسية (الكلية) / عدد الوحدات (الكلية)	
(2 ساعة نظري) / 2 وحدات	
7- اسم مسؤول المقرر الدراسي	
الاسم: م. ابتسام علي حواس شمخي العويد الايمل: ehawass@uowasit.edu.iq	
8- أهداف المقرر	
أهداف المقرر	تعزيز فهم الطلاب تطوير المهارات اللغوية والمعرفية للطلاب مما يمكنهم من الاداء الأكاديمي والمهني بشكل افضل كتحسين مهارات الكتابة والاملاء وتنمية قدرة على التعبير الابداعي والتواصل بلغة عربية سليمة
9- استراتيجيات التعليم والتعلم	
الاستراتيجية	- تضمن طرائق التدريس الحديثة والاستعانة بتقنيات العرض المتطورة - المناقشات الجماعية وحل الواجبات - خلق اجواء المنافسة بين الطلبة وعلاج الفروقات الفردية باستخدام الوسائل التعليمية المناسبة - تشجيع الطلبة على البحث والتعلم الذاتي من خلال المجاميع البحثية.

10- بنية المقرر					
الأسبوع	عدد الساعات	مخرجات التعلم المطلوبة	اسم الوحدة أو الموضوع		طريقة التقييم
			طريقة التعليم	النظري	
1	2	كما جاء في الفقرة 9	مقدمة	شرح،	اختبارات
2	2		اقسام الكلام	عرض	سريعة،
3	2		الاجطاء اللغوية	،	امتحانات
4	2		الاجطاء الصرفية	تطبيق	دورية،
5	2		الاجطاء الكتابية	عملي،	واجبات
6	2		امتحان شهري أول	طرح	يومية
7	2		العدد	أسئلة،	
8	2		المبتدأ والخبر	مناقشة	
9	2		علامات الفعل الماضي/	، اعداد	
10	2		امتحان يومي	تقارير	
11	2		سيرة الشاعر الجواهري		
12	4		قصيدة للشاعر الجواهري		
13	4		امتحان شهري الثاني		
14	4		علامات الفعل المضارع		
15	4		مناقشة البحوث		
11- طرائق التقييم					
- الاجتبارات اليومية (كوزات) - التقارير - الواجبات العملية - الامتحانات الشهرية - الامتحانات النهائية					
الاجتبارات اليومية (الكوزات)	التقارير	السمنرات	الواجبات	الامتحان المنتصف	الإمتحان النهائي النظري
10	10	10	10	10	50
12- مصادر التعليم والتدريس					
1- الكتب المقررة المطلوبة		ملزمة اللغة العربية المرحلة الاولى			
2- المراجع الرئيسية (المصادر)		د.احمد الهاشمي القواعد الاساسية للغة العربية محمد مهدي الجواهري ديوان الجواهري			

• المجلة كلية التربية للعلوم الانسانية • مجلة واسط للعلوم الانسانية • مجلة كلية التربية الاساسية	أ) الكتب والمراجع التي يوصى بها (المجلات العلمية، التقارير،)
• T.me/L-alnader7مكتبة فهارس وكتب في اللغة العربية	ب) المراجع الالكترونية، مواقع الانترنت،

Mathematics 2 Course Description

1. Course Name	
Mathematics 2	
2. Course Code	
3. Semester / Year	
First Semester (2025-2024)	
4. Description Preparation Date:	
5 / 4 / 2025	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory, 1hours Seminars) / 4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: M.Sc. Ahmed Salam Jabbar Email: ahmed.salam@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Introduction, abbreviations and notations ,Graph and function, Limit and continuity, More about asymptotes ,Sandwich theorem, Continuity, The slope of the curve $y=f(x)$ and the derivative, Transcendental functions ,The logarithmic function, The exponential function, The function ax, The hyperbolic function.
9. Teaching and Learning Strategies	
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Referred to in the previous axis and each according to the content	Introduction	Theoretical	Daily preparation and oral exam and Discussion
2	2	=	Integration	Theoretical	Daily preparation and oral exam and Discussion
3	2	=	Methods of integration	Theoretical	Daily preparation and oral exam and Discussion
4	2	=	Integral formulae (standard forms	Theoretical	Daily preparation and oral exam and Discussion
5	2	=	Method [1] Integration by substitution	Theoretical	Daily preparation and oral exam and Discussion
6	2	=	Method [2] Certain powers of trigonometric and hyperbolic integrals	Theoretical	Daily preparation and oral exam and Discussion
7	2	=	Method [3] Trigonometric substitutions	Theoretical	Exam.
8	2	=	Method [4] Hyperbolic substitutions	Theoretical	Daily preparation and oral exam and Discussion
9	2	=	Method [5] Integrals involving quadratic functions	Theoretical	Daily preparation and oral exam and Discussion

10	2	=	Method [6] Integration by parts	Theoretical	Daily preparation and oral exam and Discussion
11	2	=	Method [7] Integration of rational functions	Theoretical	Daily preparation and oral exam and Discussion
12	2	=	Method [8] Integration of irrational functions	Theoretical	Daily preparation and oral exam and Discussion
13	2	=	Home work	Theoretical	Daily preparation and oral exam and Discussion
14	2	=	Method [9] Integration of rational functions of trigonometries	Theoretical	Daily preparation and oral exam and Discussion
15	2	=	Exam.	Theoretical	Exam.

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

Course	Daily preparation, daily and oral exams	Daily assignments	Seminars	Mid-term Exam	Final -Exam
1nd	5	5	15	25	50

2. Learning and Teaching Resources

Required textbooks (curricular books, if any)	"Calculus, James Stewart
Main references (sources)	Principles of Mathematical Analysis, Walter Rudin
Recommended books and references (scientific journals, reports...)	Annals of Mathematics Acta Mathematica SIAM Journal on Applied Mathematics
Electronic References, Websites	https://www.maths.ox.ac.uk/node/66467?utm

Course Description Form

1. Course Name					
Gneral chemstiry					
2. Course Code					
			StageFirst	Department of Geology /	
3. Semester / Year					
Semester (2023-2024) Frist					
4. Description Preparation Date:					
					4/2022 1/
5. Available Attendance Forms					
Actual Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2 Hours Theory)and (2 hours practical)					
7. Course administrator's name (mention all, if more than one name)					
Balqees Reheem Odafa Name: Asst. .					
@uowasit.edu.iqbodafaEmail:					
8. Course Objectives					
Course Objectives		1- The course aims to consolidate the basic concepts of science chemistry. 2- Identifying the science of chemistry, its importance, branches, applications and its role in development and treatment of environmental pollution, the Chemical reaction of elements in nature that detemine their Chemical and Phsical properties, and methods of experssing the concentrations of solutions, in addition to the comperhensive definition of .atomic structure and its electronic structure and theories			
9. Teaching and Learning Strategies					
Strategy		- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differen using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	/Unit or subject name Theoretical	/Learning method practical	Evaluation method
1	4	Referred to in the previous axis and	Presented chemistry and its relationship to other sciences	An Introduction to analytical chemistry	Daily preparation and oral exam and Discussion

		each according to the content			
2	4	=	Abrief overview of analytical chemistry and its types	Studying the types of volumetric analysis and types of titration	Daily preparation and oral exam and Discussion
3	4	=	Volumetric analysis and its practical calcualions	Prepare a solutions of a solid Chemical	Daily preparation and oral exam and Discussion
4	4	=	Study of the types of .titration	Prepare a solution of a liquid chemical	Daily preparation and oral exam and Discussion
5	4	=	Chemical analysis steps	Prepare astandard solution of soduim Carbonate	Daily preparation and oral exam and Discussion
6	4	=	First Exam.	First Exam.	Daily preparation and oral exam and Discussion
7	4	=	Calculating the equivalent weight	Determine the standard of Hydrochloric acid	Exam.
8	4	=	Solution and thier types	Determine the standard of sodium hydroxide by trituration with standard Hydrochloric acid solution	Daily preparation and oral exam and Discussion
9	4	=	Ways to expereess concentration	Determining the titration of a mixture of sodium carbonate and sodium hydroxide	Daily preparation and oral exam and Discus
10	4	=	Atomic structure	Introduction of gravimetric analysis methods and sediment Characteristics	Daily prepartion and oral exam and Discus
11	4	=	Eletronic structure of the atomic	Departmention of the percentage of water of crystallization in aqueous barium chloride salt	Daily preparation and oral exam and Discussion
12	4	=	Classification of elements and Chemical activity	Determination of lead in the form of lead sulphate	Daily preparation and oral exam and Discussion
13	4	=	Types of bonds in Chemical compounds	Learn about analysis Descriptive	Daily preparation and oral exam and Discussion

14	4	=	Types of Chemical reaction	Determination of positive ions of the first group	Daily preparation and oral exam and Discussion
15	4	=	Second exam.	Second exam.	Exam.

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

Course	THEORETICAL			PRACTICAL			Final -Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	12	12	4	4	4	4	60

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- ,General chemistry (University of Baghdad) 2- General chemistry (University of Basra) 3- Foundations of analytical chemistry, written by ,Dr. Muayyad Qasim and Dr. Thabet saeed 4- Practical analytical chemistry by Dr Nabil Adel and .professer Dr. Sarmad Bahjat
Main references (sources)	1- Basics in General chemistry. A. Dr. Suhair Nazmi Abdel Rahman, Dr. Ahlam Abdel Aziz 2- .Principles of General chemistry, Dr. Mohieddin Al-Bushi, Dr Yasser Houria 3- .Practical analytical chemistry A. Dr. Nabil Abdel Fakhry A .Dr. Sarmad Bahjat Debakran
Recommended books and references (scientific journals, reports...)	1- The .Iraqi National Journal of Chemical sciences 2- .Baghdad Journal of science
Electronic References, Websites	= https://drive.google.com/open?id=Du1ec3ri2mwxc1icw6vok7s6tvohmYwY

Course Description Form

1. Course Name					
General Geology 2					
2. Course Code					
Department of Geology / first Stage					
3. Semester / Year					
Second Semester (2023-2024)					
4. Description Preparation Date:					
1/2/2024					
5. Available Attendance Forms					
Actual Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2 Hours Theory) and (2 hours practical)					
7. Course administrator's name (mention all, if more than one name)					
Name: Lec .Dr. Ruaa Issa Muslim Email: Ralqurashy@uowasit.edu.iq					
8. Course Objectives					
Course Objectives	It includes learning about geology in general and its relationship with other sciences. It is used for the purpose of identifying the composition of the Earth's interior, including minerals, rocks, ground and surface water, and the various layers of the Earth. It also studies the lives of living organisms that lived and died millions of years ago and the most important earth movements that build mountains				
9. Teaching and Learning Strategies					
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.				
10. Course Structure					
Week	Hours	Required Learning Outcomes	/Unit or subject name Theoretical	/Learning method practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Types of rocks, rock cycle in nature	Igneous rocks	Daily preparation and oral exam and Discussion
2	4	=	Igneous rocks, properties of igneous rocks)	Mineralogical composition of igneous rocks	Daily preparation and oral exam and Discussion

3	4	=	The presence of igneous rocks in nature	The presence of igneous rocks in nature	Daily preparation and oral exam and Discussion
4	4	=	Texture of igneous rocks	Texture of igneous rocks	Daily preparation and oral exam and Discussion
5	4	=	Mineralogical composition of igneous rocks and the differential Bowen series	Mineralogical composition of igneous rocks and the differential Bowen series	Daily preparation and oral exam and Discussion
6	4	=	Chemical composition, color, classification of igneous rocks	Chemical composition, color, classification of igneous rocks	Daily preparation and oral exam and Discussion
7	4	=	Exam.	Exam.	Exam.
8	4	=	Sedimentary rocks, sedimentary processes and formation of sedimentary rocks	Clastic sedimentary rocks	Daily preparation and oral exam and Discussion
9	4	=	Properties of sedimentary rocks and classification of sedimentary rocks	Chemical and organic sedimentary rocks	Daily preparation and oral exam and Discussion
10	4	=	Clastic sedimentary rocks and their primary compositions	Metamorphic rocks, metamorphic rock texture	Daily preparation and oral exam and Discussion
11	4	=	Chemical sedimentary rocks, organic sedimentary rocks	Classification of diagenetic rocks	Daily preparation and oral exam and Discussion
12	4	=	Types of rocks, rock cycle in nature	Study samples of the types of metamorphic rocks	Daily preparation and oral exam and Discussion
13	4	=	Igneous rocks, properties of igneous rocks	How to draw a cross section of a river	Daily preparation and oral exam and Discussion
14	4	=	The presence of igneous rocks in nature	Measurement of river water discharge	Daily preparation and oral exam and Discussion
15	4	=	Exam.	Exam.	Exam.
			Mineralogical composition of igneous	Mineralogical composition of igneous rocks	Daily preparation and oral exam and Discussion

			rocks and the differential Bowen series				
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							
Course	THEORETICAL			PRACTICAL			Final -Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	12	12	4	4	4	4	60

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	eneral Geology (University of Baghdad), General Geology (University of Mosul)
Main references (sources)	1- Physical Geology(S.Zayer and Gollf,2006)
Recommended books and references (scientific journals, reports...)	1- The Iraqi Geological Journal published by the Iraqi Geologists union 2- Publications and reports of the Iraqi Geological Survey

1. Course Title	Computer Fundamentals and Office Applications Description P1
2. Course Code	Computer Fundamentals and Office Applications Department of Earth Sciences - First Stage
3. Semester / Year	Second Semester 2023-2024
4. Date Description Prepared:	1/2/2024
5. Available Attendance Forms	In-person
6. Credit Hours (Total) / Units (Total)	(2) Theory hours + 2 Practical hours weekly
7. Course Coordinator Name (if more than one, mention all)	Name: Assistant Lecturer Ali Khairallah Shaneen Email: akherallah@uowasit.edu.iq

8. Course Objectives

Course Objectives:

The course aims to study computer fundamentals as a modern science indispensable in all scientific fields, learn about the historical stages of its inception and development, its internal and external components, the advantages provided by computers in work, and how to utilize computers and their applications in the field of Earth Sciences.

9. Teaching and Learning Strategies

Strategy:

- Group discussions and solving assignments.
- Creating a competitive environment among students and addressing individual differences using appropriate educational aids.
- Interlocking discussion panels.
- Incorporating teaching methods that utilize educational technology.
- Encouraging students toward self-learning.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name / Material	Practical Material	Evaluation Method
1	4	As mentioned in the previous section, each according to content	Introduction to Computer Science	Visual identification of computer components	Daily preparation, daily quizzes, and discussion
2	4		Chapter One: Computer Fundamentals / Computer phases and generations	Group discussion on previously explained computer parts	Daily preparation, daily quizzes, and discussion
3	4		Chapter One: Data and Information / Fields of computer usage	Computer usage for beginners: turning computer on/off / Getting to know Windows system	Daily preparation, daily quizzes, and discussion
4	4		Chapter One: Computer types / Computer classification	Desktop components / Start menu / Control Panel	Daily preparation, daily quizzes, and discussion
5	4		Chapter Two: Computer components / Hardware parts	Computer settings / Basic programs linked to Windows system / Getting to know accessories attached to Windows system (MS-DOS)	Daily preparation, daily quizzes, and discussion

Week	Hours	Required Learning Outcomes	Unit / Topic Name / Material	Practical Material	Evaluation Method
6	4		Chapter Two / Input devices	Learning typing and keyboard usage / Basic computer commands	Daily preparation, daily quizzes, and discussion
7	4		Chapter Two / Output devices / Introduction to computer software	Exam: Mastering keyboard usage	Daily preparation, daily quizzes, and discussion
8	4		Chapter Three: Computer security and software licensing / Ethics of computer use / Computer security	First Monthly Exam	Monthly exam
9	4		Chapter Two / License types / Intellectual property of software	Internet applications and safe usage	Daily preparation, daily quizzes, and discussion
10	4		Chapter Two / Cyber hacking / Types / Sources / Risks	Internet applications and safe computer usage	Daily preparation, daily quizzes, and discussion
11	4		Chapter Three / Viruses / Malware / Virus components / Characteristics / Types / Virus protection	Mastering Windows system usage	Daily preparation, daily quizzes, and discussion
12	4		Chapter Four / Operating systems	Getting to know Microsoft Office applications and their general fields of use	Daily preparation, daily quizzes, and discussion
13	4		Chapter Four / Office Applications	Second Monthly Exam	Monthly exam
14	4		Second Month Exam	Second Month Exam	Exam

11. Course Evaluation

Grading distribution out of 100 according to tasks assigned to the student such as daily preparation, daily/oral/ monthly written quizzes, reports, etc.

