



وزارة التعليم العالي والبحث العلمي
جهاز الإشراف والتقييم العلمي
دائرة ضمان الجودة والاعتماد الأكاديمي
قسم الاعتماد

Academic Program and

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دليل وصف البرنامج الأكاديمي والمقرر

نموذج وصف البرنامج الأكاديمي

اسم الجامعة: جامعة تكريت

الكلية / المعهد: كلية هندسة العمليات النفطية

القسم العلمي: قسم هندسة تكرير النفط والغاز

اسم البرنامج الأكاديمي أو المهني: دراسات أولية - بكالوريوس علوم في هندسة تكرير النفط والغاز

اسم الشهادة النهائية: بكالوريوس علوم في هندسة تكرير النفط والغاز

النظام الدراسي: سنوي

تاريخ إعداد الوصف: 2026 / 3 / 8

تاريخ ملء الملف: 2026 / 3 / 8



التوقيع:

اسم المعاون العلمي: م. حمد خضير محمد

التاريخ: 2026 / ٢ / ١١



التوقيع:

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التاريخ: 2026 / ٢ / ١١

دقق الملف من قبل:



شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي: م.د. عدنان ابراهيم احمد

التاريخ: 2026 / ٢ / ١١

التوقيع:



أ.م.د. غسان حمد عبدالله

2026 / ٢ / ١١

مصادقة السيد العميد

1. رؤية البرنامج

الارتقاء بالمستوى التعليمي للقسم وفق أحدث الأساليب.

2. رسالة البرنامج

خدمة المجتمع من خلال تطوير الصناعة النفطية في المحافظة وفي البلد.

3. اهداف البرنامج

- 1- تزويد الطلبة بأساسيات المعرفة العلمية في تخصص هندسة تكرير النفط والغاز وتحسين قدراتهم المهنية في اتجاه التفكير التحليلي والابداعي من خلال استخدام تقنيات المعلومات وتحليل البيانات والطرق التجريبية الحديثة في صياغة وحل المشكلات.
- 2- اعداد مهندسين مؤهلين بشكل جيد للارتقاء بنشاطات هندسة العمليات النفطية والقدرة على ادارة التعامل معها في كافة مرافق الحياة وخاصة في مجال الصناعات النفطية.
- 3- اجراء البحوث العلمية ذات الطابع الأكاديمي لمواكبة المسيرة العلمية العالمية والبحوث ذات الطابع التطبيقي لترجمة المعرفة الهندسية ونظرياتها الى واقع عمل بمعالجة المشاكل التي يعاني منها البلد في كافة المجالات.
- 4- المساهمة بشكل او بأخر من حيث التصميم والإشراف والمتابعة والاستشارة لإعادة اعمار البلد بقطاعات الصناعات النفطية والبتروكيمياوية مع تقديم الاستشارات الهندسية واعداد دراسات الجدوى الاقتصادية وتصاميم المشاريع وتوفير الخدمات الفنية.
- 5- تأصيل الرصانة العلمية وجعلها سمة لهذا القسم وفق ضوابط ومعايير عالمية.

4. الاعتماد البرامجي

لا يوجد

5. المؤثرات الخارجية الأخرى

هل هناك جهة راعية للبرنامج؟ (فقط مؤسسات الدولة المختلفة للتدريب الصيفي لطلبة المرحلة الثالثة)

6. هيكلية البرنامج				
ملاحظات	النسبة المئوية	وحدة دراسية	عدد المقررات	هيكل البرنامج
/	%11	18	7	متطلبات المؤسسة
/	%20	32	9	متطلبات الكلية
/	%69	112	22	متطلبات القسم
/	/	/	1	التدريب الصيفي
/	/	/	/	أخرى

* ممكن ان تتضمن الملاحظات فيما إذا كان المقرر أساسي او اختياري.

7. وصف البرنامج				
الساعات المعتمدة		اسم المقرر أو المساق	رمز المقرر أو المساق	السنة / المستوى
عملي	نظري			
56	176	بكالوريوس علوم في هندسة تكرير النفط والغاز	BSc-PGR	أربع سنوات

8. مخرجات التعلم المتوقعة للبرنامج	
المعرفة	
<p>أ1- التعليم الواسع المدى لفهم تأثير الحلول الهندسية عالميا واقتصاديا.</p> <p>أ2- القدرة على العمل في الفرق متعددة التخصصات.</p> <p>أ3- امكانية تطبيق العلوم المعرفية كالرياضيات والعلوم التطبيقية والصرافة.</p> <p>أ4- القدرة على استخدام التقنيات والمهارات وادوات الهندسة المعاصرة في المجال الهندسي للصناعات النفطية والبتر وكيمياوية.</p> <p>أ5- القدرة على تصميم المنظومات النفطية والبتر وكيمياوية لتفي بالحاجات المطلوبة خلال المحددات الواقعية من النواحي الاقتصادية.</p> <p>أ6- امكانية تصميم وتنفيذ التجارب وتحليل النتائج وترجمتها واقعيا.</p>	
المهارات	
<p>ب1- تنمية وتطوير قدرة وقابلية الطالب على استخدام البرامج التصميمية في مجال الاختصاص.</p> <p>ب2- تنمية وتطوير قدرة وقابلية الطالب على التعامل مع التقنيات الحديثة الخاصة بمفردات المقرر.</p> <p>ب3- تنمية وتطوير قدرة وقابلية الطالب على مواجهة المشاكل والمعضلات وإيجاد الحلول المناسبة لها.</p> <p>ب4- تنمية وتطوير قدرة وقابلية الطالب على ترجمة المعلومات الأكاديمية إلى الواقع العملي.</p>	
القيم	
<p>ج1- القدرة على اتخاذ القرار.</p> <p>ج2- طرق الابتكار لدى الطلبة.</p> <p>ج3- قدرة الطالب على التفكير.</p> <p>ج4- جمع البيانات المطلوبة لإنجاز موضوع معين.</p> <p>ج5. التفكير الابداعي لدى الطلبة ومواكبة أحدث الوسائل العلمية المتاحة في التعليم والتعلم.</p>	
9. استراتيجيات التعليم والتعلم	

1. عرض مفردات المقرر الدراسي على الطلبة (المحاضرات).
2. أمثلة عديدة يتم تفصيلها لتوضيح المبادئ الأساسية.
3. استراتيجية ثابتة لحل المسائل يمكن تطبيقها على أي مسألة.
4. استخدام الأشكال والرسومات والرسوم البيانية لتقديم وصف تفصيلي وتعزيز لما يقرأه الطالب.
5. اختبارات التقييم الذاتي في نهاية كل فصل مع الإجابات لتقييم مدى التقدم في التعلم.
6. مناقشة وحل العديد من المسائل في الفصول التعليمية، والتي تتيح العمل مع زميل أو أكثر لتبادل الأفكار ومناقشة المادة.
7. تكليف الطلبة بالواجبات، مثل كتابة اوراق بحثية ليكتسب الطلبة مهارات التعلم الذاتي والتقديم.
8. اجراء الامتحانات المفاجئة.
9. اجراء الامتحانات الفصلية والنهائية بالمواعيد المحددة.
10. اعلام الطلبة عن كيفية احتساب الدرجات للطلبة خلال الفصل الدراسي وبنائهم الامتحانية ومناقشة الاخفاقات والنجاحات.
11. اعلام الطلبة بالكتب المنهجية والكتب المساعدة التي يحتاجونها في مفردات المقرر الدراسي منه مع اجراء استبيان للسنوات السابقة لتحسين المنهج وتحسين اداء التدريسيين ورفع مستوى الطالب.
12. تدريب الطلبة في مؤسسات الدولة المختلفة (المرحلة الثالثة).

10. طرائق التقييم

1. الاختبارات الشهرية والنهائية.
2. الاختبارات القصيرة والمفاجئة والمشاركة داخل القاعة الدراسية.
3. تقديم الواجبات البيتية والاوراق البحثية والتقارير العلمية.
4. الاداء المختبري.

11. الهيئة التدريسية

أعضاء هيئة التدريس

اعداد الهيئة التدريسية		المتطلبات/المهارات (ان وجدت)	التخصص		الرتبة العلمية
محاضر	ملاك		خاص	عام	
-	5		-	5	أستاذ
-	3		-	3	أستاذ مساعد
-	9		-	9	مدرس
-	11		-	11	مدرس مساعد

التطوير المهني

توجيه أعضاء هيئة التدريس الجدد

برامج تهيئة واعداد على شكل محاضرات وندوات مفتوحة مع ورش تدريبية تتضمن:

1. تعريف أعضاء هيئة التدريس الجدد برؤية الجامعة ورسالتها وبنيتها التنظيمية وسياساتها وإجراءاتها.
2. تمكين أعضاء هيئة التدريس الجدد من الحصول على فهم أفضل لحقوقهم والتزاماتهم إضافة الى حقوق وواجبات الطلاب.
3. تزويد أعضاء هيئة التدريس الجدد بمعلومات مفصلة حول مرافق وخدمات الجامعة والكلية والقسم.
4. تعريف أعضاء هيئة التدريس الجدد بجودة البرنامج الدراسي والاعتماد البرامجي.
5. تعريف أعضاء هيئة التدريس الجدد بمصادر التعلم وبرامج البحث العلمي.

التطوير المهني لأعضاء هيئة التدريس

1. توظيف طرائق ووسائل تدريس حديثة.
2. تبادل الخبرات مع أساتذة في كليات وجامعات أخرى.
3. المشاركة في تقويم وتطوير المنهج وتحليله.
4. التقويم المستمر للمقررات من خلال التغذية الراجعة من قبل التدريسيين والطلبة.
5. الانفتاح على كل ما هو جديد.

