مواصفات مقرر: جيوكيمياء البترول

Course Specification of: Petroleum Geochemistry

General information about the course المعلومات العامة عن المقرر						
.1	اسم المقرر Course Title	جيوكيمياء البترول Petroleum Geochemistry				
.2	رمز المقرر ورقمه Course Code and Number	GEOS 476				
.3	الساعات المعتمدة للمقرر Credit Hours	Credit Hours الساعات المعتمدة				الإجمالي Total
		محاضرات Lecture	عملي Practical	سمنار/تمارين Seminar/Tutorial	تدريب Training	
		2	1	-	-	3
.4	المستوى والفصل الدراسي Study Level and Semester	4th level, 2nd semester				
.5	المتطلبات السابقة المقرر (إن وجدت) Pre-requisites (if any)	GEOS323				
.6	المتطلبات المصاحبة (إن وجدت) Co-requisites (if any)	-				
.7	البرنامج الذي يدرس له المقرر Program(s) in which the course is offered	Bachelor of Geosciences (Petroleum Geology Track)				
.8	لغة تدريس المقرر Language of teaching the course	English/Arabic				
.9	نظام الدراسة Study System	Academic year of two semesters				
.10	مكان تدريس المقرر Location of teaching the course	Faculty of Petroleum and Natural Resources				
.11	اسم معد(و) مواصفات المقرر Prepared by	Assoc.Prof. Adel Al-Matary				
.12	تاريخ اعتماد مجلس الجامعة Date of Approval	2020				

Course Description وصف المقرر

وصف المقرر ر بالإنجليزية	وصف المقرر ر بالعربية
This course provides an overview of basic petroleum geochemistry fundamentals with strong emphasis on applications to exploration and production. Various aspects of hydrocarbon generation and accumulation are discussed and this is followed with lectures on geochemical methods, markers, modeling, coal-bed methane and case studies.	يقدم هذا المقرر لمحة عامة عن أساسيات الجيوكيمياء البترولية الأساسية مع تركيز قوي على تطبيقات الاستكشاف والإنتاج. سيتم مناقشة الجوانب المختلفة لتوليد الهيدروكربونات وتراكمها، ويتبع ذلك محاضرات حول الطرق الجيوكيميائية، الدلائل، والنمذجة، وميثان طبقة الفحم ودراسات الحالة.

Course Intended Learning Outcomes (CILOs) مخرجات تعلم المقرر

After completing the course, the student will be able to:		بعد الانتهاء من دراسة المقرر سوف يكون الطالب قادرا على أن:	
a1.	Show understanding of the processes leading to petroleum generation and accumulation	يظهر فهم العمليات المؤدية إلى توليد البترول وتراكمه	- a1

a2.	recognize the methods of source rocks evaluation, petroleum exploration and reserves assessments.	يتعرف على طرق تقييم الصخور المصدرية واستكشاف البترول وتقييم الاحتياطيات.	**– a2**
b1.	distinguish the unconventional petroleum accumulation patterns	يميز أنماط تراكم النفط غير التقليدية	**–b1**
b2.	Associate geologic environments with petroleum producing regions of the world	يربط البيئات الجيولوجية بمناطق إنتاج البترول في العالم	**- b2**
c1.	Apply technology-based methods to petroleum exploration and present results.	يطبق الأساليب القائمة على التكنولوجيا لاستكشاف النفط عرض النتائج.	**- c1**
c2.	analyses critically and synthesize complex information in order to interpret geological data and apply them to solving problems pertinent to the oil and gas industry.	يحلل بدقة ويؤلف المعلومات المعقدة من أجل تفسير البيانات الجيولوجية وتطبيقها على حل المشاكل المتعلقة بصناعة النفط والغاز.	**- c2**
d1.	Collaborate effectively within a multidisciplinary team.	يتعاون بشكل فعال داخل فريق متعدد التخصصات.	**- d1**
d2.	Acquire entrepreneurial skills to Prepare technical petroleum reports.	يكتسب مهارات التفسير لإعداد التقارير الفنية عن البترول.	**- d2**