Semester				Final Practical Exam	Final Theoretical Exam
First Exam	Activities and Quizzes	First Exam	Activities and Quizzes		
15	5	15	5	20	40

Course Description

1. Course Name:						
Mineralogy						
2. Course Code:						
Geology Department/ 1st Stage						
3. Semester / Year:						
2nd Semester/1st Year						
4. Description Preparation Date:						
1/2/2024						
5. Available Attendance Forms:						
Actual						
6. Number of Credit Hours (Total) / Number of Units (Total)						
(2 hours theoretical + 2 hours practical+ 1 hour seminar weekly) / 5 units						
7. Course administrator's name (mention all, if more than one name)						
Lect. Najah Alwan Owayez				Email: nauaiz@uowasit.edu.iq		
8. Course Objectives:						
The course aims to consolidate the general principles of mineralogy through: • Introduction to mineralogy • Definition of mineral formation environments • Definition of the physical and other properties of minerals • Classification of minerals and identification of mineral groups						
9. Teaching and Learning Strategies:						
• Displaying lectures on screen and delivering lectures orally • Asking questions and holding discussions • Display models and conduct laboratory analyses • How to perform mathematical calculations and prepare reports • Encouraging research and self-learning						
10. Course Structure:						
Week	Hours	Required Learning Outcomes	Subject Name		Learning Method	Evolution Method
			Theoretical	Practical		
1	5	Point 9	Introduction	Introduction	Show and explain the subject, ask questions and discuss,	Quizzes, Exams, Works & Reports
2	5		Real Elements of Crystal	Crystallization Environments		
3	5		Real Elements of Crystal	Real Elements of Crystal		
4	5		Imaginary Elements of Crystal	Imaginary Elements of Crystal		

5	5		Imaginary crystal elements	Symmetry Elements	prepare reports	
6	5		First Monthly Exam			
7	5		Crystallographic Systems	Crystallographic Systems		
8	5		Miller Indices	Miller Indices		
9	5		Miller Indices	Miller Indices		
10	5		Cubic and Quadrilateral Systems	Cubic and Quadrilateral Systems		
11	5		Orthorhombic System	Orthorhombic System		
12	5		Monoclinic and Triclinic Systems	Monoclinic and Triclinic Systems		
13	5		Second Monthly Exam			
14	5		Hexagonal system	Hexagonal system		
15	5		review	review		

11. Course Evolution:

- Quizzes
- Reports
- Seminars
- Practical Duties
- Monthly Examinations
- Final Examinations
- Grade distribution according to the table below:

Quizzes	Reports	Seminar	Daily Works	Mid Exam	Final Exam	
					Theoretical	Practical
15	5	10	10	10	30	20

12. Learning and Teaching Resources

1. Required Textbooks	ابراهيم مضوي بابكر. ٢٠٠٤. علم المعادن، جامعة النيلين، كتاب منشور. ٢٣٢ ص
2. Main References (Resources)	Blackburn, W.H. and Dennen, W.H., 1988, Principles of Mineralogy: Iowa, WCB Publishers . 413 p.
A. Recommended Books and References (Scientific Journals, Reports, ...etc.)	1- The Iraqi Geological Journal published by the Iraqi Geologists Union 2- Publications and reports of the Iraqi Geological Survey
B. Electronic References, Websites	• https://en.wikipedia.org/wiki/Mineralogy • https://microscopic.ro/minerals/silicates/nesosilicates/olivine-thin-section/

Mathematic 1 Course Description

1.Course Name	
Mathematics 1	
2. Course Code	
3. Semester / Year	
First Semester (2026-2025)	
4.Description Preparation Date:	
1 / 10 / 2025	
5.Available Attendance Forms	
Actual Attendance	
6.Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory, 1hours Seminars) / 4 units	
7.Course administrator's name (mention all, if more than one name)	
Name: M.Sc. Ahmed Salam Jabbar Email: ahmed.salam@uowasit.edu.iq	
8.Course Objectives	
Course Objectives	Introduction, abbreviations and notations, Graph and function, Limit and continuity, more about asymptotes, Sandwich theorem, Continuity, The slope of the curve $y=f(x)$ and the derivative, Transcendental functions, The logarithmic function, The exponential function, The function ax , The hyperbolic function.
9.Teaching and Learning Strategies	
Strategy	Group discussions and assignments

	• Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods. • Research projects • Interdisciplinary discussion circles. • Incorporating teaching methods that utilize educational technology • Encouraging students for self-directed learning.
--	---

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Referred to in the previous axis and each according to the content	Introduction, abbreviations and notations	Theoretical	Daily preparation and oral exam and Discussion
2	2	=		Theoretical	Daily preparation and oral exam and Discussion
3	2	=	Graph and function	Theoretical	Daily preparation and oral exam and Discussion
4	2	=	Limit and continuity	Theoretical	Daily preparation and oral exam and Discussion
5	2	=	More about asymptotes	Theoretical	Daily preparation and oral exam and Discussion
6	2	=	Sandwich theorem	Theoretical	Daily preparation and oral exam

					and Discussion
7	2	Exam			
8	2	=	Transcendental functions	Theoretical	Daily preparation and oral exam and Discussion
9	2	=	The logarithmic function	Theoretical	Daily preparation and oral exam and Discussion
10	2	=	The exponential function	Theoretical	Daily preparation and oral exam and Discussion
11	2	=	The function ax	Theoretical	Daily preparation and oral exam and Discussion
12	2	=	Hom work	Theoretical	Daily preparation and oral exam and Discussion
13	2	=	The hyperbolic function	Theoretical	Daily preparation and oral exam and Discussion
14	2	=	Second examination	Theoretical	Daily preparation and oral exam and Discussion
15	2	Exam			

1. 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

Course	Daily preparation, daily and oral exams	Daily assignments	Seminars	Mid-term Exam	Final -Exam
1nd	5	5	15	25	50

2. Learning and Teaching Resources

Required textbooks (curricular books, if any)	"Calculus, James Stewart
Main references (sources)	Principles of Mathematical Analysis, Walter Rudin
Recommended books and references (scientific journals, reports...)	Annals of Mathematics Acta Mathematica SIAM Journal on Applied Mathematics
Electronic References, Websites	https://www.maths.ox.ac.uk/node/66467?utm

General Physics Description Form

1. Course Name	
General physics	
2. Course Code	
3. Semester / Year	
First Semester (2026-2025)	
4. Description Preparation Date:	
5 / 10 / 2025	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory, 2hours practical, 1hours Seminars) / 5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: M.Sc. Ahmed Salam Jabbar Email: ahmed.Salam@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Introducing and teaching the students of the Department of Earth Sciences to the subject of physics and understanding the symbols used in general physics, as well as knowing vectors and dimensions, and introducing the student to the methods and methods of the graphing process and applying important laws. At the end of this course, students should be able to understand the basics of physics, the theory of measurements, and interpretations and applications of types. Various physical theories. Students should also know how to calculate parameters, diagrams, and ways to connect electrical circuits
9. Teaching and Learning Strategies	
Strategy	Group discussions and assignments. Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods. Research projects. Interdisciplinary discussion circles. Incorporating teaching methods that utilize educational

	technology. Encouraging students for self-directed learning.
--	---

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method/ practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Introduction, Measurement	Introduction, graph	Daily preparation and oral exam and Discussion
2	4	=	Motion in one dimension	Ohm law	Daily preparation and oral exam and Discussion
3	4	=	Acceleration. The particles are under constant acceleration	Daily exam	Daily preparation and oral exam and Discussion
4	4	=	Freely falling objects	The simple pendulum	Daily preparation and oral exam and Discussion
5	4	=	Vectors. Vector quantities and scalar quantities	Home work	Daily preparation and oral exam and Discussion
6	4	=	Properties of vectors, components of vectors, and unit vectors	calculating the focal length of convex lens	Daily preparation and oral exam and Discussion
7	4	Exam.			
8	4	=	Motion in two dimensions: position, velocity, and acceleration	Home work	Daily preparation and oral exam and Discussion

9	4	=	Motion in two dimensions with constant acceleration	the spiral spring	Daily preparation and oral exam and Discussion
10	4	=	Projectile movement	Ohms law	Daily preparation and oral exam and Discussion
11	4	=	Force and movement. Laws of motion	calculating internal resistance of the voltmeter	Daily preparation and oral exam and Discussion
12	4	=	Newton's laws of motion	Home work	Daily preparation and oral exam and Discussion
13	4	=	Applications of Newton's laws of motion	Second semester exam	Daily preparation and oral exam and Discussion
14	4	=	Friction force	Review and prepare for the exam	Daily preparation and oral exam and Discussion
15	4	Second examination			

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

Course	THEORETICAL			PRACTICAL			Final - Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	12	12	4	4	4	4	60

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	"Fundamentals of Physics" by Halliday, Resnick, and Walker The Feynman Lectures on Physics
---	---

Main references (sources)	MIT OpenCourseWare (OCW) Schaum's Outline of Physics
Recommended books and references (scientific journals, reports...)	College Physics (OpenStax) University Physics (Young & Freedman)
Electronic References, Websites	https://www.pearson.com/en-us/subject-catalog/p/university-physics/P200000006995/9780135216118

أ- الكتب والمراجع التي يوصي بها (المجلات العلمية، التقارير،)	
ب- المراجع الالكترونية، مواقع الانترنت.....	1- https://www.adelaide.edu.au/englishfor-uni/tenses-in-academic-writing 2- https://elt.oup.com/student/headway/%20beg/test-

The Course Description

1- Educational institution	The University of Wasit
2- Scientific department/type of study	The Department of Geology – 1st Year
3- Name of the course (subject)	English Language
4- Available forms of attendance	Attendance in the halls of Geology Department, College of Science
5- Semester/year	Second Semester/ 2023-2024
6- Number of study hours (total)	(2 Hours Theoretical) Weekly
7- The date this description was prepared	15/01/2024
8- Preparing the lesson	Lect. Dr. Reyadh H. R. r.radhy@uowasit.edu.iq
9- The Course Objectives	
- Learning the English language and its vocabulary, and becoming familiar with geological terminology, which is within the student's specialty.	

10- Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives 1- Identifying the parts of speech in the English language. 2- Giving the student confidence to speak English through short conversations that help him in conducting interviews for foreign companies. 3- Preparation on how to write academic scientific research.
B- The skills objectives of the course 1- Communication skill. 2- Writing skill. 3- Scientific reports related to geology.
C- Emotional and value goals 1- Accuracy in analysis and decision making 2- Credibility and transparency in scientific research. 3- Developing the student's ability to dialogue and discuss.
D- Through the processes of criticism, issuing opinions, rulings, and renewal. And also through teamwork and problem solving. 1- Developing communication skills 2- Developing analytical and research skills 3- Desire to learn 4- Having creative skills and the ability to solve problems

Teaching and learning methods

- 1- Using the method of lecture, discussion, and applications through the computer.
- 2- Introducing elective courses to develop higher learning skills, such as critical thinking, creative thinking, systems analysis and design, and philosophy of science, as university requirements, through further description of case studies and applications.
1. Readings, self-learning, discussion panels.
2. Exercises and activities in the classroom.
3. Directing students to some websites to benefit from them.
4. Holding research seminars in which oil reservoirs are explained.
5. Manage the lecture in a way that makes time feel important.
6. Assigning the student to some group activities and duties.
7. Allocate a percentage of the grade to group activities.

Evaluation methods

- Homework related to solving the problem
- 1- Homework related to solving the problem.
 - 2- Participation in the classroom.
 - 3- Providing activities.
 - 4- Semester and final tests and activities.
 - 5- quick quizzes.
 - 6- Setting grades for students' participation during the lecture.
 - 7- Giving grades to homework.
 - 8- Giving grades for students' attendance.
 - 9- Giving grades to students while they use clarification tools during the lecture.

11- The Course Structure

Week	Hours	Required learning outcomes	Name of the unit/topic	Evaluation method
1	2	An introductory lecture on the importance of the English language.	Unit 1 Home and away	Interactive questions during the lecture, quick quizzes, exams, write scientific reports, and attendance.
2	2	The Grammar of English Language	Unit 2 Been there, done that!	
3	2	general-review-sentence-types-and-structure	Unit 4 Tenses	
4	2	Tenses-Present-Simple-vs.-Present-Continuous.	Unit 5 Tenses	
5	2	Tenses-Past-Simple-vs.-Past-Continuous.	Unit 1 Home and away	
6	2	Tenses Present-Perfect-vs.-Past-Perfect.	Unit 6 Tenses	
7	2	Discussion	Repeating to previous topics.	

8	2	First Monthly Exam	
9	2	Futurity	Unit 7 An eye to the future
10	2	Writing types and how to write a formal email	Unit Writing.
11	2	Give a definition of Important geological vocabulary.	Geological terminology
12	2	Discuss geological figures and diagrams.	Geological terminology
13	2	Conduct short dialogues between students to develop speech.	Dialogues
14	2	Repeating of previous topics	Comprehensive review
15	2	Second Exam	

12- Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Quizzes	Daily Works	Reports	Monthly Exam	Final Exam
5	5	5	25	60

13- Education and teaching references

1- Required prescribed books	- New-headway-plus-upper-intermediate-students-book. - New-headway-plus-upper-intermediate-students-workbook
2- Main references (sources)	المحاضرات المؤرشفة من قبل تدريسي الاختصاص لكل مادة.
3- Recommended books and references (scientific journals, reports...)	
4- Electronic references, websites...	1- https://www.adelaide.edu.au/englishfor-uni/tenses-in-academic-writing 2- https://elt.oup.com/student/headway/%20beg/test-

Course Description

1. Course Name:						
Crystallography						
2. Course Code:						
Geology Department/ 1 st Stage						
3. Semester / Year:						
1 st Semester/1 st Year						
4. Description Preparation Date:						
1/10/2023						
5. Available Attendance Forms:						
Actual						
6. Number of Credit Hours (Total) / Number of Units (Total)						
(2 hours theoretical + 2 hours practical weekly) / 3 units						
7. Course administrator's name (mention all, if more than one name)						
Lect. Najah Alwan Owayez				Email: nauaiz@uowasit.edu.iq		
8. Course Objectives:						
The course aims to consolidate the general principles of crystallography through: • Introduction to crystallography • Definition of crystallization environments • Introduction to real and imaginary crystal elements • Introduction to crystallization systems						
9. Teaching and Learning Strategies:						
• Displaying lectures on screen and delivering lectures orally • Asking questions and holding discussions • Display models and conduct laboratory analyses • How to perform mathematical calculations and prepare reports • Encouraging research and self-learning						
10. Course Structure:						
Week	Hours	Required Learning Outcomes	Subject Name		Learning Method	Evolution Method
			Theoretical	Practical		
1	5	Point 9	Introduction	Introduction	Show and explain the subject, ask questions	Quizzes, Exams, Works & Reports
2	5		Real Elements of Crystal	Crystallization Environments		
3	5		Real Elements of Crystal	Real Elements of Crystal		
4	5		Imaginary Elements of	Imaginary Elements of		

			Crystal	Crystal	and discuss, prepare reports	
5	5		Imaginary crystal elements	Symmetry Elements		
6	5		First Monthly Exam			
7	5		Crystallographic Systems	Crystallographic Systems		
8	5		Miller Indices	Miller Indices		
9	5		Miller Indices	Miller Indices		
10	5		Cubic and Quadrilateral Systems	Cubic and Quadrilateral Systems		
11	5		Orthorhombic System	Orthorhombic System		
12	5		Monoclinic and Triclinic Systems	Monoclinic and Triclinic Systems		
13	5		Second Monthly Exam			
14	5		Hexagonal system	Hexagonal system		
15	5		review	review		

11. Course Evolution:

- Quizzes
- Reports
- Seminars
- Practical Duties
- Monthly Examinations
- Final Examinations
- Grade distribution according to the table below:

Quizzes	Reports	Seminar	Daily Works	Mid Exam	Final Exam	
					Theoretical	Practical
15	5	10	10	10	30	20

12. Learning and Teaching Resources

1. Required Textbooks	Hoffmann, F., 2020, "Introduction to Crystallography", Springer, 1 st Ed.
2. Main References (Resources)	
A. Recommended Books and References (Scientific Journals, Reports, ...etc.)	1- The Iraqi Geological Journal published by the Iraqi Geologists Union 2- Publications and reports of the Iraqi Geological Survey
B. Electronic References, Websites	• https://indico.ictp.it/event/a10148/session/22/contribution/16/material/0/0.pdf

Course description of Baath Party crimes

Course name : Baath Party crimes .1					
: Course Code .2					
Semester/ Year : Semester .3					
Date this description was prepared : 2026 .4					
) theoretical(Available forms of attendance : In-person .5					
2 : Number of study hours (total)/number of units (total) .6					
Name of the course administrator (if more than one name is mentioned) .7					
Ibtisam Ali Hawas .Name: M ehawass@uowsit.edu.iq :address email The					
objectives Course .8					
providing the student with general knowledge about the basics of the former regime and all the crimes it committed against the Iraqi people of various components and sects, and establishing a conscious generation that rejects all kinds of injustice, .tyranny, and tyranny, and the extent of its demands for all its rights					ectives of the study subject
Teaching and learning strategies .9					
eoretical lectures and group discussions for the purpose of facilitating the d research, and assigning explanation of the material, in addition to reports : student some activities is evidence of the student's commitment and the ent of his understanding and comprehension of the subject of the Baath .Party's crimes					The strategy
Course structure .10					
Evaluation method	Teaching method	Name of the unit/topic	Required learning outcomes	hours	the week

Daily and monthly exams	Theoretical lecture with discussions	The concept of crimes linguistically and terminologically	Second stage students	1	1
Daily and monthly exams	Theoretical lecture with discussions	Crime departments		1	2
Daily and monthly exams	theoretical	Baath Party crimes according to the Supreme Criminal Court Law		1	3
Daily and monthly exams	theoretical	Identify international crimes		1	4
Daily and monthly exams	theoretical	Learn about the decisions issued by the Supreme Criminal Court		1	5
Daily and monthly exams	theoretical	Identifying psychological crimes and their most prominent effects		1	6
Daily and monthly exams	theoretical	Identify the mechanisms of psychological crimes		1	7
Daily and monthly exams	theoretical	Identify social crimes		1	8
Daily and monthly exams	theoretical	The Baath Party's position on religion		1	9
Daily and monthly exams	theoretical	Militarization of society		1	10
Daily and monthly exams	theoretical	Identify the most prominent human rights violations		1	11
Daily and monthly exams	theoretical	Identify environmental crimes		1	12
Daily and monthly exams	theoretical	Identifying mass graves		1	13
Daily and monthly exams	theoretical	Identifying military pollution		1	14
Daily and monthly exams	theoretical	Dredging orchards			15