12. معيار القبول

1. خريج الدراسة الإعدادية الفرع العلمي (تطبيقي).
2. القبول يكون لكلا الجنسين (ذكور وإناث).
3. الحد الأدنى لمعدل القبول يتم تحديده من قبل المراجع العليا والمتمثلة بقسم القبول المركزي في وزارة التعليم العالي والبحث العلمي.
4. رغبة الطالب او ولي امره للدراسة في القسم.

13. أهم مصادر المعلومات عن البرنامج

1. الكتب المنهجية.
2. الهيئة التدريسية.
3. ورش العمل والندوات والمؤتمرات.
4. المواقع الالكترونية والمكتبة الالكترونية.
5. السوق المحلية وحاجتها.

14. خطة تطوير البرنامج

1. تحديث المناهج الدراسية بصورة مستمرة لتواكب المناهج الدراسية في الجامعات العالمية والرصينة وحاجات سوق العمل المحلي.
2. زيادة الاهتمام بالجانب العملي من خلال توفير الأجهزة المختبرية التعليمية الحديثة وفتح مختبرات جديدة.
3. توفير الكتب العلمية الحديثة المنهجية والمصدرية ومن دور نشر عالمية لمكتبة القسم.
4. تضمين التطورات العلمية والتكنولوجية على المستوى العالمي في المناهج الدراسية والتجارب العملية.
5. تصميم وتنفيذ برامج تطويرية على شكل محاضرات وندوات مفتوحة مع ورش تدريبية للكوادر التدريسية والوظيفية.
6. ابرام مذكرات تفاهم مع مؤسسات الدولة في مجال تبادل الخبرات واجراء البحوث والدراسات العلمية.

مخطط مهارات البرنامج

مخرجات التعلم المطلوبة من البرنامج

القيم				المهارات				المعرفة				اساسي ام اختياري	اسم المقرر	رمز المقرر	السنة/ المستوى
ج4	ج3	ج2	ج1	ب4	ب3	ب2	ب1	أ4	أ3	أ2	أ1				
															الأولى
															الثانية
															الثالثة
															الرابعة

*يرجى وضع اشارة في المربعات المقابلة لمخرجات التعلم الفردية من البرنامج الخاضعة للتقييم

نموذج وصف المقرر

1. اسم المقرر
2. رمز المقرر
3. الفصل / السنة
4. تاريخ إعداد هذا الوصف
5. أشكال الحضور المتاحة
6. عدد الساعات الدراسية (الكلي) / عدد الوحدات (الكلي)
7. اسم مسؤول المقرر الدراسي (إذا أكثر من اسم يذكر) الاسم: الأيمل:
8. اهداف المقرر

اهداف المادة الدراسية		•	•	•	
9. استراتيجيات التعليم والتعلم					
الاستراتيجية					
10. بنية المقرر					
الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم

11. تقييم المقرر	
توزيع الدرجة من 100 على وفق المهام المكلف بها الطالب مثل التحضير اليومي والامتحانات اليومية والشفوية والشهرية والتحريرية والتقارير... الخ	
12. مصادر التعلم والتدريس	
	الكتب المقررة المطلوبة (المنهجية أن وجدت)
	المراجع الرئيسية (المصادر)
	الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير...)
	المراجع الإلكترونية، مواقع الانترنت

الوصف الاكاديمي
المرحلة الاولى - الفصل الاول



Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Analytical Chemistry		Module Delivery	
Module Type	Support		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PGR112			
ECTS Credits	5			
SWL (hr/sem)	125			
Module Level	UGI	Semester of Delivery		1
Administering Department	PGR	College	PPE	
Module Leader	Bayda Mhmood Ali		e-mail	baidaa.m.ali@tu.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	MSc	
Module Tutor	N/A		e-mail	N/A
Peer Reviewer Name		e-mail		
Scientific Committee Approval Date		Version Number	1.0	

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives أهداف المادة الدراسية</p>	<p>Types of analytical chemistry, Errors, Statistical Treatment of Analytical Data and Separation Techniques, and Classifying Analytical Techniques. To study the Quantitative Methods of Analysis, Qualitative Methods of Analysis, and Applications of Analytical Chemistry. To study the Units for Expressing Concentration of Solutions, Stoichiometric Calculation, and Preparing Solutions. To know the Basic Tools and operations of Analytical Chemistry. To study the basics of spectroscopic methods of analysis.</p>
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<p>Understand the principles behind quantitative and qualitative analysis of chemical samples. Know how to design experiments to separate chemical components from mixtures. Understand the operating principles of analytical instrumentation, including UV-visible spectroscopy, atomic absorption spectroscopy, and electrochemical devices. Know how to use equilibrium chemistry to explain titration experiments.</p>
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Part A: Definition of Analytical chemistry and solution concentration expressions [12 hr.]. Part B: Stoichiometric Calculations and Solutions Preparing [8 hr.]. Part C: Quantitative methods of analysis [20 hr.] Part D: Qualitative methods of analysis [16 hr.]</p>

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<p>Strategies</p>	<p>The main strategy that will be adopted in delivering this module is to motivate students' participation in the class by raising questions and inquiries while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, symposiums, simple experiments that are interesting to the students, and self-assessment tests.</p>
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<p>Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل</p>	<p>59</p>	<p>Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا</p>	<p>4</p>
<p>Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل</p>	<p>66</p>	<p>Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا</p>	<p>4.7</p>
<p>Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل</p>	<p>125</p>		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5 and 10	#1 - #5, #6 - #10
	Assignments	2	8% (8)	4 and 13	#1- #4 and #5 - #13
	Projects / Lab.	4	8% (8)	Continuous	All
	Seminar	1	4% (4)	13	#5, and #6 - #14
Summative assessment	Midterm Exam	2hr	10% (10)	7	#1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	The Analytical Process & Chemical Measurements
Week 2	Concentration units; Molarity, Formality, Normality, Molality
Week 3	Stoichiometric Calculations and Solutions Preparing
Week 4	Gravimetric Methods of Analysis/ Precipitation Gravimetry
Week 5	Gravimetric Methods of Analysis/ Volatilization Gravimetry
Week 6	Gravimetric Methods of Analysis/ Particulate Gravimetry
Week 7	Titrimetric Methods of Analysis/ Titrations Based on Acid-Base Reactions
Week 8	Titrimetric Methods of Analysis/ Based on Complexation Reactions (EDTA Titration)
Week 9	Titrimetric Methods of Analysis/ Titrations Based on Redox Reactions
Week 10	Titrimetric Methods of Analysis/ Precipitation Titrations
Week 11	Spectroscopic Methods of Analysis/ UV-Vis Spectroscopy
Week 12	Spectroscopic Methods of Analysis/ Atomic Absorption Spectroscopy
Week 13	Electrochemical Methods of Analysis
Week 14	Potentiometric Methods of Analysis
Week 15	Preparatory week before final exam
Week 16	Final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction to the tools of analytical chemistry
Week 2	Lab 2: preparation standard solutions
Week 3	Lab 3: Determination of moisture content in a soil/ coal sample
Week 4	Lab 4: Estimation of HCl and CH ₃ COOH in mixture using acid base indicators
Week 5	Lab 5: Determination of Carbon Dioxide in a polluted water sample
Week 6	Lab 6: Determination of iron as iron (III) oxide by Gravimetry
Week 7	Lab 7: Estimation of Al ³⁺ in the given solution using standard EDTA solution (Back Titration)
Week 8	Lab 8: Laboratory Reagents & Solvents: solubility tests
Week 9	Lab 9: Determination of dye concentration by UV-vis spectroscopy
Week 10	Lab 10: Metal content by atomic absorption

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Handbook of analytical chemistry by Harvey	Yes
Recommended	Fundamentals of analytical chemistry by Skoog Douglas A.	No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Computer Science		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR114		
ECTS Credits	3		
SWL (hr/sem)	100		
Module Level	UGI	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	- Sondos Hussein Youssif Waladdin M. Shaher	e-mail	sundus.h.y@tu.edu.iq
Module Leader's Acad. Title	Asst. Lect	Module Leader's Qualification	MSc
Module Tutor	-	e-mail	-
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	The aim of this course is to provide students with a comprehensive understanding of the key concepts and principles of computer science through the study of information technology, history of computers, hardware, software, data communication, operating system, Microsoft office, internet, e-mail, and cybersecurity.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Knowledge of the development of computer science and its impact on society. 2. Understand the information technology. 3. Identify the computer hardware. 4. Identify the computer software. 5. Ability to deal with operating system (windows) 6. Ability to deal with computer software (Microsoft office) 7. Ability to deal with internet, network and E-mail. 8. Identify and analyze various cybersecurity threats and methods of prevention. 		
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following:</p> <ol style="list-style-type: none"> 1. Basic concepts of information technology, hardware, memory, storage, computer performance, software, data communication, computer networks, licensing, software types [4 hrs]. 2. Operating system: Windows (starting, elements, drives, directory, files, editing, formatting, and control panel), Linux, and Mac (general background) [4 hrs]. 3. Microsoft Word: Starting, elements, page setup, typing, editing, formatting, drawing, inserting, printing, and deals with tables [4 hrs]. 4. Microsoft Excel: Starting, elements, workbook, worksheet, cells, columns, rows, typing, editing, formatting, operators, formula, mathematical function, engineering functions, statistical functions, conditions and looping functions, chart, functions plotting, arrays, optimization (solver, goal seek), roots finding, solve of linear and non-linear set of equations [8 hrs]. 		

