



مواصفات مقرر: هندسة الغاز الطبيعي

Course Specification of: Natural Gas Production Engineering

المعلومات العامة عن المقرر General information about the course					
1.	اسم المقرر Course Title	Natural Gas Production Engineering هندسة انتاج الغاز الطبيعي			
2.	رمز المقرر ورقمه Course Code and Number	PNGE 452			
3.	الساعات المعتمدة للمقرر Credit Hours	الساعات المعتمدة Credit Hours			الإجمالي Total
		محاضرات Lecture	عملي Practical	سمنار/تمارين Seminar/Tutorial	
		2	1		3
4.	المستوى والفصل الدراسي Study Level and Semester	Fourth Year: Second Semester			
5.	المتطلبات السابقة للمقرر (إن وجدت) Pre-requisites (if any)	PNGE 446, PNGE 453			
6.	المتطلبات المصاحبة (إن وجدت) Co-requisites (if any)	N.A.			
7.	البرنامج الذي يدرس له المقرر Program (s) in which the course is offered	Petroleum and Natural Gas Engineering			
8.	لغة تدريس المقرر Language of teaching the course	English			
9.	نظام الدراسة Study System	Semester wise			
10.	مكان تدريس المقرر Location of teaching the course	Faculty of Petroleum and Natural Resources			
11.	اسم معد (و) مواصفات المقرر Prepared by	Dr.Salem Obaid Baarimah			
12.	تاريخ اعتماد مجلس الجامعة Date of Approval	2020			

وصف المقرر Course Description	
وصف المقرر بالإنجليزية	وصف المقرر بالعربية
<p>This course provides students with comprehensive study of theoretical principles and concepts related to natural gas production, processing, flowing and operation. It includes introduction and basic concepts of gas, gas separation and processing, gas compression, gas flow through pipes and restrictions, gas metering, gas gathering and transportation gas hydrates and gas corrosion in pipes and tanks.</p>	



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.	Identify the principle theoretical and concepts related to natural gas production, processing, flowing and operation.		- a1
a2.	Demonstrate the difference types of gas separation, compression, pipes, metering, tanks, gas hydrates and corrosion.		- a2
b1.	Estimate optimum operating conditions of gas flow in separators, compression, pipeline and tanks.		-b1
c1.	Design the components of separators, compression, pipelines, tanks of oil and natural gas within economic, environmental and safety constraints.		- c1
c2.	Apply knowledge of mathematics, science, engineering fundamentals to propose solution of gas hydrates formation and tanks and pipelines corrosion problems.		- c2
d1.	Work in groups according to responsibilities of each team member to prepare reports related to oil and gas transportation and storage.		- c3

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.	Identify the principle theoretical and concepts related to natural gas production, processing, flowing and operation.	A1.	Demonstrate the concepts of basic science and mathematics related to field of petroleum engineering.
a2.	Demonstrate the difference types of gas separation, compression, pipes, metering, tanks, gas hydrates and corrosion.		
b1.	Estimate optimum operating conditions of gas flow in separators, compression, pipeline and tanks.	B1.	Use the principles of engineering in developing solutions to practical petroleum engineering and select appropriate computer software for modeling.



c1.	Design the components of separators, compression, pipelines, tanks of oil and natural gas within economic, environmental and safety constraints.	C1.	Carry out special engineering design in all petroleum engineering projects.
c2.	Apply knowledge of mathematics, science, engineering fundamentals to propose solution of gas hydrates formation and tanks and pipelines corrosion problems.	C3.	Deal with the high level of uncertainty in definition and solution of petroleum reservoir problems.
d1.	Work in groups according to responsibilities of each team member to prepare reports related to oil and gas transportation and storage.	D3.	Prepare technical petroleum reports.

مواءمة مخرجات التعلم باستراتيجيات التعليم والتعلم والتقييم Alignment of CILOs to Teaching and Assessment Strategies		
أولاً: مواءمة مخرجات تعلم المقرر (المعارف والفهم) باستراتيجية التعليم والتعلم والتقييم: First: Alignment of Knowledge and Understanding CILOs		
مخرجات المقرر/ المعرفة والفهم Knowledge and Understanding CILOs	استراتيجية التعليم والتعلم Teaching Strategies	استراتيجية التقييم Assessment Strategies
a1.	<ul style="list-style-type: none"> - Lecture - class - Discussions - Independent-learning - Video 	<ul style="list-style-type: none"> - Quiz - Oral questions - Home work - Exercises - Exam
a2.		
ثانياً: مواءمة مخرجات تعلم المقرر (المهارات الذهنية) باستراتيجية التدريس والتقييم: Second: Alignment of Intellectual Skills CILOs		
مخرجات المقرر/ المهارات الذهنية Intellectual Skills CILOs	استراتيجية التعليم والتعلم Teaching Strategies	استراتيجية التقييم Assessment Strategies
b1.	<ul style="list-style-type: none"> - Lecture - Class Discussions - Project - Problem-based learning - Tutorial - Group working 	<ul style="list-style-type: none"> - Quiz - Home work - Exercises - Exam
ثالثاً: مواءمة مخرجات تعلم المقرر (المهارات المهنية والعملية) باستراتيجية التدريس والتقييم:		