Course evaluation .11

The grade is distributed out of 100, divided into two halves: 50 according to the tasks assigned to the student, such as daily and monthly exams and reports, and 50 for the final exam

Learning and teaching resources .12

Baath Party crimes methodology	Required textbooks (methodology, if any)
Archives of the Political Prisoners Foundation	Main references (sources)
	Recommended supporting books

	and references (scientific journals, (....reports
	Electronic references, Internet sites

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	حقوق الانسان والديموقراطية	Module Delivery	
Module Type	Core	☒ Theory ☒ Lecture ☐ Lab ☐ Practical ☐ Seminar	
Module Code	Wuo4		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level			
Administering Department	Human rights and Democracy	College	Science
Module Leader	Ibtisam Ali Hawas	e-mail	ehawass@uowasit.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	Master
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	NONE	Semester	
Co-requisites module	NONE	Semester	

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	يهدف الى اكتساب الطلبة معرفة عامة عن اصول وجذور مفهوم حقوق الانسان وكيفية التعامل مع المشاكل التي تمس حقوق الانسان وحياته الاساسية وخصوصا المشاكل التي تواجه الطلاب التي تتمثل بالعنف الاسري والابتزاز الالكتروني وتعاطي المخدرات ومدى مطالبته بصيانة هذه الحقوق وكيفية الاطلاع على الدستور العراقي لعام 2005 الذي . . تضمن الحقوق والحريات الاساسية
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	تخريج جيل واعى ومثقف وواعي لواجباته تجاه دولته وماله من حقوق مقابل تلك - الواجبات تنمية ثقافة الاحترام المتبادل بين الافراد دون اي تمييز فيما بينهم- تنمية قدرة الطالب على الحوار والمناقشة والمشاركة في تحليل المشاكل الناشئة في- المجتمع زيادة معرفة الطلاب عن طريق تكليفهم بأعداد تقارير خاصة بحقوق الانسان-

Indicative Contents المحتويات الإرشادية	فهم المفاهيم الأساسية التي تتمثل ب مفهوم الحق ومفهوم الانسان والحقوق والحريات الأساسية وغير الأساسية وتحليل الشخصية القانونية ومصادر حقوق الانسان والضمانات الأساسية التي تحافظ على هذه الحقوق من اي انتهاك
--	---

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	ان يميل الطالب الى درس حقوق الانسان ويتعرف على اهمية هذه الحقوق وتأثيرها المباشر على حياة الفرد والمجتمع وإدارة المحاضرة بما يشعر الطالب بأهمية الوقت وتكليف الطالب ببعض الأنشطة والواجبات الجماعية والمشاركة الفعالة في الفصل دليل على التزام الطالب والالتزام بالمواعيد المقررة . لتسليم التقارير المطلوبة وأخيرا " تعكس الاختبارات الفصلية واليومية التحصيل المعرفي لكل طالب

Student Workload (SWL) الحمل الدراسي للطلاب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل			

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	LO #1, 2, and 10, 11
	Assignments	2	10% (10)	2 and 12	LO , 3, 4 and 6 ,7
	Report	1	10% (10)	13	LO #5, 8, and 10
Summative assessment	Midterm Exam	2hr	10%(10)	7	LO # 1-7
	Final Exam	3hr	50%(50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered

Week 1	مفهوم حقوق الانسان
Week 2	خصائص حقوق الانسان
Week 3	انواع حقوق الانسان
Week 4	حقوق الانسان في الاسلام
Week 5	حقوق الانسان في العصور الوسطى
Week 6	حقوق الانسان في العصور الحديثة
Week 7	الحقوق والحريات في الدستور العراقي النافذ لعام 2005
Week 8	مصادر حقوق الانسان
Week 9	المصادر الوطنية لحقوق الانسان
Week 10	المصادر الدولية لحقوق الانسان
Week 11	الديمقراطية
Week 12	اشكال الديمقراطية
Week 13	خصائص الديمقراطية
Week 14	الانتخابات
Week 15	انواع النظم الانتخابية
Week 16	مراجعة والتحضير قبل الامتحان

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?

Required Texts	1. كتاب حقوق الانسان حميد حنون خالد	pdf
Recommended Texts		
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

Course Description Form

1. Course Name:	
Paleontology (Macropalenotology)	
2. Course Code:	
3. Semester / Year:	
The first – 2025/ 2026	
4. Description Preparation Date:	
1/10/2025	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
4 unites / 4 hours in week	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Ruaa Issa Muslim	
Email: Ralqurashy@uowasit.edu.iq	
Ms.c. Basma Saleem Dawood Ms.c. Hani Hussain Shalal Ms.c. Ali abdulhussain Chaloob	
8. Course Objectives	
Course Objectives	· Identify the types of fossils of large invertebrates that can be seen with the naked eye, such as sponges, corals, foraminifera, and all types of molluscs, classify these fossils, study their stratigraphic importance and their applications for studying paleoclimate and the Paleozoic area..... ·
9. Teaching and Learning Strategies	
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning

10. Course Structure

Week	Hours	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	The life during the geological time scale	Placing life events on geological time scale	Daily preparation and oral exam and Discussion
2	4	Introduction to the paleoecology	Make a table about the division of the hard structures of fossils	Daily preparation and oral exam and Discussion
3	4	Methods of preserving fossils	Make a plan for methods of fossil preservation with examples	Daily preparation and oral exam and Discussion
4	4	The importance and uses of fossils	Make and draw a correlation with fossils between two stratigraphic columns	Daily preparation and oral exam and Discussion
5	4	Foraminifera	Samples of Foraminifera	Daily preparation and oral exam and Discussion
6	4	Radiolaria	Samples of Radiolaria)	Daily preparation and oral exam and Discussion
7	4	Classification of Organisms	Classification of Organisms	Exam.
8	4	<i>Sponges</i>)) <i>Phylum Porifera</i>)	<i>Samples of (Sponges) Phylum</i>	Daily preparation and oral exam and Discussion
9	4	Phylum Mollusca	Classification of Phylum Mollusca	Daily preparation and oral exam and Discussion
10	4	Class الرخويات صنف المحاريات Pelecypoda	Samples Class Pelecypoda	Daily preparation and oral exam and Discussion
11	4	Castropoda	Samples Castropoda	Daily preparation and oral exam and Discussion
12	4	Cephaloppda	Samples Cephaloppda)	Daily preparation and oral exam and Discussion
13	4	Brachiopods	Samples of Brachiopods	Daily preparation and oral exam and Discussion
14	4	Trilobite	Samples of Trilobite	Daily preparation and oral exam and Discussion
15	4	Exam	Exam	Exam.

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.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Macdonald, J; Macdonald, M., Rich, P., Rich, L., Rich, T., 1997, Fossil Collector's Guide, Kangaroo press, P.172
Main references (sources)	Al-Omari, Farouk Sanallah and Abbawi, Tariq Saleh, 1982, Paleontology, Press of the Dar Al-Kutub Directorate for Printing and Publishing, University of Mosul, p. 474.
Recommended books and references (scientific journals, reports...)	The Iraqi Geological Journal published by the Iraqi Geologists unio Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	published papers

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

Course Description Form

1. Course Name:	
Paleontology (Micropaleontology)	
2. Course Code:	
3. Semester / Year:	
The second– 2025/ 2026	
4. Description Preparation Date:	
1/10/2025	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory)and (2 hours practical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Assit. Prof. Ruaa Issa Muslim Email: Ralqurashy@uowasit.edu.iq Ms.c. Hani Hussain Shalal Ms.c. Basma Saleem Dawood Ms.c. Ali abdulhussain Chaloob	
8. Course Objectives	
Course Objectives	• Identifying the types of microfossils that can be seen with an electron microscope (steromicroscope), such as Foraminifera., classify these fossils, study their stratigraphic importance and their applications for studying paleoclimate and the Paleozoic area.
9. Teaching and Learning Strategies	
Strategy	- Group discussions and assignments
	- Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods
	- Research projects
	- Interdisciplinary discussion circles
	- Incorporating teaching methods that utilize educational technology
	- Encouraging students for self-directed learning

10. Course Structure				
Week	Hours	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	Introduction to the Micropaleontology	Introduction to the Micropaleontology	Daily preparation and oral exam and Discussion
2	4	Classification of Micropaleontology	Classification of Micropaleontology	Daily preparation and oral exam and Discussion
3	4	Calcareous microfossils	Classification of Microfossils (Working Scheme with Examples)	Daily preparation and oral exam and Discussion
4	4	Foraminifera (Composition and microstructure of the wall)	Collection and preparation of samples	Daily preparation and oral exam and Discussion
5	4	Foraminifera(Shape of test and chambers)	Foraminifera (Shape of test and chambers)	Daily preparation and oral exam and Discussion
6	4	Foraminifera (Arrangement of chambers)	Foraminifera (Arrangement of chambers)	Daily preparation and oral exam and Discussion
7	4	Foraminifera) Apertures)	Foraminifera (Ornamentations)	Exam.
8	4	Foraminifera(Ornamentatios)	Samples of Foraminifera (slides)	Daily preparation and oral exam and Discussion
9	4	Classification of Foraminifera	Study Samples of Foraminifera (slides)	Daily preparation and oral exam and Discussion
10	4	Applied of Foraminifera	Study Samples of Foraminifera (slides)	Daily preparation and oral exam and Discussion
11	4	Morphology Of Ostrácodos((Ornamentation and Hing Line)	Study Samples of Foraminifera (slides)	Daily preparation and oral exam and Discussion
12	4	Principles of Ostracoda Biostratigraphy	Morphology Of Ostrácodos	Daily preparation and oral exam and Discussion
13	4	Ostracoda and petroleum Geology	Morphology Of Ostrácodos	Daily preparation and oral exam and Discussion

14	4	- Phosphatic Microfossils/ Condonts. - Organic - Walled Microfossils Paleopalynology	Ornamentation of Ostrácodos	Daily preparation and oral exam and Discussion
15	4	Exam	Exam	Exam.

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Macdonald, J; Macdonald, M., Rich, P., Rich, L., Rich, T., 1997, Fossil Collector's Guide, Kangaroo press, P.172
Main references (sources)	Al-Omari, Farouk Sanallah and Abbawi, Tariq Saleh, 1982, Paleontology, Press of the Dar Al-Kutub Directorate for Printing and Publishing, University of Mosul, p. 474.
Recommended books and references (scientific journals, reports...)	The Iraqi Geological Journal published by the Iraqi Geologists unio Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	published papers

وصف البرنامج الأكاديمي

قسم علوم الأرض

2025-2026

وصف المقرر الدراسي

1- اسم المقرر	
اللغة العربية	
2- رمز المقرر	
قسم علوم الأرض/ المرحلة الثانية	
3- الفصل / السنة	
الثاني/ الثانية	
4- تاريخ إعداد هذا الوصف	
2025/9/15	
5- أشكال الحضور المتاحة	
حضور و إلكتروني	
6- عدد الساعات الدراسية (الكلية)/عدد الوحدات(الكلية)	
(2 ساعة نظري) / 2 وحدات	
7- اسم مسؤول المقرر الدراسي	
الاسم: م. ابتسام علي حواس شمخي العويد الايمل: ehawass@uowasit.edu.iq	
8- أهداف المقرر	
أهداف المقرر	• تعزيز فهم الطلاب تطوير المهارات اللغوية والمعرفية للطلاب مما يمكنهم الاداء الأكاديمي والمهني بشكل أفضل كتحسين مهارات الكتابة والاملاء وتنمية قدرة على التعبير الابداعي والتواصل بلغة عربية سليمة
9- استراتيجيات التعليم والتعلم	
الاستراتيجية	• تضمين طرائق التدريس الحديثة والاستعانة بتقنيات العرض المتطورة • المناقشات الجماعية وحل الواجبات • خلق اجواء المنافسة بين الطلبة وعلاج الفروقات الفردية باستخدام الوسائل التعليمية المناسبة • تشجيع الطلبة على البحث والتعلم الذاتي من خلال المجاميع البحثية.

بنية المقرر					
10-					
الأسبوع	عدد الساعات	مخرجات التعلم المطلوبة	اسم الوحدة أو الموضوع	طريقة التعليم	طريقة التقييم
			النظري		
1	2	كما جاء في الفقرة 9	مقدمة	شرح، عرض، تطبيق عملي، طرح أسئلة، مناقشة، اعداد تقارير	اختبارات سريعة، امتحانات دورية، واجبات يومية
2	2		الفعل الماضي		
3	2		الفعل المضارع		
4	2		الادب		
5	2		قصيدة الشاعر الجواهري يادجلة الخير		
6	2		امتحان شهري أول		
7	2		الفعل اللازم والفعل المتعدي		
8	2		سيرة حياة ابو القاسم الشابي		
9	2		قصيدة ابو القاسم الشابي ارادة الحياة		
10	2		امتحان يومي		
11	2		سيرة الشاعر معروف عبد الغني الرصافي		
12	4		قصيدة للشاعر معروف عبد الغني الرصافي الارملة المرضعة		
13	4		امتحان شهري الثاني		
14	4		المعرب والمبني		
15	4		مناقشة البحوث		
طرائق التقييم					
11-					
الاختبارات اليومية (كوزات)					
التقارير					
الواجبات العملية					
الامتحانات الشهرية					
الامتحانات النهائية					
الاختبارات اليومية (الكوزات)	التقارير	السمنرات	الواجبات	الامتحان المنتصف	الإمتحان النهائي النظري
10	10	10	10	10	50
مصادر التعليم والتدريس					
12-					

1- الكتب المقررة المطلوبة	ملزمة اللغة العربية المرحلة الاولى
2- المراجع الرئيسية (المصادر)	د.احمد الهاشمي القواعد الاساسية للغة العربية محمد مهدي الجواهري ديوان الجواهري ديوان ابي قاسم الشابي
أ) الكتب والمراجع التي يوصى بها (المجلات العلمية ،التقارير)	• المجلة كلية التربية للعلوم الانسانية • مجلة واسط للعلوم الانسانية • مجلة كلية التربية الاساسية
ب) المراجع الالكترونية ،مواقع الانترنت ،.....	• T.me/L-alnader7 مكتبة فهارس وكتب في اللغة العربية

Course Description Form

1. Course Name					
Geomorphology					
2. Course Code					
Department of Geology / Second Stage					
3. Semester / Year					
First Semester (2023-2024)					
4. Description Preparation Date:					
1/10/2023					
5. Available Attendance Forms					
Actual Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2 Hours Theory) and (2 hours practical)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Sattar Obaid Maiws Al-Mayyahi Email: sobaid@uowasit.edu.iq					
8. Course Objectives					
Course Objectives		Identify geomorphological shapes, the reasons for their formation, and the extent of their impact on changing the features of the Earth's surface			
9. Teaching and Learning Strategies					
Strategy		- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name / Theoretical	Learning method / practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Introduction to geomorphology and its basic concepts	Introduction to contour maps/ Drawing scale	Daily preparation and oral exam and Discussion
2	4	=	Weathering, erosion, transport and deposition	Drawing horizontal contour maps	Daily preparation and oral exam and Discussion
3	4	=	Running surface water	Drawing horizontal contour maps	Daily preparation and oral exam and Discussion
4	4	=	Shapes produced by	Draw cross sections	Daily preparation and oral exam and

			running water		Discussion
5	4	=	Topographic maps	Draw cross sections	Daily preparation and oral exam and Discussion
6	4	=	First monthly exam	First monthly exam	Exam
7	4	=	Deserts and everything related to them	Circularity ratio/ Elongation ratio	Daily preparation and oral exam and Discussion
8	4	=	Seas	Form factor/ Basin relief	Daily preparation and oral exam and Discussion
9	4	=	Glacial	Relief ratio / relative relief	Daily preparation and oral exam and Discussion
10	4	=	Mountains, valleys and plateaus	Ruggedness value/ stream order	Daily preparation and oral exam and Discussion
11	4	=	Contour maps	Bifurcation ratio/ drainage density	Daily preparation and oral exam and Discussion
12	4	=	Lakes and swamps	Sinuosity factor/ derange pattern	Daily preparation and oral exam and Discussion
13	4	=	Volcanoes and related landforms	General exercises	Daily preparation and oral exam and Discussion
14	4	=	Karst	review	Daily preparation and oral exam and Discussion
15	4	=	Second monthly exam	Second monthly exam	Exam.