	<p>5. Microsoft PowerPoint: Starting, elements, slides, editing, formatting, animation, transition, and timing [4 hrs].</p> <p>6. Microsoft Visio: Introduction, drawings, flowcharts, data graphics, Microsoft SharePoint: Uses, interface [4 hrs].</p> <p>7. The internet and communications: Basic concepts, explorer, search engines, searching, e-mail, Microsoft outlook, Dropbox, Microsoft one drive, google drive [4 hrs].</p> <p>8. Cybersecurity: Threats, attacks, prevention, detection, mitigation [4 hrs]</p>
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, labs, and assignments incorporating fascinating tasks. The course includes:</p> <ol style="list-style-type: none"> 1- Numerous examples worked out in detail to illustrate the basic principles. 2- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read. 3- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	45	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	30	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	3, 11	LO #1-5, and 6
	Assignments	-	-	-	-
	Laboratory	4	10% (10)	Continuous	
	Report	2	10% (10)	3, 14	LO #1, 2, and 7
Summative assessment	Midterm Exam	3 hr	10% (10)	7	LO #1-6

t	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		
Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري والعملية					
	Material Covered				
Week 1	Introduction to computer: concepts of hardware and software with their components; concept of computing, data and information; connecting input/output devices and peripherals to CPU.				
Week 2	Computer Components: computer portions, hardware parts, I/O units, memory types				
Week 3	Computer Components(cont.): basic CPU components, computer ports, personal computer, personal computer(features and types).				
Week 4	Operating system and graphical user interface GUI: Operating systems; basic of common operating systems: the user interface , using mouse techniques				
Week 5	Operating system and graphical user interface GUI (cont.): use of common icons, status bar, using menu and menu-selection, concept of folders and directories, operating and closing of different windows; creating short cuts				
Week 6	Word processing: Word processing basic, basic features of word processors, opening and closing of documents, text creation and manipulation; formatting text and paragraphs, using templates for document creation				
Week 7	Word processing (cont.): creating and managing tables, utilizing styles and themes, spell check and grammar tools, using headers and footers				
Week 8	Spread sheet: introduction to Spread sheet software, creating and formatting worksheet. Sorting and filtering data, using formulas and functions.				
Week 9	Spread sheet(cont.): using formulas and functions, using pivot tables for data analysis, data validation and error checking, data visualization: creating charts and graphs				
Week 10	Presentation software: introduction to presentation software, overview of popular presentation tools, creating a new presentation, using templates and themes, inserting and formatting text and image, transition and animation effects				
Week 11	Presentation software (cont.): using speaker notes and timers, advanced features: hyperlinks and action buttons, troubleshooting common presentation issues, future trends presentation technology				
Week 12	Introduction to internet and web browsers: computer networks basic; LAN, WAN; Concept of internet and its application; connecting to internet				
Week 13	Introduction to internet and web browsers (cont.): world wide web; web browsing software's search engines; understanding URL; domain name; IP address				
Week 14	Communications and emails: basics of electronic mail; getting an email account; sending and receiving emails; accessing sent emails; using emails; document collaboration				
Week 15	Introduction to cloud computing and services: definition of cloud computing and its concept, cloud-based office suites(office 365 and Google workspace), Google docs, Google sheets, Google drive, Google meet				
Week 16	Final Exam				

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Computer and software, D. Mohammed Bilal Zoubi, D. Ahmed Acharayah, D. Munib Qteishat.	Yes
Recommended Texts	Computer Science Illuminated, Nell Dale and John Lewis, 7 th Ed., 2020.	No
Websites	-	

APPENDIX:



GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

	Ministry of Higher Education and Scientific Research - Iraq University of Tikrit College of Petroleum Process Engineering Department of Petroleum and Gas Refining Engineering	
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MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information الدراسية المادة معلومات			
Module Title	Engineering Drawing	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PGR116		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	UG1	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	Hamad Khudhair Mohammed	e-mail	hamadalkhalid@tu.edu.iq
Module Leader's Acad. Title	Asst. Lecturer.	Module Leader's Qualification	MSc.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval	-	Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
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Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents الإرشادية والمحتويات التعلم ونتائج الدراسة المادة أهداف			
Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. To introduce the students the using of drawing instruments. 2. To know about different types of lines and use of different types of pencil in an engineering draw. 3. To know about different types of projection. 4. To know projection of points, straight lines solids etc. 5. To introduce the students to use scales and orthographic projections. 6. To know different types of surfaces. 7. To know the projections of the lines inclined 8. To represent the object in 3D view through isometric views. 9. To know about isometric projection. 10. The student will be able to represent and convert the isometric view to orthographic view. 		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Get information about the important tools for engineering drawing. This will give student basic knowledge of technical drawings professions and means of communications to others. 2. Learning how to draw the shapes, angles and lines and others which is essential for engineer. 3. Develop student's imagination and ability to represent the shape size and specifications of physical objects. 4. Understand the main idea of using dimension for engineering drawing. 5. Familiarize with different drawing equipment, technical standards and procedures for construction of geometric figures. This will give students ability to draw three dimension objects on the paper and to draw the pictorial drawings. 6. Explain the principle of projection and sectioning. 7. Understand the intersection, development of surface of body and fasteners. 8. Learning the main idea from assembly and detail drawing. 		
Indicative Contents المحتويات الإرشادية	In past years, all that was available were drawing boards, papers, rulers, calipers, and others. While these instruments are still available today for manual drawings, such drawings are not suitable		

	<p>for contemporary manufacturing.</p> <ul style="list-style-type: none"> This is because most CNC systems today can read the information right from the files. Thus, they can easily produce a cutting program as required. Handmade drawings would just make this more cumbersome for engineers. The advent of computer-aided design (CAD) software has made things a lot easier. This software comes with several advantages over manual drawings. You can use CAD to make drawings from scratch. However, the easier option will be first to make a 3D model. Then, you can create your drawings from there.
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>Engineering drawing includes a description of the manufacturing process. Thus, it conveys engineering ideas for a design process. It may also provide records of already existing components. Engineering drawing is not just an illustration. Rather, its intention is to describe the shapes and sizes of components.</p> <p>Such descriptions may also include specifications of acceptable variations, limits, materials, and others. The drawings can be of various forms, ranging from oblique to isometric. The drawings also include a series of projections that show various angles of the components. All of these are aimed at getting the products to meet requirements.</p>
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الفصل خلال للطالب المنتظم الدراسي الحمل	45	Structured SWL (h/w) أسبوعيا للطالب المنتظم الدراسي الحمل	3
Unstructured SWL (h/sem) خلال للطالب المنتظم غير الدراسي الحمل الفصل	30	Unstructured SWL (h/w) أسبوعيا للطالب المنتظم غير الدراسي الحمل	2
Total SWL (h/sem) الفصل خلال للطالب الكلي الدراسي الحمل	75		

Module Evaluation

الدراسية المادة تقييم

	Time/Number	Weight	Week Due	Relevant
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			(Marks)		Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5, 14	LO# 1-4, 8-10
	Assignments	14	20% (20)	Continuous	
	Projects / Lab.				
	Report				
Summative assessment	Midterm Exam	2	10	9	
	Final Exam	3	50	16	All
Total assessment					

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction
Week 2	Engineering graphic instruments and their using
Week 3	engineering drawing lines
Week 4	engineering drawing lines
Week 5	Graphic geometry
Week 6	Graphic geometry
Week 7	Graphic projection theory
Week 8	Graphic projection theory
Week 9	Dimensions
Week 10	Missed views
Week 11	Missed views
Week 12	Isometric drawing and sketching
Week 13	Isometric drawing and sketching
Week 14	Sectional view
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering drawing الخفاف/الرسم الهندسي	Yes
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME				
مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				



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College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	English language	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> Theory	
Module Code	PGR117	<input type="checkbox"/> Lecture	
ECTS Credits	2	<input type="checkbox"/> Lab	
SWL (hr/sem)	50	<input checked="" type="checkbox"/> Tutorial	
		<input type="checkbox"/> Practical	
		<input type="checkbox"/> Seminar	
Module Level	UGI	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	Ahmed Mhmood Shihab	e-mail	-
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PhD
Module Tutor	-	e-mail	-
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	This course is designed to provide petroleum and gas refining students with an in-depth understanding and comprehension of the essential grammars in the English language that are typically used in writing and/or speaking, along with selecting the correct method of speaking and/or listening the vocabulary (phonetics and orthography) by employing common phrases and words. Also, emphasize the use of technical English (reading passages) as the core of chemical engineer work. This course also seeks to develop the student's ability to implement and organize knowledge in the English language, so that he or she can use them appropriately and without difficulty in everyday situations.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Acquire a wide range of special terms vocabulary. 2. Recognize and use a variety of reading strategies while reading, citing, and summarizing engineering material. 3. Create brief technical presentations using material obtained from the readings, and identify and use different presenting techniques. 4. Acquire the knowledge necessary to design and carry out mock technical talks of the kind often held in engineering contexts. 5. Write a report similar to those typically produced by engineering students and working engineers (such as an incident report or a progress report) by comparing and contrasting the structure and language features of such reports. 6. Improve your ability to interact with others by taking part in class and group projects.
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following:</p> <ol style="list-style-type: none"> 1. Units (1-14) in the text book [28 hrs].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive discussion, and assignments incorporating fascinating tasks. The course includes:</p> <ol style="list-style-type: none"> 1- Numerous examples worked out in detail to illustrate the basic
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	<p>principles.</p> <p>2- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning.</p> <p>3- Many problems will be discussed and solved in the lecture classes, which offer working with one or more classmates to exchange ideas and discuss the material.</p>
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	31	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	19	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	6, 13	LO units 1-4, 8-12
	Assignments	4	10% (10)	Continuous	
	Seminars	2	10% (10)	4, 11	LO units 2, 3, 9, and 10
	Reports	-	-	-	-
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO units 1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Unit one/ New headway plus beginner student's and work book
Week 2	Unit two/ New headway plus beginner student's and work book
Week 3	Unit three/ New headway plus beginner student's and work book