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. Design the components of separators, compression, pipelines, tanks of oil and natural gas within economic, environmental and safety constraints.	- Lecture - Tutorial - Discussion - Problem solving	- Quiz - Home work - Exercises - Exam
c2. Apply knowledge of mathematics, science, engineering fundamentals to propose solution of gas hydrates formation and tanks and pipelines corrosion problems.	- Group working - Project - Petroleum computer software	
رابعاً: موازنة 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. Work in groups according to responsibilities of each team member to prepare reports related to oil and gas transportation and storage.	- Discussion - Problem solving - Group working - Petroleum computer software - Project	Project evaluation

Course Content محتوى المقرر					
Theoretical Aspect الموضوعات الجانب النظري					
الرقم Order	الموضوعات الرئيسية/ الوحدات Topic List / Units	الموضوعات الفرعية Sub Topics List	عدد الأسابيع Number of Weeks	الساعات الفعالية Contact Hours	رموز مخرجات التعلم للمقرر (CILOs)
1	Introduction	<ul style="list-style-type: none"> ➤ Demand for natural gas. ➤ Supply of natural gas. ➤ Liquefied natural gas. ➤ Classification of gas reservoirs. ➤ Unconventional sources of natural gas. 	1	2	a1



2	Gas separation and processing	<ul style="list-style-type: none"> ➤ Gas treatment. ➤ Separators types. ➤ Stage separation. ➤ Factors affecting. ➤ Separators design. ➤ Low temperature separation. 	2	4	a1,a2,b1,c1
3	Gas Compression	<ul style="list-style-type: none"> ➤ Compressor applications. ➤ Classifications. ➤ Theory of compression. ➤ Compression design. 	2	4	a1,a2,b1,c1
4	Gas flow through pipes and restrictions	<ul style="list-style-type: none"> ➤ Single-phase flow. ➤ Presence of liquids. ➤ Pressure drop across restrictions. ➤ Erosional velocity. 	2	4	a1,a2,b1
5	Mid-term exam	<ul style="list-style-type: none"> ➤ In class written test. 	1	2	a1,a2,b1,c1
6	Gas Metering	<ul style="list-style-type: none"> ➤ Head meters. ➤ Orifice meter. ➤ Other primary elements. ➤ Other meters. 	1	2	a1,a2,b1
7	Gas gathering and transportation	<ul style="list-style-type: none"> ➤ Fundamentals of flow in pipes. ➤ Gas pipeline flow calculations. ➤ Series gas flow. ➤ Parallel gas flow. ➤ Looped gas flow. ➤ Gas pipeline economics. ➤ Gas tanks. 	2	4	a1,a2,b1,c1
8	Gas hydrates	<ul style="list-style-type: none"> ➤ Water content of gas streams . ➤ Hydrate formation. ➤ Hydrate control. ➤ Dehydration systems. ➤ Glyco dehydrators design. ➤ Removal of acid gas. ➤ Gas sweeting. 	2	4	a1,a2,c2
9	Gas corrosion in pipes and tanks	<ul style="list-style-type: none"> ➤ Introduction . ➤ Corrosion control. ➤ Reasons for the study of corrosion. ➤ Corrosion mechanism. ➤ Corrosion chemical 	1	2	a1,a2,c2

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		equations . ➤ Corrosion treatment.			
10	Final Practical exam	➤ In class written test.	1	2	
11	Final theoretical exam	➤ In class written test.	1	2	
عدد الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester			14	28	