مواءمة مخرجات تعلم المقرر مع مخرجات التعلم للبرنامج:

Alignment of CILOs (Course Intended Learning Outcomes) to PILOs (Program Intended Learning Outcomes)

مخرجات التعلم المقصودة من المقرر (Course Intended Learning Outcomes)		مخرجات التعلم المقصودة من البرنامج (Program Intended Learning Outcomes) (تكتب جميع مخرجات البرنامج كما هي رمزا ونصا)	
a1	Show understanding of the processes leading to petroleum generation and accumulation	**A1**	Demonstrate knowledge and understanding of geological-specific theories, paradigms, concepts and principles, in addition to general literature and basic science.
a2	recognize the methods of source rocks evaluation, petroleum exploration and reserves assessments.	**A2**	Elucidate/explain fundamental geological principles and concepts in theoretical, practical and vocational situations and the possibility of applying it.
b1	distinguish the unconventional petroleum accumulation patterns	**B2**	An ability to apply disciplinary knowledge and skills in solving geological and environmental problems logically and professionally
b2	Associate geologic environments with petroleum producing regions of the world	**B2**	
c1	Apply technology-based methods to petroleum exploration and present results.	**C2**	An ability to deal with new and established technologies with efficiency to collect and interpret geological data, recognizing their strengths and limitations.
c2	analyses critically and synthesize complex information in order to interpret geological data and apply them to solving problems pertinent to the oil and gas industry.	**C3**	Employ new and established technologies to exploit earth resources, recognizing the need for sustainable use

			of Earth resources, and value environmental, indigenous and other community perspective on geological activities.
d1	Collaborate effectively within a multidisciplinary team.	**D1**	An ability to function in diverse learning and working environments.
d2	Acquire entrepreneurial skills to Prepare technical petroleum reports.	**D2**	Demonstrate the necessary skills of practicing responsible and personal characteristics with discipline, and ability in making decision

مواءمة مخرجات التعلم باستراتيجيات التعليم والتعلم والتقويم
Alignment of CILOs to Teaching and Assessment Strategies

أولا: مواءمة مخرجات تعلم المقرر (المعارف والفهم) باستراتيجية التعليم والتعلم والتقويم:
First: Alignment of Knowledge and Understanding CILOs

مخرجات المقرر/ المعرفة والفهم Knowledge and Understanding CILOs		استراتيجية التعليم والتعلم Teaching Strategies	استراتيجية التقويم Assessment Strategies
a1 -	Show understanding of the processes leading to petroleum generation and accumulation	Interactive Lectures Discussion	Examinations, Assignments, Oral presentations
a2 -	recognize the methods of source rocks evaluation, petroleum exploration and reserves assessments.		

ثانيا: مواءمة مخرجات تعلم المقرر (المهارات الذهنية) باستراتيجية التدريس والتقويم:
Second: Alignment of Intellectual Skills CILOs

مخرجات المقرر/ المهارات الذهنية Intellectual Skills CILOs		استراتيجية التعليم والتعلم Teaching Strategies	استراتيجية التقويم Assessment Strategies
b1 -	distinguish the unconventional petroleum accumulation patterns	Discussion Demonstration Brain storm Problem solving	Essay test, Assignments, Oral presentations.
b2 -	Associate geologic environments with petroleum producing regions of the world		

ثالثا: مواءمة مخرجات تعلم المقرر (المهارات المهنية والعملية) باستراتيجية التدريس والتقويم:
Third: Alignment of Professional and Practical Skills CILOs

مخرجات المقرر/ المهارات المهنية والعملية Professional and Practical Skills CILOs		استراتيجية التعليم والتعلم Teaching Strategies	استراتيجية التقويم Assessment Strategies
c1-	Apply technology-based methods to petroleum exploration and present results.	Self and independent learning Tutorials & practical classes, case study,	Achievement tests Chart Drawing practical exams
c2-	analyses critically and synthesize complex		

	information in order to interpret geological data and apply them to solving problems pertinent to the oil and gas industry.	Computer based teaching	

