Course Description/ Faculty of Engineering

Department of Surveying Engineering *(Bachelor)*

1. معلومات مدرس المساق- Instructor

Name:	Dr. Hussein Harahsheh	الاسم
Office Hours:	12:30 - 13:30 AM (Sunday, Tuesday)	الساعات المكتبية
Office No. and Phone:	5220	رقم المكتب
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Teaching Assistant (if any):	.....	مساعد بحث

2. وصف المساق Course Description

Introduction and Overview: engineering geology vs. geology, engineering geology and civil engineering. - The Earth Origin and Materials: earth materials and processes, history of the earth-geologic time and eras. - Plate Tectonics: continental drift and plate boundaries - Minerals properties. - Rocks: major rock groups Igneous, sedimentary and metamorphic rocks and their characteristics, the rock cycle, weathering and erosion - Geologic Hazards: Earthquakes and volcanoes, Earth Geomorphology, Slope Failure and Subsidence - Geological structure: Strike and dip, Folds, Faults: types and structures, Joints. - Geologic Maps: construct a geologic cross-section; construct a contour map. Engineering Applications: Groundwater. Economic geology. A special chapter will describe the role of remote sensing technology in geology and geomorphology engineering.

3. بيانات المساق Course Information

Level: 2	Course Title: **Geology and Geomorphology Engineering**	Course No. **705231**
Class Time: 10:00 -11:00 (Sunday, Tuesday) Thursday)	Prerequisite: Non	Course Type: Theoretical
Study Hours:3	Semester: First	Academic Year2024 / 2025
المستوى السادس **Sixth Level**	**مستوى التسكين في الإطار الوطني الأردني للمؤهلات** **(Jordan National Qualifications Framework)**	
تاريخ التعديل: 01.09.2023	**تاريخ الإعداد: 2022.02.01**	

نوع التعلم: وجاهي / مدمج/عن بعد **Type of teaching: ⊡ Face to face ⊡ Blended (⊡2:1 ⊡1:1 ⊡1:2) ⊡ Online**

4. المقرر الدراسي Text Book

Title	Engineering Geology	**المرجع الرئيس**
Author	F. G. Bell	**المؤلف**
Publisher	Elsevier	**الناشر**
Year	**2007**	**السنة**
Edition	**2nd Edition**	**الطبعة**
Textbook Website	-	**الموقع الالكتروني للمرجع**

5. المراجع (وتشمل الكتب والبحوث المنشورة في الدوريات او المواقع الالكترونية المحكمة)
References (books, research published in periodicals or websites)

1-	
2-	
3-	

6. مخرجات المساق **Course Intended Learning Outcomes (CILO's)**

الوزن Weight	PLO's مخرجات البرنامج	Descriptors الواصفات	مخرجات المســـــــــاق CLO's	PILO's
15	PILO2 PILO6 PILO7	K1	understand plate tectonics theory and the related internal geologic processes (e.g. faults, earthquakes, volcanoes) and how they affect engineering studies	1
20		C1	Ability to categorize rocks by their origin and engineering properties.	5
15		K2	Ability to Identify and classify common minerals, rocks and soils, and understand their significance to different types of engineering projects.	5
15		S1	Ability to apply engineering science principles to rock masses and discontinuities in engineering design e.g. rock slopes.	1

7. محتوى المساق (Curriculum Design Outline Syllabus)

Week #	Topic	Chapter
Oct 09 – Oct 13	Introduction to Geology Engineering	Ch 1
Oct 16 – Oct 20	Earth Structure Earth Envelopes Solid Earth Envelopes Variations of Physical Conditions with Depth	Ch 2
Oct 16 – Oct 27	Minerals • Formation of Minerals • Families of Minerals • Properties and identification of Minerals	Ch 3
Oct 30 – Nov 17	Rocks • The Nature of Rocks and Rocks Cycle • Igneous Rocks • Sedimentary Rocks • Metamorphic Rocks	Ch 4
Nov 20 - Dec 08	Mid Term Exam and Project presentations	-
Dec 11 -Dec 22	Weathering, Erosion and Soil Formation • Weathering • Soil and Soil Formation • Erosion and Mass Wasting	Ch 5
Dec 25 -Jan 5	Structural Geology: • Introduction • Rock Deformation • Strike and Dip of Bed • Folds • Faults • Joints	Ch 6
Jan 8 -Jan 12	Geomorphology Engineering • Introduction • Geomorphology process • Exogenetic Processes • Endogenetic Process	Ch 7
Jan 14 - Jan 26	Final Exam	