الموضوعات العملية (إن وجدت) Practical Aspect (if any)				
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	<ul style="list-style-type: none"> ➤ Separators optimum operating conditions calculations. ➤ Separators design. 	2	4	a2,b1,c1
2	<ul style="list-style-type: none"> ➤ Compression optimum operating conditions calculations. ➤ Compression design. 	2	4	a2,b1,c1
3	<ul style="list-style-type: none"> ➤ Friction pressure drop in a horizontal pipeline calculations. ➤ Gas flow in pipes calculations. ➤ Pressure drop of gas flow in low-pressure pipes calculations. ➤ Pressure drop of gas flow in high-pressure pipes calculations. ➤ Mean pressure in gas pipes calculations. 	2	4	a2,b1,c1
4	<ul style="list-style-type: none"> ➤ Gas Metering calculations. 	2	4	a2,b1,c1
5	<ul style="list-style-type: none"> ➤ Temperature of flowing gases. ➤ Series systems. ➤ Parallel systems. ➤ Loopless systems. ➤ Pipelines design. ➤ Gas tanks design. 	3	6	a2,b1,c1
6	<ul style="list-style-type: none"> ➤ Estimating hydrate formation temperature or pressure. ➤ Calculating temperature drop due to gas expansion. ➤ Calculating the amount of inhibitor required to prevent hydrates. 	1	2	a2,c2
7	<ul style="list-style-type: none"> ➤ Corrosion chemical equations. ➤ Corrosion treatment. 	1	2	a2,c2

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8	➤ Final Practical exam.	1	2	a2,b1,c1,c2
اجمالي الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		14		

استراتيجيات التعليم والتعلم Teaching Strategies

- Class Discussions
- Group working
- Independent-learning
- Lecture
- Problem-based learning
- Project
- Tutorial
- Video
- Petroleum computer software

الأنشطة والتكليفات Tasks and Assignments

م No	التكليف/ الواجب Assignments/ Tasks	نوع التكليف (فردى/ تعاونى)	الدرجة المستحقة Mark	أسبوع التنفيذ Week Due	مخرجات التعلم CILOs (symbols)
1	Exercises & Home works	personal	5	By-weekly basis	b1,c1,c2
2	Project	Team	5	13	b1,c1,c2, d1
إجمالي الدرجة Total Score			10		

تقييم التعلم Learning Assessment

الرقم No.	أنشطة التقييم Assessment Tasks	أسبوع التقييم Week due	الدرجة Mark	نسبة الدرجة إلى الدرجة النهائية Proportion of Final Assessment	مخرجات التعلم CILOs (symbols)
1	الأنشطة والتكليفات Tasks and Assignments	By-weekly basis	10	6.7%	b1,c1,c2
2	كوز (1) Quiz (1)	W6	5	3.3%	a1,a2,b1,c1
3	اختبار نصف الفصل Midterm Exam	W8	25	16.7%	a1,a2,b1,c1
4	كوز (2) Quiz (2)	W12	5	3.3%	b1,c1,c2
5	Project	W13	10	6.7%	b1,c1,c2,d1
6	اختبار نهاية الفصل (عملي) Final Exam (practical)	W 15	25	16.7%	a2,b1,c1,c2



7	اختبار نهاية الفصل (نظري) Final Exam (theoretical)	W16	70	46.6%	a1,a2,b1, c1,c2
Total الإجمالي			150	100%	

Learning Resources مصادر التعلم	
توثق المراجع حسب نظام APA (اسم المؤلف، سنة النشر، اسم الكتاب، دار النشر، بلد النشر).	
Required Textbook(s) المراجع الرئيسية (لا تزيد عن مرجعين)	
<ol style="list-style-type: none"> 1. H. Dale Beggs,1984, Gas Production Operations, Oil & Gas Consultants International, Tulsa, Oklahoma. 2. IkoKu, Chi.,U., 1992, Natural Gas Production Engineering, Krieger publishing company Malabar. 	
Essential References المراجع المساندة	
<ol style="list-style-type: none"> 1. Mohan Kelkar,2007, Natural Gas Production Engineering ,PennWell Corporation,1421 South Sheridan Road,Tulsa, Oklahoma 74112-6600 USA. 2. William C. Lyons, 2010,Working Guide To Petroleum and Natural Gas Production Engineering, Gulf Publishing is an imprint of Elsevier, MA01803, USA, Langford Lane, Oxford OX5 1GB. 3. Ken Arnold& Maurice Stewart, (1999), Surface Production Operations, 2nd Ed., Volume 1, Houston, Gulf Publishing Company. 4. A. P. Szilas, 1985, Production and Transport of Oil and Gas, Second completely revised edition, Part A, Amsterdam-Oxford-New York-Tokyo. 	
Electronic Materials and Web Sites etc. المصادر الإلكترونية ومواقع الإنترنت	
<ol style="list-style-type: none"> 1. Sites of society petroleum engineers. https://www.spe.org/en/ 2. Journal of Petroleum Science and Engineering. https://www.journals.elsevier.com/journal-of-petroleum-science-and-engineering 	

