	Ministry of Higher Education and Scientific Research - Iraq University of Warith Al_Anbiyaa.... College of Engineering Oil and Gas Department	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	General Geology II			**Module Delivery**	
Module Type	**Basic**			☒ **Theory** ☐ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	OGE122				
ECTS Credits	**4**				
SWL (hr/sem)	**100**				
Module Level	UGI		**Semester of Delivery**	2	
Administering Department	OGE		**College**	Engineering	
Module Leader	Salam Khalid		**e-mail**	salam.khalid@uowa.edu.iq	
Module Leader's Acad. Title	Asst.Lecturer		**Module Leader's Qualification**	M.SC	
Module Tutor	NA		**e-mail**	E-mail	
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	OGE117	**Semester**	1
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	**1-Facilitate a better understanding of Earth rock formation, rocks types, process and factors affect on Earth crust.** **2-Provide students with the tools to interpret the minerals and rock types and fossil record.** **3-Laboratory exercises and field trips will highlight and enhance the concepts learned in the classroom.**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	**1-Identify various types of minerals and rocks and understand the geologic processes of their formation, structural deformation and the process of weathering and erosion.** **2-Describe the mechanisms that produced the earth's major continents, mountain ranges, ocean basins, plate tectonics and deformation of earth crust.** **3-Discuss geologic history in the context of understanding Earth systems and how they may change in the future.**
Indicative Contents المحتويات الإرشادية	**The most important skills required by the student are:** **1- Understanding the geological processes that formed the Earth and its layers and minerals.** **2 - The effects leading to the change of rock types as a result of the effects of all types of erosion and weathering.** **3- The basic structural influences that changed the shape of the earth's crust and their results in generating various types of folds and faults.** **4- Studying the basic factors of deposition situation of sedimentary rocks and knowing their geological ages.**

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	**The possibility of identifying the various types of minerals and rocks through which the student can evaluate the contents of the earth's crust and how oil accumilations are formed inside the earth and the mechanisms of their extraction through knowledge of the hardness and strength of these rocks, their depth and sedimentary age, geological structures sub-surface and the quality of oil reservoirs.**

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	36	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	1-3	LO #1-3
	Assignments	1	10% (10)	4-6	LO # 1-3
	Projects /	1	10% (10)	7-9	LO # 1-3
	Report	1	10% (10)	10-12	LO # 1-3
Summative assessment	Midterm Exam	1 hr	10% (10)	1-7	LO # 1-3
	Final Exam	2hr	50% (50)	16	LO # 1-3
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Geology , types of geological sciences, Why Study Geology? Rocks and Fossils are important tools for geologists that tell a story of what Earth like in the past.
Week 2	Earth generation and Earth's Internal Structure , Crust, Mantel and Core. Define their physical and chemical properties , Why Does Oceanic Crust Form Ocean Basins and Continental Crust Form the Continents?
Week 3	Matter and Minerals, what are the minerals and how can they be formed? Minerals are the building blocks of rocks Earth's crust is made of rocks. Mineral Composition. Chemical bonding forming a compound as mineral. Rock-Forming Minerals the Silicates and non-Silicates.
Week 4	Silicate Mineral Structures, Environment of Formation, Bowen's Reaction Series, Physical Properties of Minerals.
Week 5	Types of Rocks . What Can Igneous Minerals/Rocks Tell Us? Origin of Igneous Rocks. How Do Igneous Rocks Form? How Does Magma Originate? Generating Magma from Solid Rock. Components of Magma.
Week 6	Origin of Magma Compositions, Origin of Andesitic Magmas Origin of Granitic Magmas, Classification of Igneous Rocks, Igneous Textures, Rate of Cooling, Mineral Compositions of Igneous Rocks
Week 7	Volcanoes and Other Igneous Activity, Not all Volcanic Eruptions are the Same, Factors Affecting Viscosity, Materials Extruded from Volcanoes, Anatomy of Volcanoes, Types of Volcanoes , Plutonic Igneous Activity, Classification of Plutons.
Week 8	Metamorphic Rocks, What Can Metamorphic Minerals and Rocks Tell Us? Metamorphism, Agents of Metamorphism, Classification of Metamorphic Rocks, How Metamorphism Alters Rocks, Types of Foliation and Foliated Metamorphic Rocks, Metamorphic Environments
Week 9	Sedimentary Rocks, Turning Sediment into Rock, Diagenesis, Types of Sedimentary Rocks, Classification of Sedimentary Rocks, Characteristics of Detrital Sedimentary Rocks,

Week 10	Grain Size , What Does Grain Size Tell Us? Sorting, What Does the Degree of Sorting Tell Us? Chemical and Biochemical Sedimentary Rocks, Inorganic Processes including Evaporation, Hydrothermal, Chemical Activity and Organic Processes of Biochemical Origin.
Week 11	Types of Chemical and Biochemical Sedimentary Rocks. Carbonate Rocks, Characteristics of the Environment of Marine Carbonate Formation. Sedimentary Environments of Deposition, Depositional Environments.
Week 12	Weathering and Erosion, Mechanical & Chemical Weathering, Products of Weathering, Erosion, types of Mechanical Weathering, types of Chemical Weathering, Factors Influencing Rates of Weathering
Week 13	Crustal deformation and Geologic Structures, Deformation, Deformational Stress, How Do Rocks Deform? Crustal Structures, Anatomy of a Fold, Common Types of Folds,
Week 14	Types of Faults, Summary of Fault Types, Dip-Slip Faults and Strike-Slip Faults, Types of Strike-Slip Faults , Fault-Associated Folding
Week 15	Geological time , The Geologic Time Scale, Methods of Dating Rocks, Relative Dating: Principles of Geology, Law of Original Horizontality, Principle of Superposition, Principle of Lateral Continuity and Principles of Unconformities.
Week 16	Preparatory week before the final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	**Introduction and Crystallography.**
Week 2	**Types of crystal system and their properties.**
Week 3	**Types of minerals , silicates and non silicate and study their physical properties.**
Week 4	**Igneous rocks , their types and composition and textures.**
Week 5	**Metamorphic rocks , their types, textures, and types of metamorphism.**
Week 6	**Sedimentary rocks , their types and classification, detrital sedimentary rocks.**
Week 7	**Chemical sedimentary rocks and their types.**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**1- Essentials of Geology (Lutgens and Tarbuck, 10th Edition).** **2- Sedimentary Basins Evolution, Facies, and Sediment Budget , By Gerhard Einsele , Springer Science & Business Media, Jul 27, 2000 - Science - 792 pages.** **3- 5- Zumberge's Laboratory Manual for Physical Geology (Robert Rutford and James Carter, 14th Edition.)**	Not sure
Recommended Texts	**The Concise Geologic Time Scale , By james G. Ogg, Gabi Ogg , Felix M. Gradstein , Cambridge University Press, Sep 4, 2008 - Science - 177 pages.**	Not sure
Websites	**The Encyclopedia of Field and General Geology , Charles W. Finkl , Springer Science & Business Media, Apr 30, 1988 - Science 1912 pages.**	

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.