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

Course	THEORETICAL			PRACTICAL			Final -Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	12	12	4	4	4	4	60

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Geomorphology - Abdul-Ilah Razouki
Main references (sources)	Library locations in some international universities
Recommended books and references (scientific journals, reports...)	- Virtual library - Follow reliable websites
Electronic References, Websites	Follow up on electronic programs and the Internet

Course Description Form

1. Course Name					
Geomorphology					
2. Course Code					
Department of Geology / Second Stage					
3. Semester / Year					
First Semester (2023-2024)					
4. Description Preparation Date:					
1/10/2023					
5. Available Attendance Forms					
Actual Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2 Hours Theory) and (2 hours practical)					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Prof. Sattar Obaid Maiws Al-Mayyahi Email: sobaid@uowasit.edu.iq					
8. Course Objectives					
Course Objectives		Identify geomorphological shapes, the reasons for their formation, and the extent of their impact on changing the features of the Earth's surface			
9. Teaching and Learning Strategies					
Strategy		- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name / Theoretical	Learning method / practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Introduction to geomorphology and its basic concepts	Introduction to contour maps/ Drawing scale	Daily preparation and oral exam and Discussion
2	4	=	Weathering, erosion, transport and deposition	Drawing horizontal contour maps	Daily preparation and oral exam and Discussion
3	4	=	Running surface water	Drawing horizontal contour maps	Daily preparation and oral exam and Discussion
4	4	=	Shapes produced by	Draw cross sections	Daily preparation and oral exam and

			running water		Discussion
5	4	=	Topographic maps	Draw cross sections	Daily preparation and oral exam and Discussion
6	4	=	First monthly exam	First monthly exam	Exam
7	4	=	Deserts and everything related to them	Circularity ratio/ Elongation ratio	Daily preparation and oral exam and Discussion
8	4	=	Seas	Form factor/ Basin relief	Daily preparation and oral exam and Discussion
9	4	=	Glacial	Relief ratio / relative relief	Daily preparation and oral exam and Discussion
10	4	=	Mountains, valleys and plateaus	Ruggedness value/ stream order	Daily preparation and oral exam and Discussion
11	4	=	Contour maps	Bifurcation ratio/ drainage density	Daily preparation and oral exam and Discussion
12	4	=	Lakes and swamps	Sinuosity factor/ derange pattern	Daily preparation and oral exam and Discussion
13	4	=	Volcanoes and related landforms	General exercises	Daily preparation and oral exam and Discussion
14	4	=	Karst	review	Daily preparation and oral exam and Discussion
15	4	=	Second monthly exam	Second monthly exam	Exam.

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

Course	THEORETICAL			PRACTICAL			Final -Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	12	12	4	4	4	4	60

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Geomorphology - Abdul-Ilah Razouki
Main references (sources)	Library locations in some international universities
Recommended books and references (scientific journals, reports...)	- Virtual library - Follow reliable websites
Electronic References, Websites	Follow up on electronic programs and the Internet

Course Description

Optical Mineralogy

1. Course Name:	
Optical Mineralogy	
2. Course Code:	
Second stage	
3. Semester / Year:	
2025-2026	
4. Description Preparation Date:	
2025-1-10	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours theory and 2 hours practical	
7. Course administrator's name (mention all, if more than one name)	
Name: assist. prof. Dr. Zinah Saleem Email: zsaleem@uowasit.edu.iq	
8. Course Objectives	
Cours Objectives	Introducing the students of the Department of Earth Sciences to the concept of mineral optics Introducing and training the student to use a polarizing microscope Teaching optical properties of minerals and mineralogical diagnosis
9. Teaching and Learning Strategies	
Strategy	Group discussions, brainstorming Assigning students to research and prepare reports on the optical properties of minerals Training on the microscope and displaying similar examples of minerals Students competed in groups to present new information, evaluate them

10. Course Structure				
Week	Hours	Subjects / Titels		Evaluation method
1	4	Concept of optical mineralogy and polarizing microscopy	Identify the parts of a microscope	Discussion and asking questions

2	4	optical classification of opaque and transparent minerals	Distinguish minerals by microscope	Discussion and asking questions
3	4	Uniaxial optical minerals	Distinguish minerals by microscope of uniaxial	Discussion and asking questions
4	4	Biaxial optical minerals	Distinguish minerals by microscope of Biaxial	Discussion and asking questions
5	4	concept of engineering form (idicatrix	Centering of mineral grain under micro.	Discussion and asking questions
6	4	concept of engineering form (isotropic idicatrix	=	Discussion and asking questions
7	4	concept of engineering form (uni and bi axial idicatrix	Exam	Discussion and asking questions
8	4	Types of rock samples and methods of preparing glass slides	methods of preparing glass slides	Discussion and asking questions
9	4	optical characteristics using only a polarized light	Form of the minerals under micro	Discussion and asking questions
10	4	Refractive indexes	Refractive indexes	Discussion and asking questions
11	4	Color, cleavage, parting and others of minerals	Color, cleavage, parting and others	Discussion and asking questions
12	4	Relief	Relief	Discussion and asking questions
13	4	Twining and interference figure using a microscope	Twining and interference figure using a microscope	Discussion and asking questions
14	2	Exam	Exam	

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						
Course	Quiz	reports	Oral	Homework	Exam	Final Exam
1	5	5	5	5	20	60
12. learning and Teaching resources						
Require textbooks	Optical mineralogy					
Recommend books						
Electronic references	Minerals data base					

Course Description Form

1. Course Name:			
Statistics			
2. Course Code:			
3. Semester / Year:			
The first – 2025/ 2026			
4. Description Preparation Date:			
1/10/2025			
5. Available Attendance Forms:			
Actual Attendance			
6. Number of Credit Hours (Total) / Number of Units (Total)			
2 unites / 2 hours in week			
7. Course administrator's name (mention all, if more than one name)			
Name: Ms.c. Saja Abdulameer Said			
Email: ssayed@uowasit.edu.iq			
8. Course Objectives			
Course Objectives	The main objective of studying statistics in Earth science is to develop quantitative and analytical thinking in understanding geological phenomena, by applying statistical methods to interpret geological and environmental data, using graphs and software tools for effective analysis and presentation, evaluating relationships between geological variables and testing their significance, and supporting geological modeling, exploration, and hazard assessment through accurate statistical analysis.		
9. Teaching and Learning Strategies			
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning		

10. Course Structure			
Week	Hours	Unit or subject name/ Theoretical	Evaluation method

1	2	Introduction to statistics and its importance in geology and earth sciences	Daily preparation and oral exam and Discussion
2	2	Measures of central tendency	Daily preparation and oral exam and Discussion
3	2	Dispersion measures.	Daily preparation and oral exam and Discussion
4	2	-	Daily exam and Discussion
5	2	Frequency distributions and tables.	Daily preparation and oral exam and Discussion
6	2	Probabilities: Concept and Basic Rules.	Daily preparation and oral exam and Discussion
7	2	-	Exam.
8	2	<i>Normal distribution and its importance in natural phenomena.)</i>	Daily preparation and oral exam and Discussion
9	2	Sample distribution and parameter estimation.	Daily preparation and oral exam and Discussion
10	2	.Hypothesis Testing	Daily preparation and oral exam and Discussion
11	2	Chi-square test.	Daily preparation and oral exam and Discussion
12	2	Correlation	Daily preparation and oral exam and Discussion
13	2	Linear Regression	Daily preparation and oral exam and Discussion
14	2	ANOVA	Daily preparation and oral exam and Discussion
15	2	Advanced applications using Excel/SPSS.	Daily preparation and oral exam and Discussion
16	2	Case studies review.	Daily preparation and oral exam and Discussion

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.
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description

1. Course Name:						
Sedimentology						
2. Course Code:						
Geology Department/ 2 nd Stage						
3. Semester / Year:						
3 th Semester/ 2 nd Year						
4. Description Preparation Date:						
1/10/2023						
5. Available Attendance Forms:						
Actual						
6. Number of Credit Hours (Total) / Number of Units (Total)						
(2 hours theoretical + 2 hours practical weekly) / 3 units						
7. Course administrator's name (mention all, if more than one name)						
Lect. Najah Alwan Owayez				Email: nauaiz@uowasit.edu.iq		
8. Course Objectives:						
The course aims to consolidate the general principles of sedimentology through: • Introduction to sedimentology and its connection with other sciences • Defining the origin and types of sediments • Defining the processes that lead to sediment accumulation and solidification • How to conduct volumetric analyzes of sediments and apply volumetric parameters						
9. Teaching and Learning Strategies:						
• Displaying lectures on screen and delivering lectures orally • Asking questions and holding discussions • Display models and conduct laboratory analyses • How to perform mathematical calculations and prepare reports • Encouraging research and self-learning						
10. Course Structure:						
Week	Hours	Required Learning Outcomes	Subject Name		Learning Method	Evolution Method
			Theoretical	Practical		
1	4	Point 9	Introduction	Introduction	Show and explain the subject, ask questions and discuss,	Quizzes, Exams, Works & Reports
2	4		Weathering & Erosion	Sample Collection		
3	4		Transport & Deposition	Grain Size Analysis		
4	4		Physical Properties of Gravels	Sphericity & Roundness of Grains		
5	4		Physical Properties of	Sphericity & Roundness of		

			Gravels	Grains	prepare reports	
6	4		First Monthly Exam			
7	4		Physical Properties of Sand	Grain Size Analysis of Sand Using Sieves		
8	4		Physical Properties of Sand	Grain Size Analysis of Sand Using Sieves		
9	4		Grain Size Parameters	Grain Size Parameters-Problems		
10	4		Grain Size Parameters	Grain Size Parameters-Problems		
11	4		Porosity of Sediments	Wet Grain Size Analysis of Sediments		
12	4		Permeability of Sediments	Grain Size Analysis Using Pipe		
13	4		Second Monthly Exam			
14	4		Sedimentary Structures	Presenting of Sedimentary Structures		
15	4		Sedimentary Structures	Presenting of Sedimentary Structures		

11. Course Evolution:

- Quizzes
- Reports
- Practical Duties
- Monthly Examinations
- Final Examinations
- Grade distribution according to the table below:

Quizzes	Daily Works	Reports	Monthly Exam		Final Exam	
			Theoretical	Practical	Theoretical	Practical
4	4	4	20	8	40	20

12. Learning and Teaching Resources

1. Required Textbooks	ا.د. علي جواد علي و ا.د. عدنان سعدالله، ١٩٩٠، "علم الرسوبيات"، كتاب مؤلف، مطبعة جامعة بغداد، كلية العلوم ا.د. سعدي الدهان، ٢٠٢٠، "الصخور الرسوبية"، كتاب مترجم، جامعة الكوفة، كلية العلوم، الطبعة الأولى
2. Main References (Resources)	Selley, R. C., 2000, "Applied Sedimentology", Academic Press, 2nd. Edition, US, pp. 1-290.
A. Recommended Books and References (Scientific Journals, Reports, ...etc.)	1- The Iraqi Geological Journal published by the Iraqi Geologists Union 2- Publications and reports of the Iraqi Geological Survey
B. Electronic References, Websites	• https://www.ga.gov.au/scientific-topics/disciplines/sedimentology • https://en.wikipedia.org/wiki/Sedimentology

Course Description

1. Course Name:						
Sedimentary Rocks						
2. Course Code:						
Geology Department/ 2 nd Stage						
3. Semester / Year:						
4 th Semester/ 2 nd Year						
4. Description Preparation Date:						
1/2/2024						
5. Available Attendance Forms:						
Actual						
6. Number of Credit Hours (Total) / Number of Units (Total)						
(2 hours theoretical + 2 hours practical)/ 3 units						
7. Course administrator's name (mention all, if more than one name)						
Lect. Najah Alwan Owayez				Email: nauaiz@uowasit.edu.iq		
8. Course Objectives:						
- Definition of sedimentary rocks and their types - Definition of depositional environments and sedimentary structures - Identifying the components of mineral rocks and studying them under the microscope						
9. Teaching and Learning Strategies:						
- Displaying lectures on screen and delivering lectures orally - Asking questions and holding discussions - Display models and conduct laboratory analyses - How to perform mathematical calculations and prepare reports - Encouraging research and self-learning						
10. Course Structure:						
Week	Hours	Required Learning Outcomes	Subject Name		Learning Method	Evolution Method
			Theoretical	Practical		
1	4	Point 9	Introduction	Introduction	Show and explain the subject, ask questions and discuss,	Quizzes, Exams, Works & Reports
2	4		Weathering & Erosion	Sample Collection		
3	4		Transport & Deposition	Grain Size Analysis		
4	4		Physical Properties of Gravels	Sphericity & Roundness of Grains		
5	4		Physical Properties of	Sphericity & Roundness		

			Gravels	of Grains	prepare reports	
6	4		First Monthly Exam			
7	4		Physical Properties of Sand	Grain Size Analysis of Sand Using Sieves		
8	4		Physical Properties of Sand	Grain Size Analysis of Sand Using Sieves		
9	4		Grain Size Parameters	Grain Size Parameters-Problems		
10	4		Grain Size Parameters	Grain Size Parameters-Problems		
11	4		Porosity of Sediments	Wet Grain Size Analysis of Sediments		
12	4		Permeability of Sediments	Grain Size Analysis Using Pipe		
13	4		Second Monthly Exam			
14	4		Sedimentary Structures	Presenting of Sedimentary Structures		
15	4		Sedimentary Structures	Presenting of Sedimentary Structures		

11. Course Evolution:

- Quizzes
- Reports
- Practical Duties
- Monthly Examinations
- Final Examinations
- Grade distribution according to the table below:

Quizzes	Daily Works	Reports	Monthly Exam		Final Exam	
			Theoretical	Practical	Theoretical	Practical
4	4	4	20	8	40	20

12. Learning and Teaching Resources

1. Required Textbooks	ا. د. سعدي الدهان، ٢٠٢٠، "الصخور الرسوبية"، كتاب مترجم، جامعة الكوفة، كلية العلوم، الطبعة الأولى
2. Main References (Resources)	A. E. Adams, W.S. Mackenzie and C. Guilford, 1984, "Atlas of Sedimentary Rocks under the Microscope", Longman, England, ELBS Ed.
A. Recommended Books and References (Scientific Journals, Reports, ...etc.)	1- The Iraqi Geological Journal published by the Iraqi Geologists Union 2- Publications and reports of the Iraqi Geological Survey
B. Electronic References, Websites	• https://www.virtualmicroscope.org/sites/default/files/html5Assets/12072/index2.html?specimen=/node/749 • https://microscopic.ro/minerals/silicates/nesosilicate/s/olivine-thin-section/

The Course Description

1- Educational institution	The University of Wasit
2- Scientific department/type of study	The Department of Geology – 2nd Year
3- Name of the course (subject)	Remote Sensing (RS)
4- Available forms of attendance	Attendance in the halls of Geology Department, College of Science
5- Semester/year	Second Semester/ 2023-2024
6- Number of study hours (total)	(2 Hours Theoretical + 2 Hours Practical Units
7- The date this description was prepared	15/1/2024
8- Preparing the lesson	Lect. Dr. Reyadh H. R. r.radhy@uowasit.edu.iq
9- The Course Objectives	
1. Enabling students to learn about the geographic map, its elements, and methods for designing and representing it. 2. Enabling students to learn about taking measurements from maps, representing phenomena, and reading map. 3. Enable students to understand the process of drawing and producing a map. 4. Methods of entering and defining satellite images. 5. Methods of analysing the results and presenting them in the form of reports, maps, or electronic files.	
10- Course outcomes and teaching, learning and evaluation methods	
A- Cognitive objectives. 1- To understand the basic concepts of remote sensing 2- That the student understands how to analyse visuals and how to deal with images. 3- To know satellites and sensors.	
B- Subject-specific skills 1- How to analyse and interpret satellite images. 2- How to monitor the health of vegetation. 3- How to use remote sensing applications. 4- Enabling the student to use ERDAS IMAGINE and ArcMap GIS programs 5- Enabling the student to manage data. 6- Enabling the student to analyse data.	
C- Emotional and value goals: 1- Accuracy in analysis and decision making. 2- Credibility and transparency in scientific research. 3- Developing environmental geology concepts by preserving vegetation and water bodies using satellite i 4- Encouraging students to take notes, which is a skill used to record notes and important information in a and written form.	
D- Through the processes of criticism, issuing opinions, rulings, and renewal. And also through teamwork problem solving. 1- Developing communication skills 2- Developing analytical and research skills 3- Desire to learn 4- Having creative skills and the ability to solve problems	
Teaching and learning methods	

- 1- Using the method of lecture, discussion, and applications through the computer.
- 2- Introducing elective courses to develop higher learning skills, such as critical thinking, creative thinking, systems analysis and design, and philosophy of science, as university requirements, through further description of case studies and applications.

Evaluation methods

Homework related to solving the problem.

- 1- Daily exams.
- 2- Setting grades for students' participation during the lecture.
- 3- Giving grades to homework.
- 4- Giving grades for students' attendance.
- 5- Giving grades to students while they use clarification tools during the lecture.