Course Policies الضوابط والسياسات المتبعة في المقرر	
1	Class Attendance حضور الفعاليات التعليمية A student should attend not less than 75 % of total hours of the subject, otherwise he/she will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic. If the absent is more than 25% of a course total contact hours, student will be required to retake the entire course again.
2	Tardy الحضور المتأخر For late in attending the class, the student will be initially notified. If he repeated lateness in attending class, he/she will be considered as absent.
3	Exam Attendance/Punctuality ضوابط الامتحان A student should attend the exam on time. He/she is permitted to attend an exam half one



	hour from exam beginning, after that he/she will not be permitted to take the exam and he/she will be considered as absent in exam.
4	Assignments & Projects <u>التعيينات والمشاريع</u> In general one assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time, mostly one week after given the assignment.
5	Cheating <u>الغش</u> For cheating in exam, a student will be considered as fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the Faculty.
6	Plagiarism <u>الانتحال</u> Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proofed a plagiarism of a student, he/she will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Council Affair of the university or according to the university roles.
7	Other policies <u>سياسات أخرى</u> <ul style="list-style-type: none">➤ Mobile phones are not allowed to use during a class lecture. It must be closed, otherwise the student will be asked to leave the lecture room.➤ Mobile phones are not allowed in class during the examination.➤ Lecture notes and assignments might be given directly to students using soft or hard copy.



قسم/ برنامج: هندسة النفط والغاز الطبيعي Petroleum and Natural Gas Engineering
العام الجامعي: 2019-2020م

خطة مقرر: هندسة انتاج الغاز الطبيعي

Course Plan (Syllabus): Natural Gas Production Engineering

معلومات عن أستاذ المقرر Information about Faculty Member Responsible for the Course						
الاسم Name	Dr.Salem Obaid Baarimah		الساعات المكتبية (أسبوعياً) Office Hours			
المكان ورقم الهاتف Location & Telephone No.	711629232		السبت SAT	الأحد SUN	الاثنين MON	الثلاثاء TUE
البريد الإلكتروني E-mail	soob2005@gmail.com/ hu.edu.y					الأربعاء WED
						الخميس THU

معلومات عامة عن المقرر General information about the course					
1.	اسم المقرر Course Title	Natural Gas Production Engineering هندسة انتاج الغاز الطبيعي			
2.	رمز المقرر ورقمه Course Code and Number	PNGE 446			
3.	الساعات المعتمدة للمقرر Credit Hours	الساعات المعتمدة Credit Hours			الإجمالي Total
		محاضرات Lecture	عملي Practical	سمنار/تمارين Seminar/Tutorial	
		2	1		3
4.	المستوى والفصل الدراسي Study Level and Semester	Fourth Year: Second Semester			
5.	المتطلبات السابقة للمقرر Pre-requisites	PNGE 446, PNGE 453			
6.	المتطلبات المصاحبة (إن وجدت) Co-requisite	N.A.			
7.	البرنامج الذي يدرس له المقرر Program (s) in which the course is offered	Petroleum and Natural Gas Engineering			
8.	لغة تدريس المقرر Language of teaching the course	English			
9.	مكان تدريس المقرر Location of teaching the course	Faculty of Petroleum and Natural Resources			

ملاحظة: الساعة المعتمدة للتمارين تساوي ساعتين فعليتين خلال التدريس.

وصف المقرر Course Description
This course provides students with comprehensive study of theoretical principles and concepts related to natural gas production, processing, flowing and operation. It includes introduction and basic concepts of gas, gas separation and processing, gas compression, gas flow through pipes and restrictions, gas metering, gas gathering and transportation gas hydrates and gas corrosion in pipes and tanks.