رابعا: مواءمة مخرجات تعلم المقرر (المهارات العامة) باستراتيجية التدريس والتقويم:

Fourth: Alignment of Transferable (General) Skills CILOs

مخرجات المقرر Transferable (General) Skills CILOs		استراتيجية التعليم والتعلم Teaching Strategies	استراتيجية التقويم Assessment Strategies
d1-	Collaborate effectively within a multidisciplinary team.	Small group working Student-led Seminars Case Study Method	Achievement tests Team working
d2-	Acquire entrepreneurial skills to Prepare technical petroleum reports.		

Course Content محتوى المقرر

Theoretical Aspect موضوعات الجانب النظري

الرقم Order	الموضوعات الرئيسة/ الوحدات Topic List / Units	الموضوعات الفرعية Sub Topics List	عدد الأسابيع Number of Weeks	الساعات الفعلية Contact Hours	رموز مخرجات التعلم للمقرر (CILOs)
1	**Introduction and review of fundamentals**	*Philosophy of Hydrocarbon Exploration*	1	2	a1 a2
2	**Formation of Oil and Gas**	*Geological and geochemical constraints on hydrocarbon generation and accumulation*	1	2	a1 a2 b1 c2
3	**Organic Facies**	*The Carbon Cycle* *Factors Influencing Organic Richness* *Examples of Rich and Lean Sediments* *General Models for Source-Rock Development*	2	4	a1 a2 b1 c2 d1
4	**Kerogen**	*Kerogen Formation* *Kerogen Composition* *Kerogen Maturation*	1	2	a1 a2 b1 c2 d2
5	**Bitumen, Petroleum, and Natural Gas**	*Compounds Present in Bitumen and Petroleum* *Factors Affecting Composition ofBitu1nen and Petroleum* *Comparison of Bitumen and Petroleum Natural* Gas	1	2	a1 a2 b1 c2 d2
6	**Migration**	*Primary Migration*	1	2	a1 a2

		Secondary Migration *Accumulation* *Effects on Oil and Gas Composition Significance for Exploration*			b1 c2 d1 d2
7	**Source-Rock Evaluation**	*Definition of Source Rock* *Principles of Source-Rock Evaluation* *Interpretation of Source-Rock Data* *Examples of Source-Rock Evaluation*	2	4	a1 a2 b1 b2 c1 c2 d2
8	**Predicting Thermal Maturity**	*Special Considerations About Burial-History Curves* *Calculation of Maturity* *Factors Affecting Thermal Maturity* *Interpretation of TTl Values* *Applications to Hydrocarbon Preservation* *Applications to Exploration* *Comparison of Several Maturity Models*	2	4	a1 a2 b1 b2 c1 c2
9	**Geochemical Correlations**	*Correlation Parameters* *Correlation Parameters for Gases* *Case Studies*	1	2	a1 b1 b2 c1 c2 d2
10	**Geochemistry in exploitation and development**	*(reservoir geochemistry)*	1	2	a2 b1 b2 c1 c2 d2
11	**Introduction to coal-bed methane**		1	2	a1 a2
عدد الأسابيع والساعات الفعلية **Number of Weeks /and Contact Hours Per Semester**			**14**	**28**	

Practical Aspect (if any) الموضوعات العملية (إن وجدت)

الرقم Order	التجارب العملية/ التمارين / تدريبات Practical / Exercises/ Tutorials topics	عدد الأسابيع Number of Weeks	الساعات الفعلية Contact Hours	رموز مخرجات التعلم Course ILOs
1	**Organic Facies**	1	2	a1 c2
2	*Kerogen Composition*	1	2	b1 b2 c2

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Quality Assurance Unit
Assoc.Prof. Adel Al-Matary