Week 4	Unit four/ New headway plus beginner student's and work book
Week 5	Unit five/ New headway plus beginner student's and work book
Week 6	Unit six/ New headway plus beginner student's and work book
Week 7	Unit seven/ New headway plus beginner student's and work book
Week 8	Unit eight/ New headway plus beginner student's and work book
Week 9	Unit nine/ New headway plus beginner student's and work book
Week 10	Unit ten/ New headway plus beginner student's and work book
Week 11	Unit eleven/ New headway plus beginner student's and work book
Week 12	Unit twelve/ New headway plus beginner student's and work book
Week 13	Unit thirteen/ New headway plus beginner student's and work book
Week 14	Unit fourteen/ New headway plus beginner student's and work book
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	New headway plus beginner student's and work books, Liz and John Soars.	Yes
Recommended Texts	New headway beginner student's and work books	No
Websites	-	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



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College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Principles of process engineering I	Module Delivery	
Module Type	Core	<input checked="" type="checkbox"/> Theory	
Module Code	PGR111	<input type="checkbox"/> Lecture	
ECTS Credits	7	<input type="checkbox"/> Lab	
SWL (hr/sem)	175	<input checked="" type="checkbox"/> Tutorial	
		<input type="checkbox"/> Practical	
		<input type="checkbox"/> Seminar	
Module Level	UGI	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	Hamad Khudhair Mohammed	e-mail	
Module Leader's Acad. Title	lect	Module Leader's Qualification	MSc
Module Tutor	Hamad K. Mohammed	e-mail	hamadalkhalid@tu.edu.iq
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Aims أهداف المادة الدراسية</p>	<p>This course is intended to serve as an introduction to the fundamentals and techniques utilized in the fields of chemical and petroleum engineering. It provides the foundational skills, knowledge, and professional practice necessary for the successful completion of undergraduate and postgraduate petroleum refining engineering studies. The course will cover concepts ranging from basics such as units, dimensions, and stoichiometry to the simultaneous application of material balances with and without occurrence of chemical reaction. Its primary objective is to teach you how to systematically formulate and solve material balance problems. In addition, this course serves to introduce you to the scope of processes that petroleum refining engineers deal with in the petroleum industry.</p>
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 1. Deal with systems of units (primary and derivative), conversion of units and dimensional consistency for validation of an equation. 2. Identify and understand the unit operations involved in a process, draw flowcharts, and develop relationships between process variables. 3. Ability to choose an appropriate basis and effectively employ the various units associated with density, concentration, temperature, and pressure and calculate the average molecular weight of a mixture. 4. Develop a conceptual understanding of material balances and understand the features of open, closed, steady-state, and unsteady-state systems. 5. Apply the ten-step strategy to solve problems that do not involve chemical reactions. 6. Determine the stoichiometric quantities of reactants and products in moles or mass given the chemical reaction. 7. Identify the limiting and excess reactants in a reaction, and calculate the fraction or percent excess reactant(s); the percent conversion, or completion; the yield; and the extent of reaction apply it in material balance calculations. 8. Formulate and solve material balances using species and element

	<p>balances.</p> <ol style="list-style-type: none"> 9. Understand the meaning of stack gas, flue gas, orsat analysis, dry basis, wet basis, theoretical air (oxygen), and excess air (oxygen), and employ these concepts in combustion problems. 10. Understand the purpose of recycle, bypass, and purge streams. 11. Apply the ten-step strategy to solve multi-unit steady-state problems (with and without chemical reactions) involving sequential, recycle, and/or bypass, and/or purge streams. 12. Understand in a general sense how material balances are used in industry.
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following:</p> <ol style="list-style-type: none"> 1. Definition of chemical engineering, Petroleum and gas refining engineering, Flow sheet and representation of a chemical process (PFD), The difference between a chemist and a chemical engineer. [2 hrs]. 2. Dimensions, units, symbols and conversion factors, Dimensional consistency, Precision and significant figures, Density and specific gravity, Temperature, Pressure, The mole unit, Composition and concentration, Basis of calculation, Principles and expressions of stoichiometry [8 hrs]. 3. Concepts of material balance and general strategy for solving material balance problems [4 hrs]. 4. Material balances without chemical reactions [8 hrs]. 5. Material balances with chemical reactions, stoichiometry, extent of reaction, limiting and excess reactants, conversion and degree of completion, selectivity, and yield [12 hrs]. 6. Material balances with multiple chemical reactions and element material balances [4 hrs]. 7. Material balances for combustion processes [8 hrs]. 8. Material balances involving multi-unit systems, recycle, bypass and purge streams [12 hrs].
<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive tutorials, and assignments incorporating fascinating tasks. The course includes:</p> <ol style="list-style-type: none"> 1- Numerous examples worked out in detail to illustrate the basic principles. 2- A consistent strategy for problem solving that can be applied to any problem.

	<p>3- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read.</p> <p>4- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning.</p> <p>5- Many problems will be discussed and solved in the tutorial classes, which offer working with one or more classmates to exchange ideas and discuss the material.</p>
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	87	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	88	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	6.3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	4, 11	LO #1, 2, 3, 7, 8 and 9
	Assignments	4	10% (10)	Continuous	
	Case study	2	10% (10)	6, 13	LO #1-5, and 10, 11
	Report	-	-	-	-
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO #1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	<ul style="list-style-type: none"> - Introduction - Dimensions, units, symbols and conversion factors, dimensional consistency, precision and significant figures

Week 2	Density and specific gravity, temperature, and pressure
Week 3	The mole unit, composition and concentration, basis of calculation, principles and expressions of stoichiometry
Week 4	Concepts of material balance
Week 5	Material balances without chemical reactions
Week 6	Material balances without chemical reactions
Week 7	Material balances with chemical reactions.
Week 8	Material balances with chemical reactions.
Week 9	Material balances with chemical reactions.
Week 10	Material balances with multiple chemical reactions
Week 11	Material balances for combustion processes
Week 12	Material balances involving multi-unit systems, recycle, bypass and purge streams
Week 13	Material balances involving multi-unit systems, recycle, bypass and purge streams
Week 14	Material balances involving multi-unit systems, recycle, bypass and purge streams
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	David M. Himmelblau, James B. Riggs, Basic principles and calculations in chemical engineering, 8 th edition, 2012.	Yes
Recommended Texts	Richard M. Felder, Ronald W. Rousseau, Lisa G. Bullard, Elementary principles of chemical processes, 4 th edition, 2016.	No
Websites	-	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	MATHEMATICS I		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR113		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGI	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	Omar Ibrahim farhan	e-mail	
Module Leader's Acad. Title	Asst. Lect.	Module Leader's Qualification	Msc
Module Tutor		e-mail	
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	none	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	Provide the students with the required basics of mathematics, functions, derivatives and its engineering applications , trigonometric functions and conic sections
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Ability to deal with functions and graphs. 2. Ability to find the domain and range in addition to continuity. 3. Ability to find the limits and derivatives of ordinary and trigonometric. 4. Ability to learn many applications of differentiation 5. Ability to find the limits of a functions
Indicative Contents المحتويات الإرشادية	<p>1-Review for secondary Algebra,Numbers, Sets, Intervals, Absolute value. (2hr)</p> <p>2- Functions: Domain, Range, Methods of representation, Types of functions and their graphs. Relations: Domain, Range, Symmetry and graphs. (8hr)</p> <p>3-Analytical Geometry : Coordinate system in plane , linear function Equations of a line , distance formula , Midpoint formula ,distance between point and line , parallel and perpendicular lines , angle between tow lines. (6hr)</p> <p>4-Trigonometric function: Types of trigonometric function, Trigonometric relation, Identities, Domain, Range and graphs of trigonometric functions. (8hr)</p> <p>5-Limits,Continuous and discontinuous functions and their theorems.(8hr)</p> <p>6- The derivatives, rules of derivatives, higher order derivatives,Chain rule ,Implicit differentiation, Differentials Parametric equations. (8hr)</p> <p>7-derivative applications (slope , related rate of change, optimization, curve sketching, Lahopetal rule for limit)(12hr)</p> <p>8- Sections of a cone : (circle , parabola , Ellipse , Hyperbola) (4hr)</p>

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The students will be actively engaged in the tasks, which will help them
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	<p>develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive tutorials, and assignments incorporating fascinating tasks. The course includes:</p> <ol style="list-style-type: none"> 1- Numerous examples worked out in detail to illustrate the mathematics. 2- A consistent strategy for problem solving that can be applied to any problem. 3- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read. 4- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning. 5- Many problems will be discussed and solved in the tutorial classes, which offer working with one or more classmates to exchange ideas and discuss the material
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Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	30%	7,13	LO # 1-6,7-12
	Assignments	4	10%	continous	
	Projects / Lab.	-			
	Report	-			
Summative assessment	Midterm Exam	3	10%	10	#1-9
	Final Exam	3	50%	16	all
Total assessment			100%		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

Material Covered	
Week 1	Review for secondary Algebra (Solve some examples by using English language). Numbers, Sets, Intervals, Absolute value.
Week 2	Functions: Domain, Range, Methods of representation, Types of functions and their graphs. Relations: Domain, Range, Symmetry and graphs.
Week 3	Analytical Geometry : Coordinate system in plane , linear function Equations of a line , distance formula , Midpoint formula ,distance between point and line , parallel and perpendicular lines , angle between tow lines.
Week 4	Trigonometric function: Types of trigonometric function, Trigonometric relation, Identities, Domain, Range and graphs of trigonometric functions.
Week 5	Limits
Week 6	Continuous and discontinuous functions and their theorems
Week 7	The derivatives, rules of derivatives, higher order derivatives
Week 8	Chain rule Implicit differentiation, Differentials Parametric equations
Week 9	Slope, derivative applications (speed, acceleration). Hospitals rule (for Limit)
Week 10	Related Rates of change
Week 11	Maximum and Minimum problems, Critical and Inflection points.
Week 12	Maximum and Minimum problems, Critical and Inflection points.
Week 13	Curve sketching.
Week 14	Sections of a cone : (circle , parabola , Ellipse , Hyperbola)
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Calculus – Thomas 2012	yes

Recommended Texts	James and Stewart, 2003	no
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.