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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. Identify the principle theoretical and concepts related to natural gas production, processing, flowing and operation.	- a1
a2. Demonstrate the difference types of gas separation, compression, pipes, metering, tanks, gas hydrates and corrosion.	- a2
b1. Estimate optimum operating conditions of gas flow in separators, compression, pipeline and tanks.	-b1
c1. Design the components of separators, compression, pipelines, tanks of oil and natural gas within economic, environmental and safety constraints.	- b2
c2. Apply knowledge of mathematics, science, engineering fundamentals to propose solution of gas hydrates formation and tanks and pipelines corrosion problems.	- c1
d1. Work in groups according to responsibilities of each team member to prepare reports related to oil and gas transportation and storage.	- c2

Course Content محتوى المقرر

Theoretical Aspect موضوعات الجانب النظري

الرقم Order	الموضوعات الرئيسية/ الوحدات Topic List / Units	الموضوعات الفرعية Sub Topics List	عدد الأسابيع Number of Weeks	الساعات الفعلية Contact Hours
1	Introduction	<ul style="list-style-type: none"> ➤ Demand for natural gas. ➤ Supply of natural gas. ➤ Liquefied natural gas. ➤ Classification of gas reservoirs. ➤ Unconventional sources of natural gas. 	1	2



2	Gas separation and processing	<ul style="list-style-type: none"> ➤ Gas treatment. ➤ Separators types. ➤ Stage separation. ➤ Factors affecting. ➤ Separators design. ➤ Low temperature separation. 	2	4
3	Gas Compression	<ul style="list-style-type: none"> ➤ Compressor applications. ➤ Classifications. ➤ Theory of compression. ➤ Compression design. 	2	4
4	Gas flow through pipes and restrictions	<ul style="list-style-type: none"> ➤ Single-phase flow. ➤ Presence of liquids. ➤ Pressure drop across restrictions. ➤ Erosional velocity. 	2	4
5	Mid-term exam	<ul style="list-style-type: none"> ➤ In class written test. 	1	2
6	Gas Metering	<ul style="list-style-type: none"> ➤ Head meters. ➤ Orifice meter. ➤ Other primary elements. ➤ Other meters. 	1	2
7	Gas gathering and transportation	<ul style="list-style-type: none"> ➤ Fundamentals of flow in pipes. ➤ Gas pipeline flow calculations. ➤ Series gas flow. ➤ Parallel gas flow. ➤ Looped gas flow. ➤ Gas pipeline economics. ➤ Gas tanks. 	2	4
8	Gas hydrates	<ul style="list-style-type: none"> ➤ Water content of gas streams. ➤ Hydrate formation. ➤ Hydrate control. ➤ Dehydration systems. ➤ Glyclic dehydrators design. ➤ Removal of acid gas. ➤ Gas sweetening. 	2	4
9	Gas corrosion in pipes and tanks	<ul style="list-style-type: none"> ➤ Introduction . ➤ Corrosion control. ➤ Reasons for the study of corrosion. ➤ Corrosion mechanism. ➤ Corrosion chemical equations . ➤ Corrosion treatment. 	1	2
10	Final Practical exam	<ul style="list-style-type: none"> ➤ In class written test. 	1	2
11	Final theoretical	<ul style="list-style-type: none"> ➤ In class written test. 	1	2

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exam			
عدد الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		14	28

الموضوعات العملية (إن وجدت) (Practical Aspect (if any))			
الرقم Order	التجارب العملية/ التمارين / تدريبات Practical / Exercises/ Tutorials topics	عدد الأسابيع Number of Weeks	الساعات الفعلية Contact Hours
1	<ul style="list-style-type: none"> ➤ Separators optimum operating conditions calculations. ➤ Separators design. 	2	4
2	<ul style="list-style-type: none"> ➤ Compression optimum operating conditions calculations. ➤ Compression design. 	2	4
3	<ul style="list-style-type: none"> ➤ Friction pressure drop in a horizontal pipeline calculations. ➤ Gas flow in pipes calculations. ➤ Pressure drop of gas flow in low-pressure pipes calculations. ➤ Pressure drop of gas flow in high-pressure pipes calculations. ➤ Mean pressure in gas pipes calculations. 	2	4
4	<ul style="list-style-type: none"> ➤ Gas Metering calculations. 	2	4
5	<ul style="list-style-type: none"> ➤ Temperature of flowing gases ➤ Series systems ➤ Parallel systems ➤ Loopless systems ➤ Pipelines design ➤ Gas tanks design 	3	6
6	<ul style="list-style-type: none"> ➤ Estimating hydrate formation temperature or pressure. ➤ Calculating temperature drop due to gas expansion. ➤ Calculating the amount of inhibitor required to prevent hydrates. 	1	2
7	<ul style="list-style-type: none"> ➤ Corrosion chemical equations ➤ Corrosion treatment. 	1	2
8	<ul style="list-style-type: none"> ➤ Final Practical exam. 	1	2
اجمالي الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		14	28

استراتيجيات التعليم والتعلم Teaching Strategies
<ul style="list-style-type: none"> ▪ Class Discussions ▪ Group working ▪ Independent-learning ▪ Lecture

