مواصفات مقرر: هندسة انتاج النفط

Course Specification of: Petroleum Production Engineering

General information about the course المعلومات العامة عن المقرر						
.1	اسم المقرر Course Title	Petroleum Production Engineering هندسة انتاج النفط				
.2	رمز المقرر ورقمه Course Code and Number	PNGE 351				
.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	3rd level, 1st semester				
.5	المتطلبات السابقة المقرر (إن وجدت) Pre-requisites (if any)	PNGE 221				
.6	المتطلبات المصاحبة (إن وجدت) Co-requisites (if any)	PNGE 321				
.7	البرنامج الذي يدرس له المقرر Program (s) in which the course is offered	BSc Petroleum & Natural Gas Engineering				
.8	لغة تدريس المقرر Language of teaching the course	English / Arabic				
.9	نظام الدراسة Study System	Semester				
.10	مكان تدريس المقرر Location of teaching the course	Campus				
.11	اسم معد(و) مواصفات المقرر Prepared by	Assoc.Prof. Adel Al-Matary Eng. Abdulsalam AlKamel				
.12	تاريخ اعتماد مجلس الجامعة Date of Approval	2020				

Course Description وصف المقرر

وصف المقرر بالإنجليزية	وصف المقرر بالعربية
The course aims to introduce the basic concepts of petroleum production engineering, provides the technical basis for the exploitation of petroleum fluids in subsurface reservoirs. It is also interested in production system of oil and gas well completion parameter and surface facilities design and operations. Also to provide knowledge of production operations in the oil and gas wells such as artificial lifts and	

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Prof. Dr. Al Qaseem Mohammed Abas

subsurface equipment.	

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.	demonstrate the petroleum production system and well completion operations.		**- a1**
a2.	describe the types of artificial lift (gathering system, surfaces facilities).		**– a2**
b1.	select the best production technology to develop the oil and gas field.		**–b1**
b2.	Evaluate the oil &gas well types to get the best production rate.		**- b2**
c1.	Design several components for oil and gas production operations.		**- c1**
c2.	analyze and interpret data from an oil or gas field.		**- c2**
d1.	Work Effectively to manage tasks, time and resources regardless of the environments.		**- d1**
d2.	Prepare production and maintenance technical reports.		**- 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	demonstrate the petroleum production system and well completion operations.	**A2**	
a2	describe the types of artificial lift (gathering system, surfaces facilities).	**A3**	
b1	select the best production technology to develop the oil and gas field.	**B1**	
b2	Evaluate the oil &gas well types to get the best production rate.	**B2**	
c1	Design several components for oil and gas production operations.	**C1**	
c2	analyze and interpret data from an oil or gas field.	**C2**	
d1	Work Effectively to manage tasks, time and resources regardless of the environments.	**D1**	
d2	Prepare production and maintenance technical reports.	**D3**	

مواءمة مخرجات التعلم باستراتيجيات التعليم والتعلم والتقويم

Alignment of CILOs to Teaching and Assessment Strategies

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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 -	demonstrate the petroleum production system and well completion operations.	- Interactive lectures -Demonstration	Examinations, Assignments, Project, Oral presentations.
a2 -	describe the types of artificial lift (gathering system, surfaces facilities).		

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 -	select the best production technology to develop the oil and gas field.	Tutorials course work, practical classes,	Examinations, Assignments, Project, Oral presentations.
b2 -	Evaluate the oil &gas well types to get the best production rate.		

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-	Design several components for oil and gas production operations.	Lecture, tutorials, practical classes, problem solving, coursework, case study,	Exams, projects, practical exams, evaluation, case study
c2-	analyze and interpret data from an oil or gas field.		

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-	Work Effectively to manage tasks, time and resources regardless of the environments.	coursework case study,	Projects evaluation, case study, presentation, Course work, assignments
d2-	Prepare production and maintenance technical reports.		