Ministry of Higher Education and
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University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	ENGINEERING MECHANICS AND STRENGTH OF MATERIALS		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR115		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	Semester of Delivery	1
Administering Department	PGR	College	PPE
Module Leader	Dr.Mugdad Hamid		e-mail
Module Leader's Acad. Title	Asst. Prof	Module Leader's Qualification	PhD
Module		e-mail	

Tutor			
Peer Reviewer Name		e-mail	
Review Committee Approval	10/6/2023	Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	
Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. Provide the students with the required basics of engineering mechanics, Resolution of a forces, Resultant of a force system, Moments and Couples, Equilibrium, Moments of Inertia (Areas), Moments of Inertia (mass), Friction. 2. Enabling the student to study the concepts of engineering mechanics and their applications in statics. 3. This course covers basic concepts of strength of material, Simple stress- Normal stress, Shearing stress- Bearing stress, Thin - walled cylinders, Simple strain -Hooks; law, Axial deformation, Statically Indeterminate Members, Thermal stresses, Torsion- Torsion formulas. 4. To understand Shear and moment in beams, Stresses in beams-bending stresses, Deflection and slope in beams.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Ability to deal with forces and their resolution 2. Ability to deal with Equilibrium, Moments and Couples, Moments of Inertia and their calculations. 3. Ability to find the friction. 4. Ability to deal with strength of material, Simple strain and Simple stresses and their calculations. 5. Ability to deal with Shear and moment in beams, Stresses in beams-bending stresses, Deflection and slope in beams.
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following:</p> <ol style="list-style-type: none"> 1. Definition of mechanical engineering and its relationship to oil and gas refining engineering, and ways to benefit from the science of

- mechanical engineering [2 hrs].
2. Dimensions, units, symbols and conversion factors, basic concepts of engineering mechanics, Fundamentals of static and dynamic, Analysis of forces, Principles and Analyze the forces acting on the bodies. [8 hrs].
 3. Concepts of resultant forces, methods of calculating its, moments resulting from the effect of forces on bodies, and its applications [4 hrs].
 4. . Equilibrium of the body, determining the center of gravity of the body [4 hrs].
 5. Utilizing moment of inertia calculations for areas and masses [8 hrs]
 6. Dealing with friction in the surfaces of objects [8 hrs].
 7. Concepts of strength of materials, definitions of stress and strain, its types, and its effects on bodies [8].
 8. Sections and structures, bends and torsions resulting from loads and their effects [12].

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies

The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive tutorials, and assignments incorporating fascinating tasks. The course includes:

- Numerous examples worked out in detail to illustrate the basic principles.
- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read.
- A consistent strategy for problem solving that can be applied to any problem.
- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning.
- Many problems will be discussed and solved in the tutorial classes, which offer working with one or more classmates to exchange ideas and discuss the material.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
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Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	41	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20%(10)	4, 11	LO #1, 2, 3, 7, 8 and 9
	Assignments	4	10%(10)	Continuous	
	Case study	2	10%(10)	6, 13	LO #1-5, and 10, 11
	Report	-	-	-	-
Summative assessment	Midterm Exam	3	10%(10)	7	LO #1-7
	Final Exam	3	50%(50)	16	All
Total assessment			100%(100Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Fundamental and Scope of Mechanics, Preview of static, Units and Dimension.
Week 2	Resultants of force systems
Week 3	Principle of moment, Coplanar Applications, couples.
Week 4	Equilibrium of force system, Equilibrium applications
Week 5	Trusses and Frames
Week 6	Centroids and Center of gravity
Week 7	Moments of Inertia, Radius of gyration,(Areas and mass)
Week 8	Friction, applications

Week 9	Mid-term Exam + Principles of strength of material
Week 10	Stress, type of stress (Simple, Normal, Shearing, Bearing)
Week 11	Strain, type of strain, Simple strain –Hooks; law
Week 12	Torsion- Torsion formulas
Week 13	Stresses in beams- bending stresses(Unsymmetrical, Built- up)
Week 14	Deflection and slope in beams
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<ul style="list-style-type: none"> • Engineering mechanics statics, sixth edition, J.L. Meriam, L.G. Kraige • Hibbeler , 10th edition , 2005 	yes
Recommended Texts	<ul style="list-style-type: none"> • Engineering Mechanics by Hibbeler 10th edition , 2012 • Singer “strength of materials” 3rd edition,1980 and 4th edition 	yes

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX - Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F - Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



الوصف الأكاديمي المرحلة الأولى - الفصل الثاني



Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Human Rights and Democracy (حقوق الانسان والديمقراطية)		Module Delivery
Module Type	Suplement		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR125		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGII	Semester of Delivery	2
Administering Department	PGR	College	PPE
Module Leader	Qutaiba Hameed Mohammed	e-mail	qutaiba.aldulaimi88@tu.edu.iq
Module Leader's Acad. Title	Asst. Lecturer	Module Leader's Qualification	M.Sc.
Module Tutor	-	e-mail	-
Peer Reviewer Name	-	e-mail	-
Review Committee Approval	-	Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none"> 1. القدرة على إدراك المفهوم الأساسي لحقوق الإنسان والطفل والديمقراطية. 2. القدرة على فهم الأصول التاريخية للمفهومين ومعرفة إيجابيات وسلبيات حقوق الإنسان والديمقراطية. 3. الاطلاع على حقوق الإنسان والطفل والديمقراطية في الإسلام. 4. التعرف على مصادر حقوق الإنسان والطفل وخصائص وسمات الديمقراطية. 5. معرفة أثر التطور التكنولوجي على حقوق الإنسان والطفل والديمقراطية. 6. التطرق لمفاهيم ذات صلة بالمصطلحين مثل (العولمة، مؤسسات المجتمع المدني، الانتخابات والاستفتاء، الحكم الرشيد، الجرائم الإنسانية، الدستور). 7. الاطلاع على الضمانات التي تكفل حقوق الإنسان والطفل وتكفل النظام الديمقراطي والحقوق والحريات العامة.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. التعرف على المصطلحات ذات الصلة بمفهوم حقوق الإنسان والطفل والديمقراطية. 2. التعرف على اهم الحقوق التي كفلها الإسلام للإنسان والطفل واستثمارها في معالجة الأزمات والحالات السلبية التي تغزو المجتمعات في العصر الحالي. 3. الاستفادة من مزايا الديمقراطية ومكوناتها في معالجة التذبذب وعدم الاستقرار في المجتمع والحفاظ على الاستقرار والسلم المجتمعي. 4. الاطلاع على المواثيق الدولية المختصة بمجالات حقوق الإنسان والطفل الصادرة عن المنظمات الدولية وجمعية الأمم المتحدة. 5. الاستفادة من تجارب الآخرين (الدول المتقدمة في مجالات حقوق الإنسان والطفل والديمقراطية). 6. اللمام بالقوانين والدساتير الدولية والإقليمية والمحلية المختصة بقضايا حقوق الإنسان والحريات العامة والديمقراطية. 7. التعرف على جرائم الإبادة الجماعية والجرائم الإنسانية ومدى تأثيرها على مفهوم حقوق الإنسان والطفل والديمقراطية.
Indicative Contents المحتويات الإرشادية	<p>يتضمن المحتوى الإرشادي ما يأتي:</p> <ol style="list-style-type: none"> 1. حقوق الإنسان والطفل والديمقراطية في الحضارات القديمة والإسلام (6 ساعات). 2. مصادر حقوق الإنسان العالمية والمحلية، خصائص وسمات الديمقراطية (4 ساعات). 3. ضمانات حقوق الإنسان العالمية والمحلية وضمنات النظام الديمقراطي (4 ساعات). 4. حقوق الإنسان والطفل والديمقراطية وأثر التقدم التكنولوجي عليهما (4 ساعات). 5. العولمة، مؤسسات المجتمع المدني، الانتخابات والاستفتاء، الدستور (4 ساعات). 6. الجرائم الإنسانية و انواعها، الحكم الرشيد، (2 ساعة). 7. الوثائق الدولية الخاصة بحقوق الطفل والديمقراطية المعاصرة (4 ساعات).
Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	<p>تم وضع استراتيجيات التعلم والتعليم من أجل ان يحصل الطالب على معلومات كاملة تغطي المنهج الدراسي المعد للمادة ولكي تتحقق الغاية الأساسية للمنهج الذي ينصب نحو المام وإدراك الطالب بالمفاهيم الأساسية لحقوق الإنسان والديمقراطية، والاطلاع على المصادر والضمنات والمواثيق الدولية</p>

للمصطلحين من اجل استثمارها في معالجة الظواهر السلبية في المجتمع والحفاظ على الاستقرار والسلم المجتمعي.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.43
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5, 11	LO #1, 2, 3, 4, 5, 6 & 7
	Online Assignments	2	10% (10)	6, 10	LO #1, 2, 3, 4, 5, 6 & 7
	Onsite discussions	1	5% (5)	7	LO #1, 2, 3 & 4
	Report	1	5% (5)	14	LO #5, 6 & 7
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO #1-4
	Final Exam	3 hr	50% (50)	16	All
Total assessment		100% (100 Marks)			

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	الجذور التاريخية لحقوق الانسان والديمقراطية في الحضارات القديمة
Week 2	حقوق الانسان والطفل والديمقراطية في الاسلام
Week 3	مصادر حقوق الانسان على المستوى الخارجي الدولي، سمات وخصائص الديمقراطية
Week 4	مصادر حقوق الانسان على المستوى الداخلي المحلي، مزايا الديمقراطية
Week 5	ضمانات حقوق الانسان على المستوى المحلي، مكونات الديمقراطية
Week 6	ضمانات حقوق الانسان على المستوى الدولي، الضمانات التي تكفل النظام الديمقراطي