11- The Course Structure

Week	Hours	Required learning outcomes	Name of the unit/topic	Evaluation method
1	4 (2 Theo. +2 Pr	The history and Origination of Remote Sensing	The Introduction	Interactive questions during lecture, quick quizzes, exams, write scientific reports, and attendance.
2	4	What is remote sensing and what are its components?	Remote sensing concept	
3	4	The electromagnetic spectrum, its properties and its interaction	What is the electromagnetic spectrum?	
4	4	Radiation interaction in the atmosphere	What are the interactions of radiation with the atmosphere?	
5	4	Satellites and sensors	Data collection devices	
6	4	Types of satellites and satellite visualization	Types of remote sensing data	
7	4	Distinguish between Raster and Vector Data	Data Types	
8	4	First Monthly Exam		
9	4	Remote sensing images	Display data	
10	4	Study of climate and environmental changes	Display Data	
11	4	Satellite visual analysis	Data processing	
12	4	Digital processing of satellite images	Maps	
13	4	Remote sensing applications such as geological, agricultural, and desertification monitoring	What are the applications of remote sensing?	
14	4	Review for the second exam	Comprehensive review	
15	4	Second Exam		

12- Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Quizzes	Daily Works	Reports	Monthly Exam		Final Exam	
			Theoretical	Practical	Theoretical	Practical
4	4	4	20	8	40	20

13- Education and teaching references	
1- Required prescribed books	Introductory Digital Image Processing, R. Jensen
2- Main references (sources)	Satellite image processing database management GPS and Query language, A.de
3- Recommended books and references (scientific journals, reports...)	https://www.mdpi.com/journal/remotesens
4- Electronic references, websites...	https://earthexplorer.usgs.gov/ https://www.esri.com/en-us/home

1. Course Name	
Structural Geology1	
2. Course Code	
Department of Geology / Second Stage	
3. Semester / Year	
First Semester (2025-2026)	
4. Description Preparation Date:	
1/9/2025	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory)and (2 hours practical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof.Dr. Sarteel Hamid Enad Al- Shammery Email: sarteel@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	
9. Teaching and Learning Strategies	
Strategy	- 1. Introducing and teaching students of the Department of Earth Sciences the science of structural geology, which is the geological structures resulting from the exposure of rock layers to deformation. - 2. Teaching students the subject of structural geology, its definition, studying fractur faults of all kinds, cracks, and joints.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name/Theoretical	Learning method/practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Structural geology, structural analysis, geotectonics	Geological structures	Daily preparation and oral exam and Discussion
2	4	=	Mechanical foundations, stress, strain, and deformation of rocks	How to measure stress practically	Daily preparation and oral exam and Discussion
3	4	=	Factors affecting the behavior of rocks	The relationship between stress and emotion	Daily preparation and oral exam and Discussion

4	4	=	Layers, slope and strike line	The direction of the layers relative to the north, the strike line, and the angle of inclination of the layers	Daily preparation and oral exam and Discussion
5	4	=	Geometric analysis of folds, definition of the fold, geometric elements of the fold	Drawing the racket lines practically with one appearance point	Daily preparation and oral exam and Discussion
6	4	=	Geometric classification of folds	First exam.	Daily preparation and oral exam and Discussion
7	4	=	Classification of folds based on the shape of the fold in three dimensions. Classification of folds based on the direction of the fold's curvature	Drawing the strike lines practically with two emergence points on the same contour and drawing the boundaries of the layers	Exam.
8	4	=	Classification of folds based on the direction of the fold	Drawing the paddle lines practically with three emergence points at different heights and drawing the boundaries of the layers	Daily preparation and oral exam and Discussion
9	4	=	Classification of folds based on the position of the wings	Drawing layer boundaries and drawing the cross section on the geological map	Daily preparation and oral exam and Discussion
10	4	=	Classification of folds based on the position of the joint line, Classification of folds based on the position	Drawing layer boundaries and drawing the cross section on the geological map	Daily preparation and oral exam and Discussion

			of the axial plane		
11	4	=	Classification of folds based on the shape of the fold in the plane of the profile, joints, cracks and veins, geometric classification of joints, structural classification of joints	Drawing layer boundaries and drawing the cross section on the geological map	Daily preparation and oral exam and Discussion
12	4	=	Cracks, veins, faults, geometric elements of faults	Drawing the boundaries of the layers, drawing the cross-section on the geological map, and determining the angle of inclination and the direction of inclination	Daily preparation and oral exam and Discussion
13	4	=	Engineering classification of faults	Drawing the boundaries of the layers, drawing the cross-section on the geological map, and determining the angle of inclination and the direction of inclination	Daily preparation and oral exam and Discussion
14	4	=	Engineering classification of faults	Drawing the boundaries of the layers, drawing the cross-section on the geological map, and determining the angle	Daily preparation and oral exam and Discussion Discussion

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

Course	THEORETICAL			PRACTICAL			Final - Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	15	15	5	6	6	3	50

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Structural geology and geotectonics (Dr. Wathiq Ghazi), lectures b Prof. Dr. Sarteel Hamid Al-Shammary
Main references (sources)	Structural Geology (Billings) Text Book
Recommended books and references (scientific journals, reports...)	1- The Iraqi Geological Journal published by the Iraqi Geologists union 2- Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	https://ar.unesco.org/themes/water-security/hydrology

1. Course Name					
Structural Geology 2					
2. Course Code					
Department of Geology / Second Stage					
3. Semester / Year					
Second Semester (2025-2026)					
4. Description Preparation Date:					
10/9/2025					
5. Available Attendance Forms					
Actual Attendance					
6. Number of Credit Hours (Total) / Number of Units (Total)					
(2 Hours Theory) and (2 hours practical)					
7. Course administrator's name (mention all, if more than one name)					
Name: Prof.Dr. Sarteel Hamid Enad Al- Shammery					
Email: sarteel@uowasit.edu.iq					
8. Course Objectives					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy		- 1. Introducing and teaching students of the Department of Earth Sciences the science of structural geology, which is the geological structures resulting from the exposure of rock layers to deformation. - 2. Teaching students the subject of structural geology, its definition, studying fractur faults of all kinds, cracks, and joints. Salt structures and igneous structures.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Fissures, veins	Introduction to drawing faults on a geological map	Daily preparation and oral exam and Discussion
2	4	=	Geometric elements of faults	Identifying moving layers due to faults on the geological map	Daily preparation and oral exam and Discussion
3	4	=	Engineering classification of faults	Drawing the type of rocks for moving layers due to faults	Daily preparation and oral exam and Discussion

4	4	=	The faulting process, its types	How to draw paddle lines for layers of a certain thickness	Daily preparation and oral exam and Discussion
5	4	=	Structures accompanying faults	How to draw paddle lines for layers of different thicknesses	Daily preparation and oral exam and Discussion
6	4	=	First exam.	First exam.	Daily preparation and oral exam and Discussion

7	4	=	Salt compositions, components of salt compositions	layers and the angle of inclination of the layers tools using engineering Determine the direction of inclination of the	Exam.
8	4	=	The economic importance of salt structures, salt basins and how they are formed	Calculating the amplitude of layers from the geological map	Daily preparation and oral exam and Discussion
9	4	=	Classification of salt structures, structural classification	Calculating the thickness of layers from the geological map	Daily preparation and oral exam and Discussion
10	4	=	Igneous structures, the importance of studying igneous structures in structural geology, how igneous structures are formed	Drawing a cross-section on a geological structural map	Daily preparation and oral exam and Discussion
11	4	=	Classification of pyrotechnic compositions, primary and secondary penetrating compositions	Drawing inclined layers in cross section	Daily preparation and oral exam and Discussion

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Structural geology and geotectonics (Dr. Wathiq Ghazi), lectures b Prof. Dr. Sarteel Hamid Al-Shammary
Main references (sources)	Structural Geology (Billings) Text Book
Recommended books and references (scientific journals, reports...)	1- The Iraqi Geological Journal published by the Iraqi Geologists union 2- Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	https://ar.unesco.org/themes/water-security/hydrology

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

Field Geology Course Description

1. Course Name:	
Field Geology	
2. Course Code:	
3. Semester / Year:	
First Semester 3 rd Stage/ 2025–2026	
4. Description Preparation Date:	
2025/10/1	
5. Available Attendance Forms:	
Attending	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 Hours for Theoretical part & 2 Hours for Experimental part per week	
7. Course administrator's name (mention all, if more than one name)	
Name: Head of Geological in wasit Government : Dia'a Kherbat Shather Email:	
8. Course Objectives	
Course Objectives	To prepare the student to: – Use a geological compass and determine dip and stratigraphic orientations. – Describe rock units and identify stratigraphic relationships. – Conduct and scientifically document detailed field observations. – Prepare preliminary geological maps and explanatory sections. – Analyze geological structures and relate them to the history of the area.
9. Teaching and Learning Strategies	
Strategy	Knowledge and Understanding: – Understanding the geological behavior of rocks in the field, and knowing how to measure structural elements. – Distinguishing between rock types and tectonic and stratigraphic relationships.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	student learns about the evolution of the structural movements that shaped the Earth's crust in Iraq over geological time.	Tectonic History of Iraq	Theoretical & Field	Discussion and asking questions
2	4	student learns to divide the structural movements that shaped the Earth's crust in Iraq over geological time.	Tectonic Division of Iraq	Theoretical & Field	Discussion and asking questions
3	4	The profile and tectonic structure of Iraq and the characteristics, faults and practical options of the Earth's crust.	Structural geology of Iraq	Theoretical & Field	Discussion and asking questions
4	4	It refers to the depression that began to take shape deep in front of the Zagros Mountains as a result of tectonic	Mesopotamia foredeep	Theoretical & Field	Discussion and asking questions

		loading and bovine loading.			
5	4	It deals with the sequence of rock layers of Iraq during the Paleozoic era, including depositional environments and their evolution through the early periods of the region's history.	The Stratigraphy of Iraq – Paleozoic Formations	Theoretical & Field	Discussion and asking questions
6	4	The history of the sedimentary civilization in Iraq is reviewed through the Triassic, Early Jurassic, etc., with respect for the changing environments of the pastoralists in that era.	The Stratigraphy of Iraq – Mesozoic, Triassic, L.Jurassic Formation	Theoretical & Field	Discussion and asking questions
7	4	First Exam			
8	4	The history of the sedimentary civilization in Iraq is reviewed through the Triassic, Early Jurassic, etc.,	The Stratigraphy of Iraq – Mesozoic, , M.L.Jurassic Formation	Theoretical & Field	Discussion and asking questions

		with respect for the changing environments of the pastoralists in that era.			
9	4	The history of the sedimentary civilization in Iraq is reviewed through the Triassic, Early Jurassic, etc., with respect for the changing environments of the pastoralists in that era.	The Stratigraphy of Iraq – Mesozoic, , M.L.Jurassic Formation	Theoretical & Field	Discussion and asking questions
10	4	It examines the sedimentary succession during the Tethonian-Aptian in Iraq and the evidence it provides for the transition between marine and shallow environments.	The Stratigraphy of Iraq – Mesozoic, L.Tithonian Aptian Formation	Theoretical & Field	Discussion and asking questions
11	4	It focuses on the sedimentary sequence from the Albanian	The Stratigraphy of Iraq – Mesozoic, Albanian, Early	Theoretical & Field	Discussion and asking questions

		to the early Turonian in Iraq and what it reveals about the evolution of marine environments during that period.	Turonian Formation		
12	4	The specific sequence portion of the Late Turonian to Danian evolution.	The Stratigraphy of Iraq – Late Turonian Danian Formation	Theoretical & Field	Discussion and asking questions
13	4	The specific sequence portion of the Late Turonian to Danian evolution.	The Stratigraphy of Iraq – Danian, Eocene Formation	Theoretical & Field	Discussion and asking questions
14	4	The specific sequence portion of the Late Eocene to -9Quternary evolution.	The Stratigraphy of Iraq –Late Eocene Quternary Formations	Theoretical & Field	Discussion and asking questions
15	4	Second Exam			
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.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)			Iraqi Geological Structure		
Electronic References, Websites			Middle East Geological Form Website		

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

Course Description Form

1. Course Name:	
Environmental Geology	
2. Course Code:	
3. Semester / Year:	
The first – 2025/ 2026	
4. Description Preparation Date:	
1/10/2025	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory)and (2 hours practical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Assit. Prof. Ruaa Issa Muslim Email: Ralqurashy@uowasit.edu.iq Ms.c Mostafa Rafid	
8. Course Objectives	
Course Objectives	· The course aims to consolidate the basic concepts of environmental geology. · Identifying the most important environmental hazard , such as earthquakes, volcanoes, their harmful effects, mass wasting, desertification, and drought, and controlling and predicting them before they occur. Also identifying the most important sources of pollution, such as air, soil, surface and groundwater pollution.
9. Teaching and Learning Strategies	
Strategy	Group discussions and assignments Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods Research projects Interdisciplinary discussion circles Incorporating teaching methods that utilize educational technology Encouraging students for self-directed learning

10. Course Structure

Week	Hours	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	Introduction, Environmental Geology	Increased salinity of the Euphrates River water	Interpreting previous studies and drawing a graph showing the increase in river salinity
2	4	Minerals and rocks and their relationship to environmental geology	How to find the most important pollutants with toxic heavy metals in the sediments of the Euphrates River	Interpretation of previous studies, drawing a diagram showing pollution by toxic heavy metals in the river, and discussion
3	4	Earth's structure and plate tectonics	Environmental geology of Sawa Lake	Daily preparation and oral exam and Discussion
4	4	Earthquakes and related environmental risks	Landslides at the Qattara Maaam of Imam Ali in northwest Karbala	Daily preparation and oral exam and Discussion
5	4	Volcanoes and related environmental risks	Sources of air pollution	Daily preparation and oral exam and Discussion
6	4	First Exam.	First Exam.	Daily preparation and oral exam and Discussion
7	4	Mass Wasting	Clay minerals	Exam.
8	4	Soil Pollution	Non -Clay minerals	Daily preparation and oral exam and Discussion
9	4	Surface Water Pollution	Sources of soil pollution in the capital, Baghdad	Daily preparation and oral exam and Discussion
10	4	Ground Water Pollution	Sources of water pollution of the Tigris River, Baghdad	Daily preparation and oral exam and Discussion
11	4	Desertification and drought	Environmental geology of Wasit Governorate	Daily preparation and oral exam and Discussion
12	4	Desertification and drought	Environmental geology of Wasit Governorate	Daily preparation and oral exam and Discussion
13	4	Global Warming	Study of desertification and drought samples from Iraq	Daily preparation and oral exam and Discussion

14	4	Global Warming	Study of desertification and drought samples from Iraq	Daily preparation and oral exam and Discussion
15	4	Second exam.	Second exam.	Exam.

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Unpublished Phd and MSC theses
Main references (sources)	Environmental Geology Book 2017. Gh Attia Zarak, Lafta Salman Kazem, Mahmood Fadel Abd. Ministry of Higher Education and Scientific Research, Tikrit University
Recommended books and references (scientific journals, reports...)	The Iraqi Geological Journal published by the Iraqi Geologists union Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	published papers

وصف البرنامج الأكاديمي

قسم علوم الأرض
2025-2026

Course Description Form

1. Course Name:	
Stratigraphy	
2. Course Code:	
Department of Geology / Third Stage	
3. Semester / Year:	
The second – 2025/ 2026	
4. Description Preparation Date:	
1/10/2025	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 Hours Theory	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Ruaa Issa Muslim Email: Ralqurashy@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	Identify the most important stratigraphic units and classify them in detail (such as lithological, temporal, biostratigraphy units, etc.), for the purpose of understanding and interpreting the relationship of lateral, vertical, and mixed stratigraphic units, such as unconformity surfaces. As well as studying biotope and lithofacies for the purpose of drawing and interpreting maps.....
9. Teaching and Learning Strategies	
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning

10. Course Structure				
Week	Hours	Unit or subject name /Theoretical	Learning method /practical	Evaluation method
1	2	Definition of Stratigraphy	Principle of Stratigraphy	Daily preparation and oral exam and Discussion
2	2	Introduction to stratigraphy	Uniformitarianism	Daily preparation and oral exam and Discussion
3	2	Classification of stratigraphic units	Superposition	Daily preparation and oral exam and Discussion
4	2	lithostratigraphic units	Law of original horizontality	Daily preparation and oral exam and Discussion
5	2	lithostratigraphic units	Cross cutting relation	Daily preparation and oral exam and Discussion
6	2	Soil stratigraphic units	Lateral continuity	Daily preparation and oral exam and Discussion
7	2	Biostratigraphic units	Law of faunal and floral succession	Exam.
8	2	<i>Biostratigraphic units</i>	Law of inclusion	Daily preparation and oral exam and Discussion
9	2	Chronstratigraphic units	Unconformity	Daily preparation and oral exam and Discussion
10	2	Chronstratigraphic Units	Types of Unconformity	Daily preparation and oral exam and Discussion
11	2	Magnetostratigraphic Units	Types of Unconformity	Daily preparation and oral exam and Discussion
12	2	Stratigraphic relationship	Correlation	Daily preparation and oral exam

				and Discussion
13	2	Lateral relationship	Litho-correlation	Daily preparation and oral exam and Discussion
14	2	Facies	Bio-correlation	Daily preparation and oral exam and Discussion
15	2	Exam	Exam	Exam.

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.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Al-Omari, Farouk Sanallah and Nader, Amer Daoud, 2001, Historical Guidelines, Dar Al-Kutub for Printing and Publishing, University of Mosul, p. 628.
Main references (sources)	1- Brice, J. C, Levin, H. L. and Smith, M. S., 1997, Laboratory studies in Earth History, WCB McGraw – Hill, P 255.
	2. Murck, B. W. and Skinner, B. J., 1999, Geology Today: Understanding Our Planet, John Wily & Sons, INC, pp. 527..
Recommended books and references (scientific journals, reports...)	The Iraqi Geological Journal published by the Iraqi Geologists union
Electronic References, Websites	Publications and reports of the Iraqi Geological Survey

1. Course Title	Geology of Iraq
2. Course Code	Department of Earth Sciences - Third Stage
3. Semester / Year	Second Semester 2023-2024
4. Date Description Prepared:	20/1/2024
5. Available Attendance Forms	In-person
6. Credit Hours (Total) / Units (Total)	(2) Theory hours + 2 Practical hours weekly
7. Course Coordinator Name (if more than one, mention all)	Name: Senior Chief Geologist Dhiya Kharbat Shadhar Email: dhiyaalmouswy@yahoo.com

8. Course Objectives

Course Objectives:

1. The course aims to introduce the student to the geology and tectonics of Iraq, as well as the sedimentary cycles in the region during geological time, while observing the impact of orogenic movements and their effect on Iraq.
2. Identify the tectonic history of Iraq and its tectonic subdivisions.
3. Identify the main geological structures present within these tectonic zones in Iraq.
4. Distribution of lithostratigraphy and the sequence of geological formations within the tectonic zones in Iraq.
5. Study the paleogeography of Iraq.