Course Content محتوى المقرر

Theoretical Aspect موضوعات الجانب النظري

الرقم	الوحدات	الموضوعات الفرعية	عدد	الساعات	رموز مخرجات

Order	/ Units	Sub Topics List	الأسابيع Number of Weeks	الفعلية Contact Hours	التعلم للمقرر (CILOs)
1	UNIT I	Components of the petroleum systems. Well productivity engineering. Production from under saturated oil reservoirs. Production from two-phase reservoirs. Production from gas reservoirs. Pseudo critical properties of natural gases. Gas well deliverability for non – Darcy flow.	2	4	a1 a2
2	UNIT 2	The near-well bore condition and damage characterization, the effect of perforation conditions on well performance. Well bore flow performance. Well deliverability. Well head surface gathering systems. Artificial lift systems. Horizontal well production. System analysis. Production Chemistry Basics (Wax, Scale, Corrosion, Emulsions).	3	6	a1, b1, c1
3	UNIT 3	Surface equipment and operations. Flow control and well heads. Gathering systems; service and cleaning systems; design and testing of flow lines. Separation and separators; separator components, stage separation; design and construction of separators. Meeting - Oil and gas metering techniques.	3	6	a1, b1, c2
4	UNIT 4	Flow measurement system; liquid level controllers. Emulsion problems; oil emulsions; emulsifying agents and de emulsifiers, choice and dosage of de emulsifiers, heat treatment, heat treaters, desalting, oil storage and tank farms. Gauging, sampling and quality control. Underground storage – caverns etc. Water disposal, corrosion. Water injection systems. Subsurface equipment**.**	3	6	a1, b1, c2
5	UNIT 5	Well completion techniques and equipment, drill stem test (DST) flowing well performance, vertical lift performance, optimum size tubing and chokes, production forecast for a pool. Design and analysis of artificial methods of petroleum production. Work over and sand exclusion technique**.**	3	6	a2, b1 b2, c2 d1
عدد الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester			**14**	28	

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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

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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	Design of production system	2	4	a2, b1, c1
2	Analyzing production system by Nodal Analysis.	3	6	a2, b2, c2
3	Determination of pressure losses during production.	1	2	a2, c2, b1
4	Production forecasting using different tools.	3	6	a2, b1, c1, c2
5	Separator designing.	2	4	a2, b2, c2, d2
6	Well completion design.	2	4	a2, b1 b2, c2, d2
اجمالي الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		13	26	

Teaching Strategies استراتيجيات التعليم والتعلم

- interactive Lectures,
- Problem-Solving learning,
- Directed self-study,
- Tutorials,
- Seminars
- coursework

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				
	إجمالي الدرجة Total Score				

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)

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1	**Report**	**Quarter**	**5**	**3.4%**	a1 a2 b1
2	**Participation**	**Weekly**	**10**	**6.6%**	a1 a2 c1 d2
3	**Quizzes**	**End of a topic**	**10**	**6.6%**	a1, a2, b1 b2 c1 d2
4	**Mid-Term (theoretical)**	**Week 9**	**15**	**10%**	All
5	**Mid-Term (practical)**	**Week 7**	**15**	**10%**	b1 b2 c1 c2 c3
6	**Final Exam (practical)**	**Week 14**	**25**	**16.7%**	b1 b2 c1 c2
7	**Final Exam (theoretical)**	**Week 16**	**70**	**46.7%**	All
Total الإجمالى			**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 الرئيسة (لا تزيد عن مرجعين)

1- Boyun Guo, Xinghui "Lou" Liu and Xuehao Tan.**2017.** Petroleum Production Engineering, 2nd Ed Elsevier.

Essential References المراجع المساندة

1. "Gas Production Engineering" – S.Kumar-Gulf publishing Co., - **1987**.
2. T.E.W.Nind"Principles of well Produciton"-2ndEdition.Mc.Graw hill Book-Co. Ltd, Newyork **1981**.
3. T.O.allen and A.P.Roberts. "Production operations" –SPE - Vol-I 4-th edition

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

(b) SPE Journal - Production & Operations
(c) SPE Journal - Drilling & Completion
(d) SPE Journal - Reservoir Evaluation & Engineering
-gen.lib.rus.ec
-www.knovel.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.