Week 7	مجلس حقوق الانسان، الانتخابات واهميتها
Week 8	امتحان نصف الفصل
Week 9	التطور التكنولوجي وأثره على حقوق الانسان والطفل والديمقراطية
Week 10	مفهوم العولمة، مؤسسات المجتمع المدني
Week 11	الحكم الرشيد (المبادئ، المعايير)، الاستفتاء
Week 12	الدستور وانواعه
Week 13	حقوق الطفل في المواثيق والعهود الدولية
Week 14	الجرائم الانسانية (جرائم الابادة الجماعية) وتأثيرها على حقوق الانسان والطفل والانظمة الديمقراطية
Week 15	الديمقراطية المعاصرة وحقوق الانسان والطفل ودراسة حالات لأمثلة واقعية حدثت في المجتمعات الدولية والعربية وفي العراق
Week 16	امتحان نهاية الفصل

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	كتاب حقوق الانسان والديمقراطية، من تأليف: 1- ا.د. ماهر صالح علاوي الجبوري، ا.د رياض عزيز هادي، ا.د. رعد ناجي الجدة، ا.م.د. كامل عبد العنكود، ا.م.د علي عبد الرزاق محمد، ا.د. حسان محمد شفيق، (2009).	نعم
Recommended Texts	الديمقراطية، من تأليف: تشارلز تيللي، ترجمة محمد فاضل طباطبا، الهيئة المصرية العامة للكتاب، (2010).	كلا
Websites	-	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Introduction to Petroleum Technology		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR124		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	PGR	College	PPE
Module Leader	Luay Ahmed Khamees	e-mail	Luaykhamees75@tu.edu.iq
Module Leader's Acad. Title	Assist Lecturer	Module Leader's Qualification	M.SC.
Module Tutor		e-mail	
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

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

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Objectives أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> 1. Providing students with the basics of scientific knowledge in the field of Petroleum and Gas Refining Engineering department and improving their professional abilities in the direction of analytical and creative thinking through the use of information technologies, data analysis and modern experimental methods in formulating and solving problems. 2. Preparing well-qualified engineers to advance the activities of Petroleum and Gas Refining Engineering department and the ability to manage dealing with them in all aspects of life, especially in the field of oil industries. 3. Conducting scientific research of an academic nature to keep pace with the global scientific march and research of an applied nature to translate engineering knowledge and its theories into action by addressing the problems that the country suffers from in all fields. 4. Contribute in one way or another in terms of design, supervision, follow-up and advice for the reconstruction of the country in the various sectors of the oil and petrochemical industries, with the provision of engineering consultancy, the preparation of economic feasibility studies, project designs and the provision of technical services. 5. Rooting scientific sobriety and making it a feature of this department in accordance with international controls and standards. 6. Providing students with the basics of scientific knowledge in the field of Petroleum and Gas Refining Engineering department and improving their professional abilities in the direction of analytical and creative thinking through the use of information technologies, data analysis and modern experimental methods in formulating and solving problems. 7. Preparing well-qualified engineers to advance the activities of Petroleum and Gas Refining Engineering department and the ability to manage dealing with them in all aspects of life, especially in the field of oil industries.
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<p>Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.</p> <ol style="list-style-type: none"> 1. Broad-based education to understand the impact of engineering solutions globally and economically. 2. Ability to work in multidisciplinary teams. 3. The possibility of applying cognitive sciences such as mathematics and pure petroleum sciences. 4. The ability to use the techniques, skills and tools of contemporary engineering in the engineering field of the petroleum industries. 5. The ability to design petroleum and petrochemical systems to meet the required needs within realistic economic determinants. 6. The possibility of designing and implementing experiments, analyzing the results and translating them into reality.
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p>Indicative content includes the following.</p> <p>Part A – Energy Sources in nature, and An introduction to crude oil and its origin. Reservoir characterization. [8 hrs.].</p> <p>Reservoir characterization. Reservoir engineering,. [6 hrs.].</p>

	<p>Part B – Hydrocarbon exploration methods. Introduction to oil and gas drilling operations. Drilling Fluid properties.. [10 hrs.]. Drilling Fluid properties. Drilling problem and methods of treatment. Well completion.. [12 hrs.]. Introduction to production engineering. Hydrocarbon production from the well and surface equipment. An introduction about all process that take place on oil and gas in the field.. [10 hrs.]</p> <p>Part C – Introduction to oil properties . Introduction to refineries and crude oil refining. [10 hrs.]</p>
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes and interactive tutorials. The following steps will be applied to enhance the learning strategies :</p> <ol style="list-style-type: none"> 1. Using appropriate teaching methods in line with the level of students and allowing students to discuss. 2. Using modern and advanced means to deliver the largest amount of knowledge to the student. 3. Presenting the course vocabulary to the students (lectures). 4. Assigning students assignments, such as writing research papers, so that students acquire skills for self-learning and presentation. 5. Conducting sudden exams. 6. Oral exams via e-learning platforms. 7. Conducting the quarterly and final exams on the specified dates. 8. Informing students of how students' grades are calculated during the semester, their exam results, and discussing failures and successes. 9. Informing students of the curriculum books and auxiliary books that they need in the course vocabulary
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Student Workload (SWL)

الحمل الدراسي للطالب محسوب ل ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91`	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5, 9	LO (1,2,3,4), LO (5,6,7,8)
	Assignments	2	10%(10)	3, 12	LO (1,2), LO (9,10,11)
	Seminar	1/1	10%(10)	1	
	Scientific Report	-	-	-	-
Summative assessment	Midterm Exam	2 hr.	10%(10)	10	LO 1-9
	Final Exam	3 hr.	50%(50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Energy Sources in nature, and An introduction to crude oil and its origin.
Week 2	Reservoir characterization.
Week 3	Reservoir characterization.
Week 4	Reservoir engineering,
Week 5	Hydrocarbon exploration methods.
Week 6	Introduction to oil and gas drilling operations.
Week 7	Drilling Fluid properties.
Week 8	Drilling problem and methods of treatment.
Week 9	Well completion.
Week 10	Introduction to production engineering.
Week 11	Hydrocarbon production from the well and surface equipment.
Week 12	An introduction about all process that take place on oil and gas in the field.
Week 13	Introduction to oil properties , and introduction to refineries and crude oil refining
Week 14	Introduction to oil refineries and crude oil refining
Week 15	Preparatory week before the final Exam.

Week 16	final Exam.
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Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1- Petroleum engineering. 2- Handbook of petroleum technology. .	No
Recommended Texts	1- An Introduction to petroleum Technology, Economics and politics by James G. Speight 2- Reservoir Engineering Hand book. 3- Petroleum production engineering.	Yes No No
Websites	https://www.arab-oil-naturalgas.com/ https://www.sciencedirect.com/search?q=oil	

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A – Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C – Good	جيد	70 – 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Principles of process engineering II		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR121		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	UGI	Semester of Delivery	2
Administering Department	PGR	College	PPE
Module Leader	Hamad K. Mohammed		e-mail
Module Leader's Acad. Title	lect	Module Leader's Qualification	MSc
Module Tutor	Hamad K. Mohammed		e-mail hamadalkhalid@tu.edu.iq
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	PGR111	Semester	1
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p>Module Aims أهداف المادة الدراسية</p>	<p>This course is a complement to the fundamentals and techniques used in the chemical and petroleum engineering fields, as it provides the essential skills, knowledge, and professional practice needed to successfully complete undergraduate and postgraduate studies in petroleum refining engineering. The course will cover concepts ranging from the ideal gas laws, real gas, and their relationships, multiphase equilibrium to energy balances with and without a chemical reaction, enthalpy calculations, and humidity. Its primary goal is to teach you how to deal with ideal and real gases and to formulate and solve energy balance problems systematically. In addition, this course introduces you to the scope of operations that petroleum refining engineers deal with in the petroleum industry.</p>
<p>Module Learning Outcomes مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> 9. Understand the conditions under which the ideal gas law applies, and the conditions for which real gas relations must be used. 10. Solve material balances involving ideal or real gases. 11. Recognize the connection between multiphase equilibrium and separation technology. 12. Understand phase diagrams and the associated terminology as well as the phase rule. 13. Understand vapor-liquid equilibrium for a binary system. 14. Understand terminology associated with energy balances. 15. Understand types of energy included in energy balances. 16. Formulate and solve energy balances without reaction. 17. Understand the meaning of standard heat (enthalpy) of formation, heat (enthalpy) of reaction, higher and lower heating values. 18. Calculate the standard heat of reaction from tabulated standard heats of formation (or combustion) for different reactions. 19. Combine the heat of formation with sensible heat changes to solve problems involving chemical reactions. 20. Solve simple material and energy balance problems involving reactions.