Dean of the Faculty
Assoc.Prof. Bassim AlKhirbash

Dean of the Development & Quality Assurance Center
Assoc.Prof. Huda Al-Emad

Rector of Sana'a University
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3	*Kerogen Maturation*	1	2	b1 b2 c1 c2
4	*Interpretation of Source-Rock Data*	1	2	b1 b2 c1c2 d2
5	*Examples of Source-Rock Evaluation Practice Problems*	1	2	b1 b2 c1 c2 d2
6	Calculation of Maturity	1	2	c2
7	Potential Problems with Maturity Calculations	1	2	b1 c2
8	*Construction of the Geological Model Qualitative Models of Hydrocarbon Systems*	2	4	b1 b2 c1 c2 d2
9	*Interpretation of TTl Values*	1	2	b1 b2 c1 c2 d2
10	*Correlation Parameters -Practice Problems*	1	2	c2
11	Quantitative (Volumetric) Models	2	4	b1 b2 c1 c2 d2
اجمالي الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		**13**	**26**	

Teaching Strategies استراتيجيات التعليم والتعلم

- Interactive Lectures
- Discussion
- Demonstration
- Brain storm
- Problem solving
- Case study,
- Computer based teaching
- Small group working

Tasks and Assignments الأنشطة والتكليفات

م No	التكليف/ الواجب Assignments/ Tasks	نوع التكليف (فردي/تعاوني)	الدرجة المستحقة Mark	أسبوع التنفيذ Week Due	خرجات التعلم CILOs (symbols)
1	N/A				
	Total Score إجمالي الدرجة				

Learning Assessment تقييم التعلم

الرقم No.	أنشطة التقييم Assessment Tasks	أسوع التقييم Week due	الدرجة Mark	نسبة الدرجة إلى الدرجة النهائية Proportion of Final Assessment	مخرجات التعلم CILOs (symbols)
1	**Lab Exercises**	**Weekly**	**10**	**6.7%**	**b1, b2,c1,c2**
2	**Assignments**	**Quarter**	**10**	**6.7%**	**a1,a2,a3,c1,c2**
3	**Participation**	**Weekly**	**10**	**6.7%**	**a1,a2,c1,c2,d1**

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4	Quizzes	End of a topic	10	6.7%	a1,a2,b1,b2,
5	Mid-Term written exam	Week 8	20	13.3%	a1,a2,b1,b2,
6	Final lab Exam	Week 15	20	13.3%	b1,b2,c1,c2,d1
7	Final Exam (theoretical)	Week 16	70	46.6%	all
Total الإجمالي			150	100.00%	

Learning Resources مصادر التعلم

Required Textbook(s) (لا تزيد عن مرجعين) المراجع الرئيسة

1. Harry Dembicki.**2016**. **Practical Petroleum Geochemistry for Exploration and Production**. Elsevier Science.
2. D. Satyanarayana.**2011**. **Petroleum Geochemistry**. Daya Publishing House.

References

1. Douglas w. Waples. (**1985**). **Geochemistry in Petroleum Exploration**. D. REIDEL PUBLISHING COMPANY.
2. Hunt, J. (1996): **Petroleum geochemistry and geology**. W. H. Freeman and Company (2nd ed.), San Francisco
3. Tissot, B. P. and Welte, D. H. (**1984**): **Petroleum formation and occurrence**. Springer-Verlag Berlin, Heidelberg, New York, Tokyo (2nd ed.).

Electronic Materials and Web Sites *etc.* المصادر الإلكترونية ومواقع الإنترنت

http://link.springer.com
http://www.sciencedirect.com

Course Policies:

1	**Class Attendance:** - Students are expected to attend classes regularly and promptly. - The attendance should not be less than 80%. - If the student has been absent, he is responsible for finding out any missed material by consulting other students or going to the professor's office hours.
2	**Tardy:** - Attendance and arriving on time for the class are necessary. If the student is late, he will be prevented from class.
3	**Exam Attendance/Punctuality:** - According to the rules the student gets absent in the exam of the course.
4	**Assignments & Projects:** - Papers survey or projects should be submitted by the time detriment by the professor.
5	**Cheating:** - According to the rules, cheating is a serious offense and will always result in an imposition of a penalty. The penalties that can be started from the range of canceling the result of the course to canceling the student's admission.