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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 &other.

قسم/ برنامج: هندسة النفط والغاز الطبيعي

العام الجامعي: 2019- 2020م

خطة مقرر: هندسة انتاج النفط

Course Plan (Syllabus): Petroleum Production Engineering

Information about Faculty Member Responsible for the Course معلومات عن أستاذ المقرر							
الاسم Name		الساعات المكتبية (أسبوعيا) Office Hours					
المكان ورقم الهاتف Location &Telephone No.		السبت SAT	الأحد SUN	الاثنين MON	الثلاثاء TUE	الأربعاء WED	الخميس THU
البريد الإلكتروني E-mail							

General information about the course معلومات عامة عن المقرر						
.1	اسم المقرر Course Title	Petroleum Production Engineering هندسة انتاج النفط				
.2	رمز المقرر ورقمه Course Code and Number	PNGE 351				
.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	3rd level, 1st semester				
.5	المتطلبات السابقة للمقرر Pre-requisites	PNGE 221				
.6	المتطلبات المصاحبة (إن وجدت)Co –requisite	PNGE 321				
.7	البرنامج الذي يدرس له المقرر Program (s) in which the course is offered	BSc Petroleum & Natural Gas Engineering				
.8	لغة تدريس المقرر Language of teaching the course	English / Arabic				
.9	مكان تدريس المقرر Location of teaching the course	Campus				

Course Description وصف المقرر

The course aims to introduce the basic concepts of petroleum production engineering, provides the technical basis for the exploitation of petroleum fluids in subsurface reservoirs. It is also interested in production system of oil and gas well completion parameter and surface facilities design and operations.

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Also to provide knowledge of production operations in the oil and gas wells such as artificial lifts and subsurface equipment.	

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 demonstrate the petroleum production system and well completion operations.	**- a1**
a2 describe the types of artificial lift (gathering system, surfaces facilities).	**– a2**
b1select the best production technology to develop the oil and gas field.	**–b1**
b2 Evaluate the oil &gas well types to get the best production rate.	**- b2**
c1 Design several components for oil and gas production operations.	**- c1**
c2 analyze and interpret data from an oil or gas field.	**- c2**
d1 Work Effectively to manage tasks, time and resources regardless of the environments.	**- d1**
d2 Prepare production and maintenance technical reports.	**- d2**

Course Content محتوى المقرر

Theoretical Aspect خطة تنفيذ الموضوعات النظرية

الرقم Order	الوحدات Units	الموضوعات التفصيلية Sub Topics	الأسبوع Week Due	الساعات الفعلية Con. H
1	UNIT I	Components of the petroleum systems. Well productivity engineering. Production from under saturated oil reservoirs. Production from two-phase reservoirs. Production from gas reservoirs. Pseudo critical properties of natural gases. Gas well deliverability for non – Darcy flow.	**Week** 1-2	4
2	UNIT 2	The near-well bore condition and damage characterization, the effect of perforation conditions on well performance. Well bore flow performance. Well deliverability. Well head surface gathering systems. Artificial lift systems. Horizontal well production. System analysis. Production Chemistry Basics (Wax, Scale, Corrosion, Emulsions).	**Week** 3-5	6
3	UNIT 3	Surface equipment and operations. Flow control and well heads. Gathering systems; service and cleaning systems;	**Week** 6-8	6