8. استراتيجيات التعليم والتعلم وطرق التقويم
Teaching and learning Strategies and Evaluation Methods)

نوع التقويم/القياس Evaluation /Measurement					أنشطة التعلم Learning Activities	استراتيجيات التدريس Teaching Strategies	مخرجات التعلم Program Intended Learning Outcomes PILOs	ت No.
امتحان Exam	اختبارات قصيرة Quizzes	واجبات Home work	مناقشة Discussion	عروض صفية Presentations				
✓	✓	✓	✓	✓	Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to identify formulate and solve complex Engineering problems by applying principles of / engineering, Science, and mathematics.	1
✓	✓	✓	✓	✓	Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to apply Engineering design to produce solutions that meet specified needs with considerations of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	2
–	–	–	–		Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to communicate effectively with arrange of audiences.	3
–	–	–	–	✓	Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to recognize ethical and professional responsibilities in Engineering situations and make informed judgments, which must consider the impact of Engineering solution in global,	4

							economic, environmental, and societal contexts.	
–	–	–	–	✓	Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to function effectively on a team whose members together provide leadership, create a collaborated and inclusive environment, establish goals, plan task, and made objectives.	5
✓	✓	✓	✓	✓	Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use Engineering judgment to draw conclusions.	6
✓	✓	✓	✓	✓	Presentations/ prepared & introduced by students Class discussion	Effective Learning, Brainstorming	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	7

9. تقييم الطلبة (Assessment)

Distribution of grades	Assessment Time	Methods Used
30%	24/11/2024	Mid Term Exam
20%	Different times **Last: 30/12/2024**	Course Works: Assignments, Quizzes and projects
50%	11/01/2025	Final Exam

10. علاقة التقييم بنتائج التعلم Assessment Relationship to learning Outcomes

المجموع Total	CILO											الدرجات Marks	التقييم Assessment	No.
	11	10	9	8	7	6	5	4	3	2	1			
5	-	2	-	-	-	-	-	-	-	2	-	5	Quiz (1) امتحان قصير (1)	1
5	2	-	-	-	-	-	-	1	-	-	2	5	Presentation عرض تقديمي	2
5	3	-	-	-	-	-	-	-	-	2	-	5	Home work (1) واجب (1)	3
5	-	2	2	-	-	-	-	1	-	-	-	5	Home work (2) واجب (2)	4
30	-	-	-	-	-	-	15	-	10	5	10	30	Midterm Exam امتحان منتصف الفصل	5
50	5	5	5	5	5	2	8	2	8	5	-	50	Final Exam الامتحان النهائي	6
100					5	15	15	20	15	20	14	100	المجمـــــــوع	

11. مخرجات تعلم البرنامج Program Intended Learning Outcomes (PILO's)
(To be added by the school

An ability to identify formulate and solve complex Engineering problems by applying principles of / engineering, Science, and mathematics.	K1	**PILO1**
An ability to apply Engineering design to produce solutions that meet specified needs with considerations of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	S1	**PILO2**
An ability to communicate effectively with arrange of audiences.	C1	**PILO3**

An ability to recognize ethical and professional responsibilities in Engineering situations and make informed judgments, which must consider the impact of Engineering solution in global, economic, environmental, and societal contexts.	C2	**PILO4**
An ability to function effectively on a team whose members together provide leadership, create a collaborated and inclusive environment, establish goals, plan task, and made objectives.	C3	**PILO5**
An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use Engineering judgment to draw conclusions.	S2	**PILO6**
An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	K2	**PILO7**

12. مخرجات تعلم البرنامج Program Educational Objectives (PEO's)
(To be added by the School)

Have the basic math and science knowledge and technical skills of the Surveying and Geomatics Engineering appropriate to enter careers in the geospatial industry and community	**PEO1**
Have appropriate understanding of standards and specifications of the Surveying and Geomatics Engineering's practices.	**PEO2**
Have an understanding of the professional, ethical, and social issues with commitment to quality and dependability.	**PEO3**
Acquire the ability to obtain professional licensure and/or certifications in the Surveying .and Geomatics Engineering	**PEO4**

13. سياسات المساق Course Policies

Should be explained to students at the first meeting:

يجب أن يوضح التالي للطلاب في اللقاء الأول معهم:

13.1Class Attendance:

a. Students must attend all classes of this course.
b. Any student with absence of **12.5%** of the classes of any course, will be illegible to sit for the final exam and will be given the university zero **(F)** in this course, and the teacher writes the word (deprived, and if a student submits an official sick report authenticated by university clinic or an accepted excuse by the Dean of his/her faculty, the student will be considered as withdrawn from the course.
c. Students are not allowed to come late to classes. Any student coming late will not be allowed to attend the class and he/she will be marked absent.