Prepared by	Quality Assurance Unit	Dean of the Faculty	Dean of the Development & Quality Assurance Center
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6	**Plagiarism:** -Plagiarism is a serious offense and will always result in an imposition of a penalty. The penalties that can be started by making a zero mark for the work.
7	**Other policies:** -The student should by a commitment by the rules inside class and university. Therefore, he is expected to show respect for his classmate, instructors &others.

قسم/ برنامج: برنامج العلوم الجيولوجية – (مسار جيولوجيا البترول)
Geoscience program- (Petroleum Geology Track)

العام الجامعي: 2019-2020م

خطة مقرر: جيوكيمياء البترول
Course Plan (Syllabus): Petroleum Geochemistry

Information about Faculty Member Responsible for the Course معلومات عن أستاذ المقرر

الاسم Name	Assoc.Prof. Adel Al-Matary	الساعات المكتبية (أسبوعيا) Office Hours					
المكان ورقم الهاتف Location &Telephone No.	770770769	السبت SAT	الأحد SUN	الاثنين MON	الثلاثاء TUE	الأربعاء WED	الخميس THU
البريد الإلكتروني E-mail	a.almatary@su.edu.ye						

General information about the course معلومات عامة عن المقرر

.1	اسم المقرر Course Title	جيوكيمياء البترول Petroleum Geochemistry				
.2	رمز المقرر ورقمه Course Code and Number	GEOS 476				
.3	الساعات المعتمدة للمقرر Credit Hours	Credit Hours الساعات المعتمدة				الإجمالي Total
		محاضرات Lecture	عملي Practical	سمنار/تمارين Seminar/Tutorial	تدريب Training	
		2	1	-	-	3
.4	المستوى والفصل الدراسي Study Level and Semester	4th level, 2nd semester				
.5	المتطلبات السابقة للمقرر Pre-requisites	GEOS323				
.6	المتطلبات المصاحبة (إن وجدت) Co –requisite	-				
.7	البرنامج الذي يدرس له المقرر Program (s) in which the course is offered	Bachelor of Geosciences				
.8	لغة تدريس المقرر Language of teaching the course	English/Arabic				
.9	مكان تدريس المقرر Location of teaching the course	Faculty of Petroleum and Natural Resources				

Course Description وصف المقرر

This course provides an overview of basic petroleum geochemistry fundamentals with strong emphasis on applications to exploration and production. Various aspects of hydrocarbon generation and accumulation are discussed and this is followed with lectures on geochemical methods, markers, modeling, coal-bed methane and case studies.

يقدم هذا المقرر لمحة عامة عن أساسيات الجيوكيمياء البترولية الأساسية مع تركيز قوي على تطبيقات الاستكشاف والإنتاج. سيتم مناقشة الجوانب المختلفة لتوليد الهيدروكربونات وتراكمها، ويتبع ذلك محاضرات حول الطرق الجيوكيميائية، الدلائل، والنمذجة، وميثان طبقة الفحم ودراسات الحالة.