		design and testing of flow lines. Separation and separators; separator components, stage separation; design and construction of separators. Meeting - Oil and gas metering techniques.		
4	Midterm Exam		**Week** 9	2
5	UNIT 4	Flow measurement system; liquid level controllers. Emulsion problems; oil emulsions; emulsifying agents and de emulsifiers, choice and dosage of de emulsifiers, heat treatment, heat treaters, desalting, oil storage and tank farms. Gauging, sampling and quality control. Underground storage – caverns etc. Water disposal, corrosion. Water injection systems. Subsurface equipment**.**	**Week** 10-12	6
6	UNIT 5	Well completion techniques and equipment, drill stem test (DST) flowing well performance, vertical lift performance, optimum size tubing and chokes, production forecast for a pool. Design and analysis of artificial methods of petroleum production. Work over and sand exclusion technique**.**	**Week** 13-15	6
7	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	Design of production system	**Week 1-2**	**4**
2	Analyzing production system by Nodal Analysis.	**Week 3-5**	**6**
3	Determination of pressure losses during production.	**Week 6**	**2**
4	**Mid term exam**	**Week 7**	**2**
5	Production forecasting using different tools.	**Week 10-8**	**6**
6	Separator designing.	**Week 11-12**	**4**
7	Well completion design.	**Week 14-13**	**4**
8	**Final exam**	**Week 15**	**2**
اجمالي الأسابيع والساعات الفعلية Number of Weeks /and Contact Hours Per Semester		**15**	**30**

Teaching Strategies استراتيجيات التعليم والتعلم

Prepared by	Quality Assurance Unit	Dean of the Faculty	Dean of the Development & Quality Assurance Center
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- **Interactive Lectures,**
- **Problem-Solving learning,**
- **Tutorials,**
- **Seminars**
- **Course work**

Learning Assessment تقويم التعلم

م No	أساليب التقويم Assessment Method	موعد(أسبوع) التقويم Week Due	الدرجة Mark	الوزن النسبي% Proportion of Final Assessment
1	Report	Quarter	5	3.4%
2	Participation	Weekly	10	6.6%
3	Quizzes	End of a topic	10	6.6%
4	Mid-Term (theoretical)	Week 9	15	10%
5	Mid-Term (practical)	Week 7	15	10%
6	Final Exam (practical)	Week 14	25	16.7%
7	Final Exam (theoretical)	Week 16	70	46.7%
Total المجموع			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 الرئيسة (لا تزيد عن مرجعين)

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Essential References المراجع المساندة

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

(b) SPE Journal - Production & Operations
(c) SPE Journal - Drilling & Completion
(d) SPE Journal - Reservoir Evaluation & Engineering
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-www.knovel.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.

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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 &other.

قسم/ برنامج Department: هندسة النفط والغاز الطبيعي Petroleum and Natural Gas Engineering

مواصفات مقرر: التسجيلات البئرية

Course Specification of: Well Logging

General information about the course المعلومات العامة عن المقرر						
.13	اسم المقرر Course Title	Well Logging التسجيلات البئرية				
.14	رمز المقرر ورقمه Course Code and Number	PNGE 343				
.15	الساعات المعتمدة للمقرر Credit Hours	Credit Hours الساعات المعتمدة				الإجمالي Total
		محاضرات Lecture	عملي Practical	سمنار/تمارين Seminar/Tutorial	تدريب Training	
		2	1	-	-	3
.16	المستوى والفصل الدراسي Study Level and Semester	3rd level, 1st semester				
.17	المتطلبات السابقة المقرر (إن وجدت) Pre-requisites (if any)	PNGE 222				
.18	المتطلبات المصاحبة (إن وجدت) Co-requisites (if any)	-				
.19	البرنامج الذي يدرس له المقرر Program (s) in which the course is offered	Bachelor of Petroleum and Natural Gas Engineering				
.20	لغة تدريس المقرر Language of teaching the course	English/ Arabic				
.21	نظام الدراسة Study System	Academic year of two semesters				
.22	مكان تدريس المقرر Location of teaching the course	Faculty of Petroleum and Natural Resources				
.23	اسم معد(و) مواصفات المقرر Prepared by	Assoc.Prof. Adel Al-Matary				
.24	تاريخ اعتماد مجلس الجامعة Date of Approval	2020				

Course Description وصف المقرر

This course is aim to give understanding of the meaning of well logging and work of the Borehole environmental tool. The main topics are introduction to the electrical, nuclear, and acoustic properties of subsurface rocks, Well logging techniques, principles of measurements, log tools characteristics and quick method in (HC) detection.