9. Teaching and Learning Strategies

Strategy:

- Group discussions and solving assignments.
- Knowledge and understanding.
- Research groups - interlocking discussion panels.
- Incorporating teaching methods that utilize educational technology.
- Teaching students how to think and use imagination to connect geological information and benefit from it.
- Analyzing data derived from field and laboratory work to achieve objectives.
- Field trips for the purpose of applying theoretical knowledge in the field.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name / Theoretical Material	Practical Material	Evaluation Method
1	4	As mentioned in the previous section, each according to content	Theory: Overview of the surface geology of Iraq	Practical	Daily preparation, daily exams, and discussion
2	4		Theory: Tectonic subdivisions of Iraq	Practical	Daily preparation, daily exams, and discussion
3	4		Theory: Geological structures within tectonic subdivisions in Iraq	Practical	Daily preparation, daily exams, and discussion
4	4		Theory: Geology of the Stable Shelf	Practical	Daily preparation, daily exams, and discussion
5	4		Theory: Geology of the Stable Shelf	Practical	Daily preparation, daily exams, and discussion
6	4		Theory: First Monthly Exam	Practical	Exam
7	4		Theory: Geology of the Unstable Shelf	Practical	Daily preparation, daily exams, and discussion

Week	Hours	Required Learning Outcomes	Unit / Topic Name / Theoretical Material	Practical Material	Evaluation Method
8	4		Theory: Tectonic evolution in Iraq	Practical	Daily preparation, daily exams, and discussion
9	4		Theory: Tectonic evolution in Iraq	Practical	Daily preparation, daily exams, and discussion
10	4		Theory: Geological formations of the Paleozoic Era	Practical	Daily preparation, daily exams, and discussion
11	4		Theory: Geological formations of the Mesozoic Era	Practical	Daily preparation, daily exams, and discussion
12	4		Theory: Geological formations of the Mesozoic Era	Practical	Daily preparation, daily exams, and discussion
13	4		Theory: Geological formations of the Cenozoic Era	Practical	Daily preparation, daily exams, and discussion
14	4		Theory: Geological formations of the Cenozoic Era	Practical	Daily preparation, daily exams, and discussion
15	4		Theory: Second Monthly Exam	Practical	Exam

11. Course Evaluation

Grading distribution out of 100 according to tasks assigned to the student such as daily preparation, daily/oral/monthly written exams, reports, etc.

Semester	Semester						Final Practical Exam	Final Theoretical Exam
	Theory			Practical				
	First Exam	Second Exam	Activities and Quizzes	First Exam	Second Exam	Activities and Quizzes		
Second	10	10	8	4	4	4	-	60

12. Learning and Teaching Resources

Required Textbooks (Curriculum if any):

Geology of Iraq (Jassim and Goff, 2006)

Main References (Sources):

Following websites and the internet

Recommended Supporting Books and References (Scientific journals, reports...):

Communicating with relevant departments, for example, the Geological Survey Authority

1- Iraqi Geological Journal issued by the Iraqi Geologists Syndicate

2- Publications and reports of the Iraqi Geological Survey Authority

Hydrogeology Course Description

1. Course Name	
Hydrgeology	
2. Course Code	
Department of Geology / Third Stage	
3. Semester / Year	
Second Semester (2025-2026)	
4. Description Preparation Date:	
10/9/2025	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory)and (2 hours practical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Sarteel Hamid Enad Al- Shammmary Email: sarteel@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1- The course aims to consolidate the basic concepts of Hydrogeology.
	2- Identifying the science of hydrogeology, its importance, branches, applications and its role in developing water sources and the various hydrological processes that determine the movement, distribution, and cycle of water, estimating its quantities, and preserving its quality by following various scientific methods to plan the use of surface water sources and preserving its sustainability as a national wealth. Identifying groundwater reservoirs and methods for knowing hydraulic characteristics.
9. Teaching and Learning Strategies	
Strategy	a. Group discussions and assignments. b. Creating a competitive atmosphere among students and addressing individual difference using appropriate educational methods. c. Research projects. d. Interdisciplinary discussion circles e. Incorporating teaching methods that utilize educational technology. f. Encouraging students for self-directed learning.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Groundwater sources	Drawing groundwater levels on a map	Daily preparation and oral exam and Discussion
2	4	=	Vertical distribution of groundwater	Drawing groundwater levels on a map	Daily preparation and oral exam and Discussion
3	4	=	Groundwater movement (porosity, permeability)	Calculating the porosity of rocks in the laboratory	Daily preparation and oral exam and Discussion
4	4	=	Groundwater Aquifers	Calculating the permeability of rocks in the laboratory	Daily preparation and oral exam and Discussion
5	4	=	Pumping test of groundwater wells	Application of the Theis method in pumping testing	Daily preparation and oral exam and Discussion
6	4	=	Pumping test of groundwater wells	First Exam.	Daily preparation and oral exam and Discussion
7	4	=	Exam.		
8	4	=	Hydraulic conductivity K	Application of Jacob's method in pumping testing	Daily preparation and oral exam and Discussion
9	4	=	Conductivity coefficient T, storage coefficient of the underground reservoir Sc	Application of Jacob's method in pumping testing	Daily preparation and oral exam and Discussion

10	4	=	Methods of analyzing pumping tests	Chemical analyzes and physical measurements of well water samples	Daily preparation and oral exam and Discussion
11	4	=	Theis method of pumping test	Accuracy calculations of chemical analyses	Daily preparation and oral exam and Discussion
12	4	=	acob's method for pumping testing	Calculating the suitability of groundwater uses for humans and animals	Daily preparation and oral exam and Discussion
13	4	=	Groundwater quality	Calculating the suitability of using groundwater for irrigation of crops	Daily preparation and oral exam and Discussion
14	4	=	Groundwater quality	Calculating the suitability of using groundwater for other purposes	Daily preparation and oral exam and Discussion
15	4	Second exam.			

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.

Course	THEORETICAL			PRACTICAL			Final - Exam
1nd	First Exam.	Second Exam	Quizzes	First Exam.	Second Exam	Quizzes	50
	15	15	5	6	6	3	

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by Prof. Dr. Sartil Hamed Al-Shammari Groundwater Hydrogeology
Main references (sources)	Groundwater Hydrogeology, (Tood,1980)
Recommended books and references (scientific journals, reports...)	1- The Iraqi Geological Journal published by the Iraqi Geologists union 2- Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	https://ar.unesco.org/themes/water-security/hydrology

Course Description

1. Course Name:						
Metamorphic Rocks						
2. Course Code:						
Geology Department/ 3th Stage						
3. Semester / Year:						
5th Semester/ 3th Year						
4. Description Preparation Date:						
1/10/2023						
5. Available Attendance Forms:						
Actual						
6. Number of Credit Hours (Total) / Number of Units (Total)						
(2 hours theoretical + 2 hours practical)/ 3 units						
7. Course administrator's name (mention all, if more than one name)						
Lect. Najah Alwan Owayez				Email: nauaiz@uowasit.edu.iq		
8. Course Objectives:						
• Introduction to metamorphic rocks, their types and classifications • Definition of transformation factors • Definition of transformation environments • Identifying the components of mineral rocks and studying them under the microscope						
9. Teaching and Learning Strategies:						
• Displaying lectures on screen and delivering lectures orally • Asking questions and holding discussions • Display models and conduct laboratory analyses • How to perform mathematical calculations and prepare reports • Encouraging research and self-learning						
10. Course Structure:						
Week	Hours	Required Learning Outcomes	Subject Name		Learning Method	Evolution Method
			Theoretical	Practical		
1	4	Point 9	Introduction	Introduction	Show and explain the subject, ask questions	Quizzes, Exams, Works & Reports
2	4		Metamorphic Conditions	Factors of Metamorphism		
3	4		Factors of Metamorphism	Metamorphic Rocks under Microscope		
4	4		Metamorphic	Foliated Metamorphic		

			Environments	Rocks under Microscope	and discuss, prepare reports	
5	4		Metamorphic Environments	Foliated Metamorphic Rocks under Microscope		
6	4		First Monthly Exam			
7	4		Classification of Metamorphic Rocks	Foliated Metamorphic Rocks under Microscope		
8	4		Metamorphic Grades	Non-Foliated Metamorphic Rocks under Microscope		
9	4		Foliated Metamorphic Rocks	Non-Foliated Metamorphic Rocks under Microscope		
10	4		Foliated Metamorphic Rocks	Non-Foliated Metamorphic Rocks under Microscope		
11	4		Non-foliated Metamorphic Rocks	Non-Foliated Metamorphic Rocks under Microscope		
12	4		Non-foliated Metamorphic Rocks	Metamorphic Facies		
13	4		Second Monthly Exam			
14	4		Metamorphic Facies	Metamorphic Facies		
15	4		Review	Review		

11. Course Evolution:

- Quizzes
- Reports
- Practical Duties
- Monthly Examinations
- Final Examinations
- Grade distribution according to the table below:

Quizzes	Daily Works	Reports	Monthly Exam		Final Exam	
			Theoretical	Practical	Theoretical	Practical
4	4	4	20	8	40	20

12. Learning and Teaching Resources

1. Required Textbooks	Kurt Bucher and Rodney Grapes, 2011, "Petrogenesis of Metamorphic Rocks", Springer, 8 th Ed.
2. Main References (Resources)	B. D. W. Yardley, W.S. Mackenzie and C. Guilford, 1990, "Atlas of metamorphic rocks and their texture", Longman, England, ELBS Ed.
A. Recommended Books and References (Scientific Journals, Reports, ...etc.)	• المجلة العراقية الجيولوجية/ نقابة الجيولوجيين العراقيين • منشورات وتقارير هيئة المسح الجيولوجي العراقية
B. Electronic References, Websites	• https://www.virtualmicroscope.org/sites/default/files/html5Assets/12072/index2.html?specimen=/node/749 • https://www.virtualmicroscope.org/sites/default/files/html5Assets/12072/index2.html?specimen=/node/749

Course Description Form

1. Course Name: Geophysics 1	
2. Course Code:	
3. Semester / Year: 2025 - 2026	
4. Description Preparation Date: 26\10\2025	
5. Available Attendance Forms: Attendance in the halls of Geology department, College of Science	
6. Number of Credit Hours (Total) / Number of Units (Total): (2 Hours Theoretical + 2 Hours Partical	
7. Course administrator's name (mention all, if more than one name)	
Name: Lect. Dr. Ali Abd Mohee Email: alimuhhi@uowasit.edu.iq Ms.C. Ahmed Salam Jabar Ms.C. Hussain Abdulelah Yaseen Ms.C. Hani Hussain Shalal Ms.C. Ali Abdulhussain Chaloob	
8. Course Objectives	
	- Enable students to identify the different types used in geophysical exploration - Enabling students to learn gravitational and magnetic exploration methods

- Enabling students to interpret gravity and magnetic maps

9. Teaching and Learning Strategies

- Using lecture and discussion methods with students and practical applications
- Group participation of students in discussion and developing scientific solution to exploration problems

10. Course Structure

week	Hours	Required learning	Unit of subject name	Learning method	Evaluation method
1	2 hours of theory and 2 hours of practical	Introduction	Knowing the types of geophysical methods	Theory with practical	Lecture and general discussion
2	2 hours of theory and 2 hours of practical	Gravity method	The theoretical basis of the gravitational method	Theory with practical	Lecture and general discussion

3	2 hours of theory and 2 hours of practical	Universal equation of gravity	Objection of the global equation	Theory with practical	Lecture and general discussion
4	2 hours of theory and 2 hours of practical	Absolute gravity meter	Types of gravimeter	Theory with practical	Lecture and general discussion
5	2 hours of theory and 2 hours of practical	Field procedures	Knowing the types of gravitational corrections	Theory with practical	Lecture and general discussion
6	2 hours of theory and 2 hours of practical	Gravitational Drift	Theoretical and practical method for calculating gravitational drift	Theory with practical	Lecture and general discussion
7	2 hours of theory and 2 hours of practical	The effect of latitude	Knowing the latitude correction	Theory with practical	Lecture and general discussion

8				Theory with practical	First theoretical and practical exam
9	2 hours of theory and 2 hours of practical	Height correction	Know the theoretical and practical method of correcting height	Theory with practical	Lecture and general discussion
10	2 hours of theory and 2 hours of practical	Boguer correction	Know the theoretical and practical method of correcting boguer	Theory with practical	Lecture and general discussion
11	2 hours of theory and 2 hours of practical	Calculate the value of boguer anomaly	Know the theoretical and practical for calculate	Theory with practical	Lecture and general discussion

			the boguer value		
12	2 hours of theory and 2 hours of practical	Magnetic method	Theoretical basis of the magnetic method	Theory with practical	Lecture and general discussion
13	2 hours of theory and 2 hours of practical	Magnetic survey	Field procedures for magnetic surveying	Theory with practical	Lecture and general discussion
14	2 hours of theory and 2 hours of practical	Magnetic corrections	Knowledge of theoretical and practical methods of magnetic corrections	Theory with practical	Lecture and general discussion
15					Second theoretical and

					practical exam
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.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name: Geophysics 2	
2. Course Code:	
3. Semester / Year: 2025 - 2026	
4. Description Preparation Date: 26\10\2025	
5. Available Attendance Forms: Attendance in the halls of Geology department, College of Science	
6. Number of Credit Hours (Total) / Number of Units (Total): (2 Hours Theoretical + 2 Hours Partical	
7. Course administrator's name (mention all, if more than one name)	
Name: Lect. Dr. Ali Abd Mohee Email: alimuhhi@uowasit.edu.iq	
8. Course Objectives	
	• Enable students to identify the different types used in geophysical exploration • Enabling students to learn gravitational and magnetic exploration methods • Enabling students to interpret gravity and magnetic maps
9. Teaching and Learning Strategies	
• Using lecture and discussion methods with students and practical applications • Group participation of students in discussion and developing scientific solution to exploration proplems	

10. Course Structure

week	Hours	Required learning	Unit of subject name	Learning method	Evaluation method
1	2 hours of theory and 2 hours of practical	Introduction	Knowing the types of geophysical methods	Theory with practical	Lecture and general discussion
2	2 hours of theory and 2 hours of practical	Seismic method	The theoretical basis of the seismic method	Theory with practical	Lecture and general discussion
3	2 hours of theory and 2 hours of practical	Reflection method	General principles	Theory with practical	Lecture and general discussion
4	2 hours of theory and 2 hours of practical	Energy sources	Types of energy sources	Theory with practical	Lecture and general discussion
5	2 hours of theory and 2 hours of practical	Seismic waves	Knowing the types of seismic waves	Theory with practical	Lecture and general discussion
6	2 hours of theory and 2 hours of practical	Elasticity coefficients	Types of elasticity coefficients	Theory with practical	Lecture and general discussion
7	2 hours of theory	Wave	Knowing	Theory	Lecture

	and 2 hours of practical	velocity and elasticity modulus	the relation between velocity and elasticity modulus	with practical	and general discussion
8				Theory with practical	First theoretical and practical exam
9	2 hours of theory and 2 hours of practical	Velocity with depth	Determine the velocity	Theory with practical	Lecture and general discussion
10	2 hours of theory and 2 hours of practical	Time – distance curve	Learn how to plot a time – distance curve	Theory with practical	Lecture and general discussion
11	2 hours of theory and 2 hours of practical	Time – distance curve	Multiple layers	Theory with practical	Lecture and general discussion
12	2 hours of theory and 2 hours of practical	Refraction method	Applications	Theory with practical	Lecture and general discussion
13	2 hours of theory and 2 hours of practical	Refraction method	Refraction survey	Theory with practical	Lecture and general

					discussion
14	2 hours of theory and 2 hours of practical	Refraction method	Distribution method for power source and receivers	Theory with practical	Lecture and general discussion
15					Second theoretical and practical exam

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.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction in geophysical Prospecting
Main references (sources)	Dobrin , Sharma
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

1. Course Name	
Geotectonic	
2. Course Code	
Department of Geology / Third Stage	
3. Semester / Year	
First Semester (2025-2026)	
4. Description Preparation Date:	
1/9/2025	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory)and (2 hours practical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof.Dr. Sarteel Hamid Enad Al- Shammery Email: sarteel@uowasit.edu.iq Ms.c. Ebtesam Ali Hawas Ms.c. Mohammed Yahya Raham Ms.c. Hiba Fouad Ms.c. Hussain Abdulelah Yaseen	
8. Course Objectives	
Course Objectives	a. The course aims to consolidate the basic concepts of geotectonic science. b. Identifying geotectonics, its importance, its branches, applications and its role in understanding modern theories regarding the divisions of the Earth's crust and the causes of the occurrence of natural phenomena such as earthquakes and volcanoes and determining their locations, as well as the apparent changes on the Earth's surface during geological time.