Course Intended Learning Outcomes (CILOs) مخرجات تعلم المقرر

After completing the course, the student will be able to:	بعد الانتهاء من دراسة المقرر سوف يكون الطالب قادرا على أن:
a1. understand the processes leading to petroleum generation and accumulation	يظهر فهم العمليات المؤدية إلى توليد البترول وتراكمه
a2. recognize the methods of source rocks evaluation, petroleum exploration and reserves assessments.	يتعرف على طرق تقييم الصخور المصدرية واستكشاف البترول وتقييم الاحتياطيات.
b1. distinguish the unconventional petroleum accumulation patterns	يميز أنماط تراكم النفط غير التقليدية
b2. Associate geologic environments with petroleum producing regions of the world	يربط البيئات الجيولوجية بمناطق إنتاج البترول في العالم
c1. Apply technology-based methods to petroleum exploration and communicate results.	يطبق الأساليب القائمة على التكنولوجيا لاستكشاف النفط عرض النتائج.
c2. analyses critically and synthesize complex information in order to interpret geological data and apply them to solving problems pertinent to the oil and gas industry.	يحلل بدقة ويؤلف المعلومات المعقدة من أجل تفسير البيانات الجيولوجية وتطبيقها على حل المشاكل المتعلقة بصناعة النفط والغاز.
d1. Collaborate effectively within a multidisciplinary team.	يتعاون بشكل فعال داخل فريق متعدد التخصصات.
d2. Acquire entrepreneurial skills to Prepare technical petroleum reports.	يكتسب مهارات التفسير لإعداد التقارير الفنية عن البترول.

Course Content محتوى المقرر

Theoretical Aspect خطة تنفيذ الموضوعات النظرية

الرقم Order	الوحدات (الموضوعات الرئيسة) Units	الموضوعات التفصيلية Sub Topics	الأسبوع Week Due	الساعات الفعلية Con. H
1	**Introduction and review of fundamentals**	*Philosophy of Hydrocarbon Exploration*	Week 1	2
2	**Formation of Oil and Gas**	*Geological and geochemical constraints on hydrocarbon generation and accumulation*	Week 2	2
3	**Organic Facies**	*The Carbon Cycle* *Factors Influencing Organic Richness* *Examples of Rich and Lean Sediments* *General Models for Source-Rock Development*	Week 3-4	4
4	**Kerogen**	*Kerogen Formation* *Kerogen Composition* *Kerogen Maturation*	Week 5	2
5	**Bitumen, Petroleum, and Natural Gas**	*Compounds Present in Bitumen and Petroleum*	Week 6	2

		Factors Affecting Composition ofBitu1nen and Petroleum *Comparison of Bitumen and Petroleum Natural* Gas		
6	**Migration**	*Primary Migration* *Secondary Migration* *Accumulation* *Effects on Oil and Gas Composition* *Significance for Exploration*	**Week** 7	2
7	**Mid Term Exam**		**Week** 8	2
8	**Source-Rock Evaluation**	*Definition of Source Rock* *Principles of Source-Rock Evaluation* *Interpretation of Source-Rock Data* *Examples of Source-Rock Evaluation*	**Week** 9-10	4
9	**Predicting Thermal Maturity**	*Special Considerations About Burial-History Curves* *Calculation of Maturity* *Factors Affecting Thermal Maturity* *Interpretation of TTl Values* *Applications to Hydrocarbon Preservation* *Applications to Exploration* *Comparison of Several Maturity Models*	**Week** 11-12	4
10	**Geochemical Correlations**	*Correlation Parameters* *Correlation Parameters for Gases* *Case Studies*	**Week** 13	2
11	**Geochemistry in exploitation and development**	*(reservoir geochemistry)*	**Week** 14	2
12	**Introduction to coal-bed methane**		**Week** 15	2
13	Final Exam		**Week** 16	2
عدد الأسابيع والساعات الفعلية **Number of Weeks /and Contact Hours Per Semester**			**16**	**32**

Practical / Training/ Tutorials/ Exercises Aspects خطة تنفيذ موضوعات الجانب العملي

الرقم Order	موضوعات العملي/ المهام / التمارين Practical/ Tutorials/ Exercises Aspects	الأسبوع Week Due	الساعات الفعلية Cont. H
1	**Organic Facies**	**Week** 1	2
2	*Kerogen Composition*	**Week** 2	2
3	*Kerogen Maturation*	**Week** 3	2
4	*Interpretation of Source-Rock Data*	**Week** 4	2
5	*Examples of Source-Rock Evaluation*	**Week** 5	2