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- Problem-based learning
- Project
- Tutorial
- Video
- Petroleum computer software

الأنشطة والتكليفات Tasks and Assignments

م No	التكليف/ الواجب Assignments/ Tasks	نوع التكليف (فردى/ تعاونى)	الدرجة المستحقة Mark	أسبوع التنفيذ Week Due	خرجات التعلم CILOs (symbols)
1	Exercises & Home works	personal	5	By-weekly basis	b1,c1,c2
2	Project	Team	5	13	b1,c1,c2,d1
إجمالي الدرجة Total Score			10		

تقييم التعلم Learning Assessment

الرقم No.	أنشطة التقييم Assessment Tasks	أسبوع التقييم Week due	الدرجة Mark	نسبة الدرجة إلى الدرجة النهائية Proportion of Final Assessment
1	الأنشطة والتكليفات Tasks and Assignments	By-weekly basis	10	6.7%
2	كوز (1) Quiz (1)	W6	5	3.3%
3	اختبار نصف الفصل Midterm Exam	W8	25	16.7%
4	كوز (2) Quiz (2)	W12	5	3.3%
5	Project	W13	10	6.7%
6	اختبار نهاية الفصل (عملي) Final Exam (practical)	W 15	25	16.7%
7	اختبار نهاية الفصل (نظري) Final Exam (theoretical)	W16	70	46.6%
الإجمالي Total			150	%100

مصادر التعلم Learning Resources

توثق المراجع حسب نظام APA (اسم المؤلف، سنة النشر، اسم الكتاب، دار النشر، بلد النشر).

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

1. H. Dale Beggs, 1984, Gas Production Operations, Oil & Gas Consultants International, Tulsa, Oklahoma.
2. IkoKu, Chi., U., 1992, Natural Gas Production Engineering, Krieger publishing company Malabar.

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Essential References المراجع المساندة

1. Mohan Kelkar, 2007, Natural Gas Production Engineering ,PennWell Corporation, 1421 South Sheridan Road, Tulsa, Oklahoma 74112-6600 USA.
2. William C. Lyons, 2010, Working Guide To Petroleum and Natural Gas Production Engineering, Gulf Publishing is an imprint of Elsevier, MA01803, USA, Langford Lane, Oxford OX5 1GB.
3. Ken Arnold & Maurice Stewart, (1999), Surface Production Operations, 2nd Ed., Volume 1, Houston, Gulf Publishing Company.
4. A. P. Szilas, 1985, Production and Transport of Oil and Gas, Second completely revised edition, Part A, Amsterdam-Oxford-New York-Tokyo.

Electronic Materials and Web Sites etc. المصادر الإلكترونية ومواقع الإنترنت

1. Sites of society petroleum engineers. <https://www.spe.org/en/>
2. Journal of Petroleum Science and Engineering. <https://www.journals.elsevier.com/journal-of-petroleum-science-and-engineering>

Course Policies الضوابط والسياسات المتبعة في المقرر

	Class Attendance حضور الفعاليات التعليمية
1	A student should attend not less than 75 % of total hours of the subject, otherwise he/she will not be able to take the exam and will be considered as exam failure. If the student is absent due to illness, he/she should bring a proof statement from university Clinic. If the absent is more than 25% of a course total contact hours, student will be required to retake the entire course again.
	Tardy الحضور المتأخر
2	For late in attending the class, the student will be initially notified. If he repeated lateness in attending class, he/she will be considered as absent.
	Exam Attendance/Punctuality ضوابط الامتحان
3	A student should attend the exam on time. He/she is permitted to attend an exam half one hour from exam beginning, after that he/she will not be permitted to take the exam and he/she will be considered as absent in exam.
	Assignments & Projects التعيينات والمشاريع
4	In general one assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time, mostly one week after given the assignment.
	Cheating الغش
5	For cheating in exam, a student will be considered as fail. In case the cheating is repeated three times during his/her study the student will be disengaged from the Faculty.
	Plagiarism الانتحال
6	Plagiarism is the attending of a student the exam of a course instead of another student. If the examination committee proofed a plagiarism of a student, he/she will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Council Affair of the university or according to the university roles.



7	Other policies سياسات أخرى
	<ul style="list-style-type: none">➤ Mobile phones are not allowed to use during a class lecture. It must be closed, otherwise the student will be asked to leave the lecture room.➤ Mobile phones are not allowed in class during the examination.➤ Lecture notes and assignments might be given directly to students using soft or hard copy.