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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.	Recognize the role of well logging in petroleum exploration and the different types of logging tools.		- a1
a2.	Explain the physical properties of rocks for each zone in the well from well logs		– a2
a3.	Recognize the possible Reservoir zone and non-reservoir zone from logging.		a3.
b1.	Predict any log in details and investigate models that calculate water saturation and clay volume.		–b1
b2.	Evaluate well logs data of each zone and determine petro physical properties		- b2
c1.	Apply different Tools to characterize the reservoir.		- c1
c2.	Solve Problems on clay volume and water saturation with limited data.		- c2
c3.	Practice the difference between conventional and unconventional reservoir from log.		c3.
d1.	Work coherently and successfully as a part of a team in projects.		- d1
d2.	Make a successful report clearly on well performance		- 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	Recognize the role of well logging in petroleum exploration and the different types of logging tools.	A2	
a2	Explain the physical properties of rocks for each zone in the well from well logs	A3	
a3.	Recognize the possible Reservoir zone and non-reservoir zone from logging.	A3	
b1	Predict any log in details and investigate models that calculate water saturation and clay volume.	B1	
b2	Evaluate well logs data of each zone and determine petro physical properties	B2	
c1	Apply different Tools to characterize the reservoir.	C1	
c2	Solve Problems on clay volume and water saturation	C2	

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	with limited data.		
c3.	Practice the difference between conventional and unconventional reservoir from log.	**C3**	
d1	Work coherently and successfully as a part of a team in projects.	**D1**	
d2	Make a successful report clearly on well performance	**D3**	

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 -	Recognize the role of well logging in petroleum exploration and the different types of logging tools.	- Interactive Lectures - Discussion - Demonstration	Examinations, Oral presentation Achievement tests Assignments
a2 -	Explain the physical properties of rocks for each zone in the well from well logs		
a3-	Recognize the possible Reservoir zone and non-reservoir zone from logging.		

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 -	Predict any log in details and investigate models that calculate water saturation and clay volume.	Discussion Demonstration Brain storm Problem solving	Essay test, Laboratory Performance
b2 -	Evaluate well logs data of each zone and determine petro physical properties		

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 different Tools to characterize the reservoir.	Tutorials & practical classes, Computer based teaching Case Study Method	Achievement tests Chart Drawing practical exams
c2-	Solve Problems on clay volume and water saturation with limited data.		

c3-	Practice the difference between conventional and unconventional reservoir from log.		

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-	Work coherently and successfully as a part of a team in projects.	Small group working Seminars	Achievement tests Interviews
d2-	Make a successful report clearly on well performance		

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	What is Well Logging (General Introduction)	- Clay Types and properties and its effect on porosity values - logging Unit	1	2	a2, a3.1, a3.2
2	Volume of measurements	Log display Sampling rate Vertical resolution Depth of investigation	1	2	a2, a3.1, a3.2, b1
3	Well logging (Borehole Environment)	Invasion and Resistivity profiles	1	2	a1, a2, a3
4	*Caliper Log* *Gamma Ray Logs*	Theory, Type of tools, Uses	1	2	a1, a2, a3, b1, b2, .c1, c2, c3
5	The Spontaneous Self potential (Sp) log.	Theory, Type of tools, Uses	1	2	a1, a2, a32, b1, b2, .c1, c2, c3
6	Porosity logs Density Measurement Tool	Theory, Type of tools, Uses	1	2	a1, a2, a3, b1, b2, .c1, c2, c3
7	Porosity logs Neutron Measurement Tool	Theory, Type of tools, Uses	1	2	a1, a2, a3, b1, b2, .c1, c2, c3
8	Porosity logs	Theory, Type of tools, Uses	1	2	a1, a2, a3,