9. Teaching and Learning Strategies	
Strategy	a. Group discussions and assignments b. Creating a competitive atmosphere among students and addressing individual difference using appropriate educational methods. C. Research projects d. Interdisciplinary discussion circles e. Incorporating teaching methods that utilize educational technology Encouraging students for self-directed learning.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name/ Theoretical	Learning method/ practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	n introduction to geotectonics and its relationship to other geological sciences	Determine the inclination angle of the layers	Daily preparation and oral exam and Discussion
2	4	=	Primary and secondary geological structures	Primary and secondary geological structures	Daily preparation and oral exam and Discussion
3	4	=	Theories that preceded the theory of sheet tectonics	Drawing the movement of plates in general	Daily preparation and oral exam and Discussion
4	4	=	Wackner's theory of continental drift	Drawing the movement of plates in subduction zone	Daily preparation and oral exam and Discussion
5	4		Paleomagnetism of the Earth	Measurement of Paleomagnetism of the Earth	Daily preparation and oral exam and Discussion

6	4	Exam.			
7	4		Magnetic reversals	Magnetic reversal of the Earth's poles	Daily preparation and oral exam and Discussion
8	4		Magnetic reversals	Magnetic reversal of the Earth's poles	Daily preparation and oral exam and Discussion
9	4		Magnetic reversals	Magnetic reversal of the Earth's poles	Daily preparation and oral exam and Discussion
10	4		The main structural features of the Earth's crust	Virtual roaming of the pole	Daily preparation and oral exam and Discussion
11	4		History of the movement of	Draw the main tectonic plates	Daily preparation and oral exam and
12	4		Movement of continents,	Drawing secondary tectonic plates	Daily preparation and oral exam and Discussion
13	4		Volcanoes and plate tectonics	Drawing the movements of converging plates	Daily preparation and oral exam and Discussion
14	4		Earthquakes and plate tectonics	Drawing the movements of divergent plates	Daily preparation and oral exam and Discussion
15	4	Exam.			

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							
Course	THEORETICAL			PRACTICAL			Final -Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	15	15	5	6	6	3	50
12.Learning and Teaching Resources							
Required textbooks (curricular books, if any) Main references (sources)				Structural geology and geotectonics (Dr. Wathiq Ghazi), lectures b Prof. Dr. Sarteel Hamid Al-Shammary			
				Physical Geology(S.Zayer and Gollf,2006)			
Recommended books and references (scientific journals, reports...)				1- The Iraqi Geological Journal published by the Iraqi Geologists union			
				2- Publications and reports of the Iraqi Geological Survey			
Electronic References, Websites				https://ar.unesco.org/themes/water-security/hydrology			

المحاضرات المؤرخة من قبل تدريسي الاختصاص لكل مادة.	2 – المراجع الرئيسية(المصادر)
	أ- الكتب والمراجع التي يوصي بيها (المجلات العلمية، التقارير،)
1- https://www.adelaide.edu.au/englishfor-uni/tenses-in-academic-writing 2- https://elt.oup.com/student/headway/%20beg/test-	ب- المراجع الالكترونية، مواقع الانترنت.....

The Course Description

1- Educational institution	The University of Wasit
2- Scientific department/type of study	The Department of Geology – 3rd Year
3- Name of the course (subject)	English Language
4- Available forms of attendance	Attendance in the halls of Geology Department, College of Science
5- Semester/year	Second Semester/ 2023-2024
6- Number of study hours (total)	(2 Hours Theoretical) Weekly
7- The date this description was prepared	15/01/2024
8- Preparing the lesson	Lect. Dr. Reyadh H. R. r.radhy@uowasit.edu.iq
9- The Course Objectives	
- Learning the English language and its vocabulary, and becoming familiar with geological terminology, which is within the student's specialty.	

10- Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives 1- Identifying the parts of speech in the English language. 2- Giving the student confidence to speak English through short conversations that help him in conducting interviews for foreign companies. 3- Preparation on how to write academic scientific research. B- The skills objectives of the course 1- Communication skill. 2- Writing skill. 3- Scientific reports related to geology. C- Emotional and value goals 1- Accuracy in analysis and decision making 2- Credibility and transparency in scientific research. 3- Developing the student's ability to dialogue and discuss.

D- Through the processes of criticism, issuing opinions, rulings, and renewal. And also through teamwork and problem solving.

- 1- Developing communication skills
- 2- Developing analytical and research skills
- 3- Desire to learn
- 4- Having creative skills and the ability to solve problems

Teaching and learning methods

1- Using the method of lecture, discussion, and applications through the computer.
 2- Introducing elective courses to develop higher learning skills, such as critical thinking, creative thinking, systems analysis and design, and philosophy of science, as university requirements, through further description of case studies and applications.

1. Readings, self-learning, discussion panels.
2. Exercises and activities in the classroom.
3. Directing students to some websites to benefit from them.
4. Holding research seminars in which oil reservoirs are explained.
5. Manage the lecture in a way that makes time feel important.
6. Assigning the student to some group activities and duties.
7. Allocate a percentage of the grade to group activities.

Evaluation methods

Homework related to solving the problem

- 1- Homework related to solving the problem.
- 2- Participation in the classroom.
- 3- Providing activities.
- 4- Semester and final tests and activities.
- 5- quick quizzes.
- 6- Setting grades for students' participation during the lecture.
- 7- Giving grades to homework.
- 8- Giving grades for students' attendance.
- 9- Giving grades to students while they use clarification tools during the lecture.

11- The Course Structure

Week	Hours	Required learning outcomes	Name of the unit/topic	Evaluation method
1	2	The tens system, - informal language, - compound word, - casual conversations.	Unit 1 Home and away	Interactive questions during the lecture, quick quizzes, exams, write scientific reports, and attendance.
2	2	General -review-sentence-types-and-structure	Unit 2 Been there, done that!	
3	2	Narrative tenses, -Giving news and responding, - Books and films, - showing - interest	Unit 3 What a story!	
4	2	Questions and negatives, - prefixes and antonyms, - Being polite.	Unit 4 Nothing but the truth	

5	2	Tenses Present-Perfect-vs.- Past-Perfect	Unit 5 Tenses Present P. vs Past P.
6	2	Futurity	Unit 6 An eye to the future
7	2	Discussion	Repeating to previous topics
8	2	First Monthly Exam	
9	2	Writing Types	Unit Writing.
10	2	Academic-Writing	Unit Writing.
11	2	Give definition of Important geological vocabularies.	Geological terminology
12	2	Discuss geological figures and diagrams.	Geological terminology
13	2	How to present a geological poster in a conference?	Presentation
14	2	Review previous topics	Comprehen sive review
15	2	Second Exam	

12- Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Quizzes	Daily Works	Reports	Monthly Exam	Final Exam
5	5	5	25	60

13- Education and teaching references

1- Required prescribed books	- New-headway-plus-upper-intermediate-students-book. - New-headway-plus-upper-intermediate-students-workbook
2- Main references (sources)	المحاضرات المؤرشفة من قبل تدريسي الاختصاص لكل مادة.
3- Recommended books and references (scientific journals, reports...)	
4- Electronic references, websites...	1- https://www.adelaide.edu.au/englishfor-uni/tenses-in-academic-writing

	2- https://elt.oup.com/student/headway/%20beg/test-
--	--

Geochemistry Course Description

1. Course Name:	
Geochemistry	
2. Course Code:	
4th Stage	
3. Semester / Year:	
2025-2026	
4. Description Preparation Date:	
1/10/2026	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours theory and 2 hours practical	
7. Course administrator's name (mention all, if more than one name)	
Name: assis. Prof. Dr. Zinah Saleem	
Email: zsaleem@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	· Definition the geochemistry and its importance in rock, mineral, environmental and mineral exploration studies
9. Teaching and learning strategy	
Strategy	Group discussions, brainstorming Assigning students to research and prepare reports on the optical properties of minerals Training on the microscope and displaying similar examples of minerals Students competed in groups to present new information, evaluate them

10. Course Structure

Weeks	Hourse	Required learning Outcomes	Unit or subject name (theory)	Learning method practical	Evaluation Method
1	4	In accommodation of the general concept of geochemistry	Geochemistry sciences	Distribution of elements	Discussion and asking questions
2	4	Distinguishing types and number of layers of the earth	Earth layers	Applications of major elements	Discussion and asking questions
3	4	Distinguish the difference in geochemistry of many type rocks	Geochemistry of Igneous, sedimentary and metamorphic rocks	Geochemistry of many rocks type (ign. Meta. Sed.	Discussion and asking questions
4	4	Distinguishing the types and importance of the weather	types and importance of the weather	Geochemistry of ign. rocks	Discussion and asking questions
5	4	Distinguish the number of sedimentary cycles	the number of sedimentary cycles	Geochemistry of sedm.. rocks	Discussion and asking questions
6	4	Learn about the types of meteorites	types of meteorites	Quality Control of Geochemical Data (QC)	Discussion and asking questions
7	4	Understanding sea water geochemistry and sampling methods	sea water geochemistry and sampling methods	sea water geochemistry and sampling methods	Discussion and asking questions
8	4	Learn about various exploration methods	exploration methods	exploration methods (sampl ling)	Discussion and asking questions
9	4	Exam.			
10	4	Learn about the types and interpretation of the geochemical anomalies	the geochemical anomalies	interpretation of the geochemical anomalies	Discussion and asking questions

11	4	Explore and interpret the types of geochemical anomalies resulting from pollution	the types of geochemical anomalies resulting from pollution	interpret the types of geochemical anomalies resulting from pollution	Discussion and asking questions
12	4	Exploration hydrocarbon	Types of hydrocarbon	Exploration hydrocarbon	Discussion and asking questions
13	4	Exploration hydrocarbon	Exploration of hydrocarbon	Exploration hydrocarbon	Discussion and asking questions
14	4	Exam			

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						
Course	Quiz	reports	Oral	Homework	Exam	Final Exam
1	5	5	5	5	20	60
12. learning and Teaching resources						
Require textbooks	Geochemistry science					
Recommend books	Rankahama and Sahama					
Electronic references	Published research and Reports of the Geological Survey					

Course Description of Geochemistry

1. Course Name:	
Geochemistry	
2. Course Code:	
Fourth stage	
3. Semester / Year:	
2023-2024	
4. Description Preparation Date:	
1-10-2024	
5. Available Attendance Forms:	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours theory and 2 hours practical	
7. Course administrator's name (mention all, if more than one name)	
Name: lecturer Dr. Zinah Saleem Email: zsaleem@uowa sit.edu.iq	
8. Course Objectives	
Course Objectives definition the Igneous rocks (classification of the rocks, mineral groups, textures and structures	
9. Teaching and Learning Strategies	
Strategy	Group discussions, brainstorming Assigning students to research and prepare reports on the optical properties of minerals Training on the microscope and displaying similar examples of minerals Students competed in groups to present new information, evaluate them

10. Course Structure					
Wee		Required Learning Outcomes	Unit or subject name (theory)	Learning method practical	Evaluation method
1	4	Understanding the type of Igneous rocks	Type of igneous rocks	Hand spacemen Samples of ultrabasic ign. rocks	Discussion and asking questions
2	4	Distinguishing types and number of layers of the earth	Earth layers	Hand spacemen Samples of basic and felsic ign. rocks	Discussion and asking questions
3	4	Understand Minerals groups of ign. Rocks and Bowen Reaction Series	Minerals groups of ign. Rocks and Bowen Continuous Reaction Series	Determination Groups of minerals under microscope	Discussion and asking questions
4	4	=	Minerals groups of ign. Rocks and Bowen discontinuous Reaction Series	Determination Groups of minerals under microscope	Discussion and asking questions
5	4	Determination of igneous rocks textures	Textures of igneous rocks (volcanic)	Textures of igneous rocks (volcanic)	Discussion and asking questions
6	4	Determination of igneous rocks textures	Textures of igneous rocks (intermediate)	Textures of igneous rocks (intermediate)	Discussion and asking questions
7	4	Determination of igneous rocks textures	Textures of igneous rocks (plutonic)	Textures of igneous rocks(plutonic)	Discussion and asking questions
8	4	Determination of igneous rocks reaction structures	igneous rocks reaction structures	igneous rocks reaction structures	Discussion and asking questions
9	4	Exam.	Exam.		
10	4	Understand Magmatic Differentiation and how the igneous rocks form	Magmatic Differentiation	igneous rocks reaction structures	Discussion and asking questions
11	4	Understand Igneous rocks position classification	Igneous rocks position classification	Hand spacemen Samples of ign. rock	Discussion and asking questions
12	4	Understand Igneous rocks chemical classification	Igneous rocks chemical classification	Hand spacemen Samples of ign. rock	Discussion and asking questions
13	4	Understand the Volcanoes type and body of igneous rocks	Volcanoes type and body of igneous rocks	Hand spacemen Samples of ign. rock	Discussion and asking questions

14	4	Exam	Exam	Exam	
----	---	------	------	------	--

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						
Course	Quiz	reports	Oral	Homework	Exam	Final Exam
1	5	5	5	5	20	60
12. learning and Teaching resources						
Require textbooks	Igneous rocks science					
Recommend books	Optical minerals					
Electronic references	Published research and Reports of the Geological Survey					

Engineering Geology

Course Description of Engineering Geology

1. Course Title	Engineering Geology
2. Course Code	Department of Earth Sciences - Fourth Stage
3. Semester / Year	Second Semester 2023-2024
4. Date Description Prepared:	2024/1/20
5. Available Attendance Forms	In-person
6. Credit Hours (Total) / Units (Total)	(2) Theory hours + 2 Practical hours weekly
7. Course Coordinator Name (if more than one, mention all)	Name: Senior Chief Geologist Dhiya Kharbat Shadhar Email: dhiyaalmouswy@yahoo.com

8. Course Objectives

Course Objectives:

The course aims to understand engineering fundamentals and link geology with engineering as far as shared topics are concerned. These mainly consist of engineering geotechnical tests and analyses for earth materials (soil and rocks), and discovering sites for engineering structures through analyzing and interpreting results obtained from those tests, including field-taken tests.

9. Teaching and Learning Strategies

Strategy:

- **Knowledge and Understanding:** Knowing and understanding the fundamentals of engineering geology.
- Engineering tests and analyses through which suitable earth materials for engineering projects can be identified.
- **Subject-Specific Skills:** Developing specific skills related to engineering topics by conducting all field measurements and tests.
- Developing understanding and linking engineering topics with other related topics.
- Solving some engineering geology problems at sites and engineering structures.
- Incorporating teaching methods that utilize educational technology.
- Teaching students how to think and use solutions for some engineering geology problems observed in our daily lives.
- Analyzing data derived from field and laboratory work to achieve objectives.
- Field trips for the purpose of applying theoretical knowledge in the field.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name / Theoretical Material	Practical Material	Evaluation Method
1	4	As mentioned in the previous section, each according to content	Overview and definitions of engineering geology, characteristics of Iraqi soils	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
2	4		Geotechnical investigations and their stages	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
3	4		Drilling test boreholes	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
4	4		Soil samples and their types	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
5	4		Introduction to types of laboratory tests	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion

Week	Hours	Required Learning Outcomes	Unit / Topic Name / Theoretical Material	Practical Material	Evaluation Method
6	4		First Monthly Exam	Theory	Exam
7	4		Basic properties (Physical properties of soil)	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
8	4		Index properties of soil	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
9	4		Engineering properties of soil	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
10	4		Chemical properties of soil	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
11	4		Soil improvement methods	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
12	4		Ground subsidence, collapse, and heave	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
13	4		Foundations and their types	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
14	4		Geological hazards	Theory lectures (PDF and Video)	Daily preparation, daily exams, and discussion
15	4		Second Monthly Exam	Theory	Exam

11. Course Evaluation

Grading distribution out of 100 according to tasks assigned to the student such as daily preparation, daily/oral/monthly written exams, reports, etc.

Semester	Semester						Final Practical Exam	Final Theoretical Exam
	Theory			Practical				
	First Exam	Second Exam	Activities and Quizzes	First Exam	Second Exam	Activities and Quizzes		
Second	10	10	8	4	4	4	-	60

12. Learning and Teaching Resources

Required Textbooks (Curriculum if any):

Lectures of Engineering Geology - Theoretical

1- Johnson, R.B and De Graff, J.V., 1988, Principles of Engineering Geology, John Wiley and Sons, New York. 497p.

2- Krynine, Principles of Engineering Geology and Geotechnics, McGraw Hill Book Company, New York, 780p.

Main References (Sources):

Following websites and the internet

Communicating with relevant departments

Recommended Supporting Books and References (Scientific journals, reports...):

1- Engineering Geology 2018

2- Iraqi Geological Journal issued by the Iraqi Geologists Syndicate

3- Publications and reports of the Iraqi Geological Survey Authority

The Course Description

1- Educational institution	The University of Wasit
2- Scientific department/type of study	The Department of Geology – 4th Year
3- Name of the course (subject)	Petroleum Geology
4- Available forms of attendance	Attendance in the halls of Geology Department, College of Science
5- Semester/year	First Semester/ 2025-2026
6- Number of study hours (total)	(2 Hours Theoretical + 2 Hours Practical) 3 Units Weekly
7- The date this description was prepared	01/10/2025
8- Preparing the lesson	Lect. Dr. Reyadh H. R. r.radhy@uowasit.edu.iq
9- The Course Objectives	
- Identifying the properties of reservoir and source rocks, in addition to understanding the factors causing the accumulation of subsurface hydrocarbons through studying the compositional and stratigraphic status of oil fields.	