	<p>21. Understand humidity, dry-bulb temperature, wet-bulb temperature, humidity chart, moist volume, and adiabatic cooling line.</p> <p>22. Use the humidity chart to determine the properties of moist air.</p> <p>23. Calculate enthalpy changes and solve heating and cooling problems involving moist air.</p>
<p>Indicative Contents المحتويات الإرشادية</p>	<p>Indicative content includes the following:</p> <p>9. Ideal gases, ideal gas mixture, material balances involving ideal gases. [6 hrs].</p> <p>10. Real gases, equation of state, critical state and compressibility, compressibility charts [6 hrs].</p> <p>11. Multiphase equilibrium, phase diagrams and the phase rule, single-component two phase systems (vapor pressure), two component gas/single component liquid systems (saturation, condensation, and vaporization), two component gas/two component liquid systems, ideal solution relations, vapor-liquid equilibria phase diagrams, K-value, bubble point and dew point calculations, multicomponent vapor-liquid equilibrium [20 hrs].</p> <p>12. Energy balances: Terminology, types (heat, work, kinetic, potential, and internal energies, Enthalpy), heat capacity [6 hrs].</p> <p>13. Energy balances without chemical reactions, steady-state close and open systems [8 hrs].</p> <p>14. Energy balances with chemical reactions, the standard heat (enthalpy) of formation, the heat (enthalpy) of reaction, integration of heat of formation and sensible heat, the heat (enthalpy) of combustion [16 hrs].</p> <p>15. Humidity: Terminology, the humidity (psychrometric) chart and its application [8 hrs].</p>
<p>Learning and Teaching Strategies استراتيجيات التعلم والتعليم</p>	
<p>Strategies</p>	<p>The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive tutorials, and assignments incorporating fascinating tasks. The course includes:</p> <p>4- Numerous examples worked out in detail to illustrate the basic principles.</p> <p>5- A consistent strategy for problem solving that can be applied to any problem.</p> <p>6- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read.</p> <p>7- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning.</p> <p>8- Many problems will be discussed and solved in the tutorial classes, which offer working with one or more classmates to exchange ideas</p>

and discuss the material.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	87	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	88	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5, 11	LO #1-4, and 8-11
	Assignments	4	10% (10)	Continuous	
	Case study	2	10% (10)	6, 13	LO #1-6, and 8-12
	Report	-	-	-	-
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO #1-7
	Final Exam	3 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Ideal gases
Week 2	Real gases (equation of state and compressibility)
Week 3	Multiphase equilibrium (phase diagrams and the phase rule and vapor pressure)
Week 4	Multiphase equilibrium (saturation, condensation, and vaporization)
Week 5	Multiphase equilibrium (two component gas/two component liquid systems)
Week 6	Multiphase equilibrium (vapor-liquid equilibria phase diagrams)
Week 7	Energy balances (terminology, types, and units)

Week 8	Energy balances without chemical reactions
Week 9	Energy balances without chemical reactions
Week 10	Energy balances with chemical reactions (enthalpy of formation)
Week 11	Energy balances with chemical reactions (enthalpy of reaction)
Week 12	Energy balances with chemical reactions (enthalpy of combustion)
Week 13	Humidity (terminology and the humidity chart)
Week 14	Humidity (applications of the humidity chart)
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	David M. Himmelblau, James B. Riggs, Basic principles and calculations in chemical engineering, 8 th edition, 2012.	Yes
Recommended Texts	Richard M. Felder, Ronald W. Rousseau, Lisa G. Bullard, Elementary principles of chemical processes, 4 th edition, 2016.	No
Websites	-	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



Ministry of Higher Education and
Scientific Research - Iraq
University of Tikrit
College of Petroleum Process Engineering
Department of Petroleum and Gas Refining
Engineering



MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	MATHEMATICS II		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	PGR123		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	UGI	Semester of Delivery	
Administering Department	PGR	College	PPE
Module Leader	Ali Mohammed Hussein	e-mail	
Module Leader's Acad. Title	Lect.	Module Leader's Qualification	Msc
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	1.0

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mathematics I	Semester	1
Co-requisites module	None	Semester	
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	Provide the students with the required basics of mathematics, functions, integration, trigonometric functions, transcendental functions, matrices, and determinants and their engineering applications.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	6. Ability to learn different methods of integration and its applications 7. Ability to deal with transcendental functions, matrices, and determinants 8. Ability to treated with matrices		
Indicative Contents المحتويات الإرشادية	1-Integration (Anti-derivatives), Rules of Integration, Differential equations, Indefinite integration.(4hr) 2- Area under a curve (as a limit of summation) and their finding by using definite integral (8hr) 3-First fundamental theorem of integral, Rules of indefinite integral.(2hr) 4-First fundamental theorem of integral, Rules of definite integral. (2hr) 5-Second fundamental theorem of integral (differential of integral). (2hr) 6- Applications on definite integral: Areas, volumes, surfaces area, arc length. (10hr) 7-Approximate of definite integral. And Transcendental functions (In(x), e^x , a^x , $\log(x)$) and Hyperbolic Functions. (8hr) 8-The Inverse of Trigonometric functions: Domain, Range, properties and their graphs.(6hr) 9-Methods of integration: (by parts, partial fractions, reduction formulas, by substitution) and improper integrals. (10hr) 10-Determinants and their applications (Matrices). (4hr)		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive tutorials, and assignments incorporating fascinating tasks. The course includes:		

- 1- Numerous examples worked out in detail to illustrate the mathematics.
- 2- A consistent strategy for problem solving that can be applied to any problem.
- 3- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read.
- 4- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning.
- 5- Many problems will be discussed and solved in the tutorial classes, which offer working with one or more classmates to exchange ideas and discuss the material

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	91	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	30%	8,13	LO # 1-7,8-12
	Assignments	4	10%	continuous	
	Projects / Lab.	-			
	Report	-			
Summative assessment	Midterm Exam	3	10%	12	#1-11
	Final Exam	3	50%	16	all
Total assessment			100%		

Delivery Plan (Weekly Syllabus)

المنهاج الأسبوعي النظري

	Material Covered
Week 1	Integration (Anti-derivatives), Rules of Integration, Differential equations, Indefinite integration
Week 2	Area under a curve (as a limit of summation) and their finding by using definite integral.
Week 3	Area under a curve (as a limit of summation) and their finding by using definite integral.
Week 4	First fundamental theorem of integral, Rules of indefinite integral.
Week 5	First fundamental theorem of integral, Rules of definite integral.
Week 6	Second fundamental theorem of integral (differential of integral).
Week 7	Applications on definite integral: Areas, volumes, surfaces area, are length.
Week 8	Applications on definite integral: Areas, volumes, surfaces area, are length.
Week 9	Approximate of definite integral. Transcendental functions ($\ln(x)$, e_x , a_x , $\log(x)$).
Week 10	Hyperbolic Functions and its inverse
Week 11	The Inverse of Trigonometric functions: Domain, Range, properties and their graphs.
Week 12	Methods of integration: (by parts, partial fractions, reduction formulas, by substitution) and improper integrals.
Week 13	Methods of integration: (by parts, partial fractions, reduction formulas, by substitution) and improper integrals.
Week 14	Determinants and their applications.
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Calculus – Thomas 2012	yes
Recommended Texts	James and Stewart, 2003	no

Websites**APPENDIX:****GRADING SCHEME**

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.





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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Organic chemistry	Module Delivery	
Module Type	Basic	<input checked="" type="checkbox"/> Theory	
Module Code	PGR122	<input type="checkbox"/> Lecture	
ECTS Credits	5	<input checked="" type="checkbox"/> Lab	
SWL (hr/sem)	125	<input type="checkbox"/> Tutorial	
		<input type="checkbox"/> Practical	
		<input type="checkbox"/> Seminar	
Module Level	UGI	Semester of Delivery	2
Administering Department	PGR	College	PPE
Module Leader	Rand sad ahmed	e-mail	-
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor	-	e-mail	-
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	This course provides the students with the basic concept of organic chemistry, hybridization, purification, empirical and molecular formula of organic compounds. It also offers classification, structure, nomenclature, physical and chemical properties, and uses of organic compounds including alkanes, alkenes, alkynes, alcohols, aromatic, ethers, aldehydes and ketones, carboxylic acids and derivatives, esters and amines.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. Ability to nomenclature, classification and draw the molecular formula and structures of the organic compounds. 2. Ability to deal with physical and chemical properties of organic compounds. 3. Understand the relation between geometry and charge distribution to chemical and physical properties. 4. Ability to make the chemical equation of any organic reactions. 5. Understand the mechanism of organic reaction.
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following:</p> <ol style="list-style-type: none"> 1. Introduction to organic chemistry (basic concepts), hybridization [2 hrs]. 2. Purification, empirical and molecular formula of organic compounds [2 hrs]. 3. Classification and nomenclature of organic compounds [2 hrs]. 4. Hydrocarbons (alkanes, alkenes, and alkynes): structure, nomenclature, physical and chemical properties, and uses [6 hrs]. 5. Alcohols: structure, nomenclature, physical and chemical properties, and uses [2 hrs]. 6. Ethers, aldehydes and ketones: structure, nomenclature, physical and chemical properties, and uses [2 hrs]. 7. Carboxylic acid and carboxylic acid derivatives: structure, nomenclature, physical and chemical properties, and uses [4 hrs]. 8. Esters and amines: structure, nomenclature, physical and chemical properties, and uses [2 hrs]. 9. Aromatic compounds (aromatic hydrocarbon, aromatic halogen, aromatic amine, aromatic carboxylic acids): structure, nomenclature, physical and chemical properties, and uses [6 hrs]

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	<p>The students will be actively engaged in the tasks, which will help them develop and hone their critical thinking abilities. This will be accomplished via lectures, interactive labs, and assignments incorporating fascinating tasks. The course includes:</p> <ol style="list-style-type: none"> 1- Numerous examples worked out in detail to illustrate the basic principles. 2- A consistent strategy for problem solving that can be applied to any problem. 3- Figures, sketches, and diagrams to provide a detailed description and reinforcement of what you read. 4- Self-Assessment Tests at the end of each section, with answers so that you can evaluate your progress in learning. 5- Many problems will be discussed and solved in the lecture classes, which offer working with one or more classmates to exchange ideas and discuss the material.
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Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	59	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	66	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	4.7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	5, 14	LO #1-5
	Assignments	2	10% (10)	3, 10	LO 4 and 5
	Seminar	-	-	-	
	Report	14	10% (10)	Continuous	
Summative assessment	Midterm Exam	3 hr	10% (10)	7	LO #1-5
	Final Exam	3 hr	50% (50)	16	All
Total assessment		100% (100 Marks)			

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to organic chemistry (basic concepts), hybridization
Week 2	Purification, empirical and molecular formula of organic compounds
Week 3	Classification and nomenclature of organic compounds
Week 4	Hydrocarbons (alkanes, alkenes, and alkynes)
Week 5	
Week 6	
Week 7	Alcohols
Week 8	Ethers, aldehydes and ketones
Week 9	Carboxylic acid and carboxylic acid derivatives
Week 10	
Week 11	Esters and amines
Week 12	Aromatic compounds
Week 13	
Week 14	
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Organic Chemistry, K. S. Mukherjee, 1 st ed., 2010.	No
Recommended Texts	Organic Chemistry, Solomons, Fryhle and Snyder, 3 rd ed., 2023.	No