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	Practice Problems		
6	Calculation of Maturity	Week 6	2
7	Lab exam	Week 7	
8	Potential Problems with Maturity Calculations	Week 8	2
9	*Construction of the Geological Model* *Qualitative Models of Hydrocarbon Systems*	Week 10-9	4
10	*Interpretation of TTl Values*	Week 11	2
11	*Correlation Parameters -Practice Problems*	Week 12	2
12	Quantitative (Volumetric) Models	Week 14-13	4
13	Final Lab Exam	Week 15	**2**
اجمالي الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		**15**	**30**

Teaching Strategies استراتيجيات التعليم والتعلم

- **Interactive Lectures**
- **Discussion**
- **Demonstration**
- **Brain storm**
- **Problem solving**
- **Case study,**
- **Computer based teaching**
- **Small group working**
- **Student-led Seminars**

Tasks and Assignments الأنشطة والتكليفات

م No	التكليف/ الواجب Assignments	نوع التكليف (فردي/ تعاوني)	الدرجة المستحقة Mark	أسبوع التنفيذ Week Due
1				
	إجمالي الدرجة Total Score		15/150 10/ 100	

Learning Assessment تقويم التعلم

م No	أساليب التقويم Assessment Method	موعد(أسبوع) التقويم Week Due	الدرجة Mark	الوزن النسبي% Proportion of Final Assessment
1	**Lab Exercises**	**Weekly**	**10**	**6.7%**
2	**Assignments**	**Quarter**	**10**	**6.7%**
3	**Participation**	**Weekly**	**10**	**6.7%**
4	**Quizzes**	**End of a topic**	**10**	**6.7%**

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Prof. Dr. Al Qaseem Mohammed Abas

5	Mid-Term written exam	Week 8	20	13.3%
6	Final lab Exam	Week 15	20	13.3%
7	Final Exam (theoretical)	Week 16	70	46.6%
	Total المجموع		150	100.00%

Learning Resources مصادر التعلم

Required Textbook(s) (لا تزيد عن مرجعين) المراجع الرئيسة

3. Harry Dembicki.**2016**. **Practical Petroleum Geochemistry for Exploration and Production**. Elsevier Science.
4. D. Satyanarayana.**2011**. **Petroleum Geochemistry**. Daya Publishing House.

References

4. Douglas w. Waples. (**1985**). **Geochemistry in Petroleum Exploration**. D. REIDEL PUBLISHING COMPANY.
5. Hunt, J. (1996): **Petroleum geochemistry and geology**. W. H. Freeman and Company (2nd ed.), San Francisco
6. Tissot, B. P. and Welte, D. H. (**1984**): **Petroleum formation and occurrence**. Springer-Verlag Berlin, Heidelberg, New York, Tokyo (2nd ed.).

Electronic Materials and Web Sites *etc.* المصادر الإلكترونية ومواقع الإنترنت

http://link.springer.com
http://www.sciencedirect.com

Course Policies:

1	**Class Attendance:** - Students are expected to attend classes regularly and promptly. - The attendance should not be less than 80%. - If the student has been absent, he is responsible for finding out any missed material by consulting other students or going to the professor's office hours.
2	**Tardy:** - Attendance and arriving on time for the class are necessary. If the student is late, he will be prevented from class.
3	**Exam Attendance/Punctuality:** - According to the rules the student gets absent in the exam of the course.
4	**Assignments & Projects:** - Papers survey or projects should be submitted by the time detriment by the professor.
5	**Cheating:** - According to the rules, cheating is a serious offense and will always result in an imposition of a penalty. The penalties that can be started from the range of canceling the result of the course to canceling the student's admission.
6	**Plagiarism:** -Plagiarism is a serious offense and will always result in an imposition of a penalty. The penalties

	that can be started by making a zero mark for the work.
7	**Other policies**: -The student should by a commitment by the rules inside class and university. Therefore, he is expected to show respect for his classmate, instructors &others.