10- Course outcomes and teaching, learning and evaluation methods
A- Cognitive objectives. 1- Identify how oil is created and how it accumulates in oil traps, with a focus on the types of reservoirs and traps and their characteristics. 2- Getting to know the principles of historical geology and everything related to the emergence and development of life on Earth, focusing on the organisms that played a major role in the emergence of hydrocarbon resources and at any time in the Earth's life, as well as studying the rocky, biological, and temporal stratigraphic units and how to name them and compare them.
B- Subject-specific skills 1- Descriptive and quantitative interpretation of the sensors, using equations to calculate some reservoir properties, and preparing maps and sections. 2- Scientific reports.

C- Emotional and value goals: 1- Accuracy in analysis and decision making. 2- Credibility and transparency in scientific research. 3- Developing environmental geology concepts by preserving vegetation and water bodies using satellite images. 4- Encouraging students to take notes, which is a skill used to record notes and important information in a brief and written form.
D- Through the processes of criticism, issuing opinions, rulings, and renewal. And also through teamwork and problem solving. 1- Developing communication skills 2- Developing analytical and research skills 3- Desire to learn 4- Having creative skills and the ability to solve problems
Teaching and learning methods
1- Using the method of lecture, discussion, and applications through the computer. 2- Introducing elective courses to develop higher learning skills, such as critical thinking, creative thinking, systems analysis and design, and philosophy of science, as university requirements, through further description of case studies and applications. 1. Readings, self-learning, discussion panels. 2. Exercises and activities in the classroom. 3. Directing students to some websites to benefit from them. 4. Holding research seminars in which oil reservoirs are explained. 5. Manage the lecture in a way that makes time feel important. 6. Assigning the student to some group activities and duties. 7. Allocate a percentage of the grade to group activities.
Evaluation methods
Homework related to solving the problem

1- Homework related to solving the problem.
2- Participation in the classroom.
3- Providing activities.
4- Semester and final tests and activities.
5- quick quizzes.
6- Setting grades for students' participation during the lecture.
7- Giving grades to homework.
8- Giving grades for students' attendance.
9- Giving grades to students while they use clarification tools during the lecture.

11- The Course Structure

Week	Hours	Required learning outcomes	Name of the unit/topic	Evaluation method
1	4 (2 Theo. +2 Pract.)	History of petroleum - uses of oil and gas - occurrence of petroleum - geological time scale	The Introduction	Interactive questions during the lecture, quick quizzes, exams, write scientific reports, and attendance.
2	4	Theories of the emergence of oil	What are the theories of the emergence of oil?	
3	4	Geological concepts (reminder): A- Plate tectonics B- Weathering and erosion C- Depositional environments and the reservoirs created by them D- Diagenesis E- Oil reservoirs	A reminder of some geological concepts.	

		F - Origin, migration, and trapping petroleum origin, migration, and trapping.		
4	4	Liquid, gaseous and solid hydrocarbons: Elemental composition, molecular size, hydrocarbon chains, correlation index, impurity components.	What are the interactions of rays in the atmosphere?	
5	4	Organic materials and kerogen	What is kerogen?	
6	4	Description of the reservoir: Reservoir geology, depositional environment, mature sediments, presentation of selected environments.	Oil tank (reservoir)	
7	4	Origin and migration: Origin, formation and accumulation of petroleum in the Earth's crust, porosity and permeability, generating rocks, oil window, reservoir rocks, cap rocks, oil migration, shale gas	Oil migration and its types.	
8	4	First Monthly Exam		
9	4	Source rocks	Source and reservoir rocks - clastic.	
10	4	Reservoir-clastic rocks	Source and reservoir rocks -	

			clastic and calcareous.	
11	4	Limestone reservoir rocks	Source and reservoir rocks - clastic and calcareous.	
12	4	Cover rocks	Cover rocks	
13	4	Petroleum fisheries: Syntactic and stratigraphic traps	Petroleum Traps	
14	4	Review for the second exam	Comprehensive exam review	
15	4	Second Exam		

12- Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Quizzes	Daily Works	Reports	Monthly Exam		Final Exam	
			Theoretical	Practical	Theoretical	Practical
4	4	4	20	8	40	20

13- Education and teaching references

1- Required prescribed books	كتاب جيولوجيا النفط تأليف الدكتور عبد الله شاكر السياب و الدكتور محمد حسن عبد الحميد 1979، وزارة التعليم و البحث العلمي، جامعة بغداد
2- Main references (sources)	- Elements of Petroleum Geology. Stephen A. Sonnenberg and Richard C. Selley (2014). - Basic Petroleum Geology and Log Analysis 2001, Halliburton

3- Recommended books and references (scientific journals, reports...)	
4- Electronic references, websites...	https://www.arab-oil-naturalgas.com/petroleum-geology-part-1/

1- المجلة الجيولوجية العراقية التي تصدر عن نقابة الجيولوجيين العراقيين 2- منشورات وتقارير هيئة المسح الجيولوجي العراقية	الكتب والمراجع السائدة التي يوصى بها (المجلات العلمية، التقارير....)
https://ar.unesco.org/themes/water-security/hydrology	المراجع الإلكترونية، مواقع الانترنت

Course Description Form

1. Course Name	
Hydrology	
2. Course Code	
Department of Geology / Fourth Stage	
3. Semester / Year	
Second Semester (2023-2024)	
4. Description Preparation Date:	
1/2/2024	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory) and (2 hours practical)	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Prof. Sattar Obaid Maiws Al-Mayyahi Email: sobaid@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1- The course aims to consolidate the basic concepts of hydrology. 2- Identifying the science of hydrology, its importance, branches, applications and its role in developing water sources and the various hydrological processes that determine the movement, distribution, and cycle of water, estimating its quantities, and preserving its quality by following various scientific methods to plan the use of surface water sources and preserving its sustainability as a national wealth. 3-
9. Teaching and Learning Strategies	
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name / Theoretical	Learning method / practical	Evaluation method
1	4	Referred to in the previous axis and each according to the content	Introduction, Hydrology, Surface Water Hydrology	Convert water analysis results from ppm to epm	Daily preparation and oral exam and Discussion
2	4	=	Major aspect of Hydrology, Sources of data	Accuracy and classification of accuracy	Daily preparation and oral exam and Discussion
3	4	=	Engineering Applications of Hydrology	Hydrochemical formula and Water type	Daily preparation and oral exam and Discussion
4	4	=	Precipitation, types of Precipitation	Water Quality for different purposes	Daily preparation and oral exam and Discussion
5	4	=	Rainfall Measurement, Hyetograph	Water Quality for different purposes	Daily preparation and oral exam and Discussion
6	4	=	First Exam.	First Exam.	Daily preparation and oral exam and Discussion
7	4	=	Abstraction from Precipitation or water losses	Climate and climate elements	Exam.
8	4	=	Evaporation, Evaporation Measurement	Classification of Climate	Daily preparation and oral exam and Discussion
9	4	=	Infiltration, Measurement of infiltration	Water Balance	Daily preparation and oral exam and Discussion
10	4	=	Runoff, Runoff characteristics of streams	Water Balance	Daily preparation and oral exam and Discussion
11	4	=	Classification of streams	Water Balance	Daily preparation and oral exam and Discussion
12	4	=	hydrograph	Water Surplus and Water Deficit	Daily preparation and oral exam and Discussion
13	4	=	Base flow Separation	Hydrograph	Daily preparation and oral exam and Discussion
14	4	=	Floods	Hydrograph	Daily preparation and oral exam and Discussion
15	4	=	Second exam.	Second exam.	Exam.

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

Course	THEORETICAL			PRACTICAL			Final -Exam
	First Exam.	First Exam.	Quizzes	First Exam.	First Exam.	Quizzes	
1nd	12	12	4	4	4	4	60

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Lectures prepared by Dr. Asim Ahmed Hassan / College of Science / University of Diyala 2- Hydrology and principles of irrigation engineering, Dr. Muhammad Abdul Rahman Al-Janabi, Dr. Farouk Al-Fityani. 3- Engineering Hydrology, translated by Dr. Nizar Ali Sabti, Dr. Labib Khalil Ismail.
Main references (sources)	1- Physical Hydrology by S. Lawrence, Dingman. 2- Advanced Hydrology by V.T. Chow
Recommended books and references (scientific journals, reports...)	1- The Iraqi Geological Journal published by the Iraqi Geologists union 2- Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	https://ar.unesco.org/themes/water-security/hydrology

توزيع الدرجة من 100 وفقا للمهام المكلف بها الطالب مثل التحضير اليومي و الامتحانات اليومية و الشفوية و الشهرية و التحريرية و التقارير الخ.

الامتحان النهائي		الامتحانات الشهرية		الواجبات العلمية	التقارير	الاختبارات اليومية (الكوزات)
العملي	النظري	العملي	النظري			
20	40	8	20	4	4	4

13- مصادر التعليم و التدريس	
Satellite image processing database management GPS and Query language, Rolf A.de	1- الكتب المقررة المطلوبة
Satellite image processing database management GPS and Query language , Rolf A.de	2 – المراجع الرئيسية(المصادر)
www.esri.com https://www.esri.com/en-us/home	أ- الكتب والمراجع التي يوصي بيها (المجلات العلمية، التقارير،) ب- المراجع الالكترونية، مواقع الانترنت.....

Course Description

1- Educational institution	The University of Wasit
2- Scientific department/type of study	The Department of Geology – 4 th Year
3- Name of the course (subject)	Geographic Information System “GIS”
4- Available forms of attendance	attendance in the halls of Geology Department, College of Science
5- Semester/year	First Semester/ 2023-2024
6- Number of study hours (total)	(2 Hours Theoretical + 2 Hours Practical) 3 Units
7- The date this description was prepared	1/10/2023
8- Preparing the lesson	Lect. Dr. Reyadh H. R. r.radhy@uowasit.edu.iq Ms.c. Ahmed Salam Jabbar Ms.c. Basma Saleem Dawood Ms.c. Ali abdulhussain Chalooob Ms.c.Hussain Abdulellah yaseen Ms.c. Heba Fouad Tawfeeq
9- The Course Objectives	
1. Defining the program and training the student to install the program.	

2. Introducing the student to the program's interfaces, the program's tools, and the program's work areas.
3. Create files for the program.
4. Methods of entering and defining satellite images.
5. Methods of analysing the results and presenting them in the form of reports, maps, or electronic files.

10- Course outcomes and teaching, learning and evaluation methods

A- Cognitive goals

- 1- Know the basics of the software ArcMap GIS.
- 2- Know the using of the software ArcMap GIS.
- 3- Know how to manage and analyze data using software ArcMap GIS.

B- Skills objectives for the course:

- 1- Enabling the student to use the program after its installation.
- 2- Empowering students to manage data.
- 3- Enabling the student to analyze data.

Teaching and learning methods

- Using the method of lecture, discussion, and applications through the computer.
- Introducing elective courses to develop higher learning skills, such as critical thinking, creative thinking, systems analysis and design, and philosophy of science, as university requirements, through further description of case studies and applications.

Evaluation methods

Homework related to solving the problem

C- Emotional and value goals:

- 1- Accuracy in analysis and decision making.
- 2- Credibility and transparency in scientific research.
- 3- Developing environmental geology concepts by preserving vegetation and water bodies using satellite images.

D- Through the processes of criticism, issuing opinions, rulings, and renewal. And also through teamwork and problem solving.

- 1- Developing communication skills
- 2- Developing analytical and research skills
- 3- Desire to learn
- 4- Having creative skills and the ability to solve problems

11- The Course Structure

Week	Hours	Required learning outcomes	Name of the unit/topic	Evaluation method
1	4 (2 Theo. +2 Pract.)	• Definition of geographic information systems (GIS). • Introduction to Geographic	The Introduction	Interactive questions during the lecture, quick exams, exams, Write a scientific reports, and attendance

		Information Systems (GIS). • The importance of geographic information systems (GIS) • Possibility of geographic information systems (GIS). • The relationship of geographic information systems (GIS) to other sciences.		
2	4	• Hardware components. • Software components.	Components of geographic information systems	
3	4	• Spatial data. • Metadata. • Data representation methods.	Types of data in Geographic Information Systems (GIS)	
4	4	Programs used in Geographic Information Systems such as ArcMap GIS.	The Programs of Geographic Information System.	
5	4	Explanation of the toolbars and its applications.	The Programs of Geographic Information System.	
6	4	• Select features using a spreadsheet. • Select features by their location. • Select features by shape.	Data processing.	
7	4	• Create a shape file of the selected features. • Find statistics. • Find summaries.	Data processing.	
8	4	First Monthly Exam		
9	4	• Display chromatogram data (legend).	Display data	

		• Display text data (labels).		
10	4	• Standard data display (scale). • Create new symbols.	Display Data	
11	4	• Map properties • Types of maps.	Maps	
12	4	• Maps page. • Toolbar. • Choose where to print. • Insert map elements. • Insert pictures. • Insert tables. • Print to a file. • Printing on paper.	Maps	
13	4	Data tabulation process	Data tabulation	
14	4	Review for the second exam	Comprehensive exam review	
15	4	Second Exam		

12- Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.

Quizzes	Daily Works	Reports	Monthly Exam		Final Exam	
			Theoretical	Practical	Theoretical	Practical
4	4	4	20	8	40	20

13- Education and teaching references

1- Required prescribed books	Satellite image processing database management GPS and Query language, Rolf A.de
2- Main references (sources)	Satellite image processing database management GPS and Query language, Rolf A.de
3- Recommended books and references (scientific journals, reports...)	International Journal of Geographical Information Science

4- Electronic references, websites...

www.esri.com

<https://www.esri.com/en-us/home>

1- المجلة الجيولوجية العراقية التي تصدر عن نقابة الجيولوجيين العراقيين 2- منشورات وتقارير هيئة المسح الجيولوجي العراقية	الكتب والمراجع السائدة التي يوصى بها (المجلات العلمية، التقارير....)
https://www.oec.oil.gov.iq وزارة النفط شركة الاستكشافات النفطية https://www.gsmr-aden.org/site/1333 هيئة المساحة الجيولوجية والثروات المعدنية / عدن	المراجع الإلكترونية، مواقع الانترنت

Course Description Form

1. Course Name	
Well logging	
2. Course Code	
Department of Geology / Fourth Stage	
3. Semester / Year	
First Semester (2023-2024)	
4. Description Preparation Date:	
1/10/2023	
5. Available Attendance Forms	
Actual Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
(2 Hours Theory)	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Prof. Sattar Obaid Maiws Al-Mayyahi Email: m.zaidi@uowasit.edu.iq	
8. Course Objectives	
Course Objectives	1- Introducing the student to the practical methods for log oil wells, the types of sensors, and the basic parameters for each type of these sensors. 2- At the end of this course, the students should be able to understand the basics of wells log, theory of measurements, interpretations and applications of the different types of wire line logs. Students should also know how to calculate the petro physical parameters required for formation evaluation (source and reservoir rocks).
9. Teaching and Learning Strategies	
Strategy	- Group discussions and assignments - Creating a competitive atmosphere among students and addressing individual differences using appropriate educational methods - Research projects - Interdisciplinary discussion circles - Incorporating teaching methods that utilize educational technology - Encouraging students for self-directed learning.

10. Course Structure						
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
1	2	Referred to in the previous axis and each according to the content	Introduction to well log and The basic relationships in well log	Theoretical	Daily preparation and oral exam and Discussion	
2	2	=	Factors affecting well log measurements	Theoretical	Daily preparation and oral exam and Discussion	
3	2	=	Basic information needed to interpret the well log	Theoretical	Daily preparation and oral exam and Discussion	
4	2	=	Self-potential log	Theoretical	Daily preparation and oral exam and Discussion	
5	2	=	Examples of deviation of the self-potential curve	Theoretical	Daily preparation and oral exam and Discussion	
6	2	=	Resistivity log	Theoretical	Daily preparation and oral exam and Discussion	
7	2	=	first examination	Theoretical	Exam.	
8	2	=	Calculating porosity from resistivity log	Theoretical	Daily preparation and oral exam and Discussion	
9	2	=	Acoustic log	Theoretical	Daily preparation and oral exam and Discussion	
10	2	=	Density log	Theoretical	Daily preparation and oral exam and Discussion	
11	2	=	Neutron log	Theoretical	Daily preparation and oral exam and Discussion	
12	2	=	Neutron-density log	Theoretical	Daily preparation and oral exam and Discussion	
13	2	=	Gamma ray log	Theoretical	Daily preparation and oral exam and Discussion	
14	2	=	Interpretation of Log and Well log applications for different fields	Theoretical	Daily preparation and oral exam and Discussion	
15	2	=	Second examination	Theoretical	Exam.	
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						
Course	Daily preparation, daily and oral exams	Daily assignments	reports	Seminars	Mid-term Exam	Final -Exam
1nd	10	10	5	5	10	60

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Petroleum Geology, written by Dr. Abdullah Shaker Al-Say and Dr. Hosni Zarqa, 1989, Iraqi Ministry of Higher Education and Scientific Research / University of Baghdad / Department of Earth Science. 2- Basic Well Log Analysis For Geology by Asquith and Gibson 3- Interpretations of well log, written by Muayyad Hammad Khayouka
Main references (sources)	1- Petroleum and the economics of its resources Dr. Mahmoud Amin 1968, Egyptian Knowledge House, Organization of Arab Petroleum Exporting Countries 1985, Oil Exploration in the Arab World, Kuwait. 2- Resources and lectures from the Internet. Such as the virtual library and the websites of some international universities
Recommended books and references (scientific journals, reports...)	1- The Iraqi Geological Journal published by the Iraqi Geologists union 2- Publications and reports of the Iraqi Geological Survey
Electronic References, Websites	https://www.oec.oil.gov.iq https://www.gsmr-aden.org/site/1333