12.1 المواظبة

أ. يجب على الطلاب حضور جميع محاضرات المساق.

ب. أي طالب يتغيب عن 12.5٪ من محاضرات المساق يُحرم من التقدم للامتحان النهائي وسيُمنح صفرًا جامعياً (هـ) في هذا المساق، ويدون مدرس المادة كلمة (محروم)، أما إذا قدم الطالب تقريرًا مرضيًا رسميًا مصدقًا من عيادة جامعية أو عذرًا مقبولاً من قبل عميد كليته، فسيتم اعتبار الطالب منسحبًا من المساق.

د. لا يُسمح للطلاب بالحضور متأخرًا إلى المحاضرات الدراسية، ولن يُسمح لأي طالب قد قدم متأخرًا بحضور المحاضرة وسيتم تمييزه بالغياب.

13.2 Exams: Failure in attending the final exam will result in zero mark unless the student presents an official acceptable excuse to the Dean of his/her faculty who approves an incomplete exam, normally scheduled to be conducted during the first two weeks of the successive semester.

13.2 الامتحانات: يؤدي عدم حضور الامتحان النهائي إلى علامة الصفر ما لم يقدم الطالب عذرًا رسميًا مقبولاً لعميد كليته / لها الذي يوافق على امتحان غير مكتمل، ومن المقرر إجراؤه عادةً خلال أول اسبوعين من الفصل الدراسي التالي.

13.3 Assignments & Projects: Assignments and projects should be submitted to the instructor on the due date. Zero mark will be given for late submissions unless the student has an acceptable excuse approved by the instructor of the course.

13.3الواجبات والمشاريع: يجب تقديم الواجبات والمشاريع إلى المدرس في تاريخ الاستحقاق. سيتم منح علامة الصفر للتقديم المتأخر ما لم يكن لدى الطالب عذر مقبول معتمد من مدرس المساق.

13.4 Exam Attendance/Punctuality:

a. A student who is late more than 10 minutes will not be permitted to sit the exam (first, second or mid exams).
b. A student who is late more than 30 minutes will not be permitted to sit to final exam, and no student will be permitted to leave the exam center before the elapse of 30 minutes.

13.4حضور الامتحان / الالتزام بالمواعيد

أ. لن يسمح للطالب الذي تأخر أكثر من 10 دقائق عن الامتحان بالدخول عليه لأدائه (الأول، الثاني، منتصف الامتحان).
ب. لن يُسمح للطالب الذي تأخر أكثر من 30 دقيقة عن الاختبار النهائي بالدخول عليه، ولن يُسمح لأي طالب بمغادرة قاعة الامتحان قبل مرور 30 دقيقة.

13.5Cheating: Cheating is an attempt to gain marks dishonestly, If the student is caught cheating while taking the exam in one of the courses, or it is proven as a result of the investigation that he attempted to cheat, participated in or attempted to cheat, the following penalties shall be imposed on him collectively:

a. It is considered a failure in that Course.
b. Cancel his registration in the residual of the course registered to him in that semester.
c. Dismissal from the university for one semester following the semester in which he was caught.

13.5الغش: الغش هو محاولة للحصول على علامات بطريقة غير شرعية وإذا ضبط الطالب في أثناء تأدية الامتحان في إحدى المساقات متلبساً بالغش أو تثبت نتيجة التحقيق انه حاول الغش أو اشترك أو شرع فيه توقع عليه العقوبات التالية مجتمعة: -

أ. اعتباره راسباً في تلك المادة.
ب. إلغاء تسجيله في بقية المواد المسجلة له في ذلك الفصل.
ت. فصله من الجامعة لمدة فصل دراسي واحد يلي الفصل الذي ضبط فيه.

12.6 Mobiles: Mobile phones should be kept turned off or silent while in class. Usage of mobile phones is not allowed in classes in any form (talking and/or texting).

13.6الهواتف المحمولة: يجب إبقاء الهواتف المحمولة مغلقة أو صامتة أثناء التواجد في الفصل. لا يُسمح باستخدام الهواتف المحمولة في الفصول بأي شكل (التحدث و / أو الرسائل النصية).