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Engineering Workshops	Module Delivery	
Module Type	Suplement	<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input checked="" type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	PGR126		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGI	Semester of Delivery	2
Administering Department	PGR	College	PPE
Module Leader	Dr.Mugdad Hamid	e-mail	
Module Leader's Acad. Title	Asst. Prof	Module Leader's Qualification	PhD
Module Tutor		e-mail	
Peer Reviewer Name	-	e-mail	-
Review Committee Approval		Version Number	1.0

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	-
Co-requisites module	None	Semester	-
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	Theoretical and practical training in which the student is scientifically and technically established with the most necessary skills in the field of engineering technology.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<p>On completion of this course students will be able to: Knowledge of technical skills in the field of:</p> <ol style="list-style-type: none"> 1. industrial safety. 2. Measurement. 3. Filing. 4. Carpentry. 5. Welding. 6. Mechanical operation. 7. Sanitary engineering. 8. The basics of electrical work. 		
Indicative Contents المحتويات الإرشادية	<p>Indicative content includes the following:</p> <ol style="list-style-type: none"> 1. Industrial safety workshop [2 hrs]. 2. Measurement & Marking workshop [3 hours]. 3. Filing workshop [5 hrs]. 4. Carpentry workshop [5 hrs]. 5. Welding workshop [5 hrs]. 6. Casting workshop [5 hrs]. 7. Machining workshop [5 hrs]. 8. Plumbing workshop [5 hrs]. 9. Electrical workshop [2 hrs]. 		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	The learning and teaching strategy is designed to: Carefully cover in lectures the necessary fundamental material and analytical techniques, and demonstrate concepts with appropriate (and where possible practical) examples Allow students adequate time to practice the techniques using a large number of carefully selected tutorial problems.		

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	31	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	19	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	1.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	20% (20)	6, 12	LO #1-4, and 6, 7
	Assignments	9	20% (20)	Continuous	
	Labs.	-	-	-	-
	Report	-	-	-	-
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO #1-5
	Final Exam	2 hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	Material Covered
Week 1	Industrial safety workshop & measurement and marking workshop
Week 2	Filing workshop
Week 3	Filing workshop
Week 4	Carpentry workshop
Week 5	Carpentry workshop
Week 6	Welding workshop
Week 7	Welding workshop
Week 8	Plumbing workshop
Week 9	Plumbing workshop

Week 10	Machining workshop
Week 11	Machining workshop
Week 12	Casting workshop
Week 13	Casting workshop
Week 14	Electrical workshop
Week 15	Preparatory Week
Week 16	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Abd Fares, Engineering workshops	Yes
Recommended Texts	Technology of Machine Tools, Steve F. Krar & J. William Oswald, McGraw-Hill, 4 th Ed., 1991.	No
Websites	-	

APPENDIX:

GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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Fail Group (0 - 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
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Engineering
Department of Petroleum Control System
Engineering



MODULE DESCRIPTOR

وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	ARABIC LANGUAGE اللغة العربية		Module Delivery	
Module Type	BASIC		محاضرات نظرية	
Module Code	PGR127			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester (s) offered		1
Administering Department	PGR	College	PPE	
Module Leader	Nawal Salih Mahdi		e-mail nawal.s.mahdi@tu.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer		Module Leader's Qualification	MSc
Module Tutor	None		e-mail	None
Peer Reviewer Name	None		e-mail	None

Review Committee Approval		Version Number	1.0
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Relation With Other Modules العلاقة مع المواد الدراسية الأخرى

Prerequisite module	لا يوجد	Semester	-
Co-requisites module	لا يوجد	Semester	-

Module Aims, Learning Outcomes, Indicative Contents and Brief Description أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية مع وصف مختصر

Module Aims أهداف المادة الدراسية	<ul style="list-style-type: none"> • تخريج كوادر مؤهلة تأهيلاً كافياً في اللغة العربية وآدابها بالمستويات المختلفة، وفق فلسفة الجامعة ورسالتها. • الحفاظ على اللغة العربية، والإعلاء من شأنها، والحرص على استعمالها وتوظيفها توظيفا صحيحاً في مناحي حياتنا المختلفة. • اكتشاف المواهب الأدبية وتنميتها لدى الطلبة، لتمكينهم من الإبداع في مجال اللغة العربية. • اتصال المتعلم بتراث أمته وحضارتها، لا سيما في مجال اللغة والأدب، وإطلاعه على ما أنتجه الفكر العربي قديماً وحديثاً في هذا الإطار. • الاستفادة من معطيات العلم والتكنولوجيا الحديثين في مجال تعلم اللغة واكتسابها. • نشر اللغة العربية والاعتراف بها، في إطار الجمع بين الأصالة والمعاصرة. • تلبية احتياجات المجتمع المحلي والعربي والإقليمي من المتخصصين في اللغة العربية، للعمل في المجالات العلمية والتربوية والتعليمية والإعلامية والإدارية. • اكتساب الطلبة معارف والمعلومات المناسبة في اللغة العربية وآدابها ومهاراتها الأربع. • تنمية الذائقة اللغوية والأدبية لدى الطلبة، بما يمكنهم من الحكم الصحيح على ما يسمعون أو يقرأون.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"> 1. تزويد الطالب بثقافة عامة فضال عن دراستهم اللغوية 2. إبعاد الطالب عن التحدث باللهجات المحلية. 3. تزويد الطالب بمفردات علوم اللغة العربية 4. متابعة قراءة الطالب على وفق القراءات السليمة. 5. التعرف إلى مستويات نظام اللغة العربية. 6. ممارسة الكتابة والكلام باللغة العربية الفصيحة.
Indicative Contents المحتويات الإرشادية	<p>يتضمن المحتوى الإرشادي ما يأتي:</p> <ol style="list-style-type: none"> 1. أنواع الهمزات (2 ساعة) 2. الجملة الاسمية وعلاماتها (2 ساعة) 3. سورة الرحمن (2 ساعة) 4. الميزان الصرفي (2 ساعة) 5. الشاعر عمرو بن كلثوم (2 ساعة) 6. النواسخ كان واخواتها وإن واخواتها (2 ساعة) 7. الجملة الفعلية والمنصوبات (2 ساعة) 8. الشاعر الرصافي (2 ساعة) 9. الفعل الصحيح والفعل المعتل (2 ساعة) 10. المنقوص والمقصور والممدود (2 ساعة) 11. المشتقات (2 ساعة) 12. علامات الترقيم (2 ساعة) 13. العدد (2 ساعة)

14. علم البلاغة (2 ساعة)

Course Description	<p>إعداد كوادر تعليمية وبحثية متخصصة في اللغة العربية وآدابها، للإسهام في تلبية الحاجة المحلية والعربية والعالمية. يتطلع القسم الى اعداد جيل متمكن علميا وثقافيا مرتبطا بتراث الامة حريصا على الارتقاء باللغة نطقا وكتابة قادرا على تعزيز مكانتها بين لغات العالم المتحضر فاللغة آلة الفكر التي تؤمن التعبير عنها وتطويره. ولما كان الفكر متجددا كان على اللغة كذلك ان تكون قادره على تنميتها قدراتها والارتقاء بأدائها لتكون مؤهلة لنقل الافكار الجديدة وتطويرها. إجراء البحوث والدراسات الجادة خدمة للغة العربية والمعرفة الإنسانية. خدمة المجتمع المحلي فيما يتعلق باللغة العربية وآدابها من خلال النشاطات، والمحاضرات، والندوات، والمؤتمرات التي يعقدها القسم، أو يشارك فيها.</p>
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	تقوية ملكة الابداع لدى دارسي اللغة العربية فلا يقتصر استخدامها على الاغراض الحياتية العامة بل يتعداه الى تنشئة اجيال من المبدعين في المجالات اللغوية والادبية كافة يحاكي ما لدى الامم المتحضرة من ابداع.

Student Workload (SWL)

الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	31	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	19	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time (hr)	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	20% (20)	3, 5, 7, 9, 11, 13,	LO #1, 2, 3,, 11
	Assignments (Homeworks)	6	15% (15)	2, 4, 6, 10, 12, 14	LO # 1, 2, 3,, 11
	Reports	7	5% (5)	3, 5, 7, 9, 11, 13,	
Summative assessment	Midterm Exam	2	10% (10)	8	LO # 1-7
	Final Exam	3	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	أنواع الهمزات
Week 2	الجملة الاسمية وعلاماتها
Week 3	سورة الرحمن
Week 4	الميزان الصرفي
Week 5	الشاعر عمرو بن كلثوم
Week 6	النواسخ كان واخواتها وإن واخواتها
Week 7	الجملة الفعلية والمنصوبات
Week 8	الشاعر الرصافي
Week 9	الفعل الصحيح والفعل المعتل
Week 10	المنقوص والمقصور والممدود
Week 11	المشتقات
Week 12	علامات الترفيق
Week 13	العدد
Week 14	علم البلاغة

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	<p>القران الكريم</p> <ul style="list-style-type: none">• شرح ابن عقيل• الصرف الواضح ومصادر اللغة و الأدب القديم والحديث و البلاغة العربية و النحو العربي و الصرف و الإملاء.	Yes

Recommended Texts	أوضح المسالك إلى ألفية ابن مالك، والصرف العربي أحكام ومعان، ومجلة الدراسات اللغوية والأدبية	No
Websites	N/A	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 – 100	Outstanding Performance
	B - Very Good	جيد جدا	80 – 89	Above average with some errors
	C - Good	جيد	70 – 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 – 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 – 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.