	Sonic Measurement Tool				b1, b2, .c1, c2, c3
9	Photo-Electric Measurements,		1	2	a1, a2, a3, b1, b2, .c1, c2, c3
10	Resistivity Measurement Tool	Theory, Type of tools, Uses	2	4	a1, a2, a3, b1, b2, .c1, c2, c3
11	Induction Measurement Tool	Theory, Type of tools, Uses	1	2	a1, a2, a3, b1, b2.c1, c2, c3
12	Imaging Measurement Tool	Theory, Type of tools, Uses	1	2	a1, a2, a3,
13	Other logs	NMR	1	2	a1, a2, a3,
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	Log presentation and formats	1	2	a1, a2, a3
2	Estimating of formation temperature with depth	1	2	b1, b2.c1.c2
3	Adjusting fluid resistivity for temperature	1	2	b1, b2.c1.c2
4	Reading Log Responses	1	2	b1, b2.c1.c2
5	Gamma Ray Log	1	2	b1,b2.c1.c2, c3
6	Density Log	1	2	b1,b2.c1.c2, c3
7	Neutron Log	1	2	b1,b2.c1.c, c32
8	Sonic Log	1	2	b1,b2.c1.c2, c3
9	Resistivity Logs	3	6	b1, b2.c1.c2, c3
10	Integrated Exercise	2	4	All CILOs
اجمالي الأسابيع والساعات الفعلية **Number of Weeks /and Contact Hours Per Semester**		**13**	**26**	

Teaching Strategies استراتيجيات التعليم والتعلم

- **Interactive Lectures**
- **Discussion**
- **Demonstration**

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- Brain storm
- Problem solving
- Tutorials & practical classes,
- Case study,
- Computer based teaching
- Small group working
- Seminars

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	LAS file with MS word	فردي	5	Week 4	b1, b2.c1.c2, c3
	Total Score إجمالي الدرجة		5		

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	Assignments	Quarter	5	3.4%	a1, a2, a3
2	Participation	Weekly	10	6.6%	all
3	Quizzes	End of a topic	10	6.6%	a1, a2, a3, c1
4	Mid-Term (theoretical)	Week 8	15	10%	a1, a2, a3, b1, b2
5	Mid-Term (practical)	Week 6	15	10%	b1, b2, c1, c2, c3
6	Final Exam (practical)	Week 12	25	16.7%	b1, b2, c1, c2, c3
7	Final Exam (theoretical)	Week 16	70	46.7%	a1, a2, a3, b1, b2
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 الرئيسة (لا تزيد عن مرجعين)

1. Classroom Lectures and Assignments
2. Asquith, G., and Krygowski, D. **2004**. Basic well log analysis, 2nd edition. AAPG Memory.

Essential References المراجع المساندة

1-Toby Darling. **2005**. WELL LOGGING AND FORMATION EVALUATION. Gulf Professional Publishing is an imprint of Elsevier Science.pp335

2-Baker Hughes INTE. **1998**. Log Interpretation Charts. Reference manual. Baker Hughes INTEQ

3-Schlumberger. **2009**. Log Interpretation Charts. 2009 edition.
4- Schlumberger. **1996**. Log Interpretation Principles/Applications. 4th edition Schlumberger Education
5- Juergen H. Schoen. FOUNDATIONS OF PETROPHYSICS. Lecture Notes

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

1. www.spe.com
2. www.schlumberger.com
3. www.aapg.com

Course Policies الضوابط والسياسات المتبعة في المقرر

1	**Class Attendance حضور الفعاليات التعليمية** - 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 الحضور المتأخر** - 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 ضوابط الامتحان** - According to the rules the student gets absent in the exam of the course.
4	**Assignments & Projects التعيينات والمشاريع** - Papers survey or projects should be submitted by the time detriment by the professor.
5	**Cheating الغش** - 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 الانتحال** - 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 سياسات أخرى** - 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**.**