

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Fundamentals of Thermodynamics</b>		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>ATU12034</b>		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department	ATU12	College	PMTEC
Module Leader	Name	e-mail	E-mail
Module Leader's Acad. Title	Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	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

<b>Module Objectives</b> أهداف المادة الدراسية	<p>1-The aim of this course is to provide English learners with integrated language skills such as reading, listening and writing resulting in a level of basic language knowledge.</p> <p>2-This course will focus on grammar rules, basic word knowledge and usage, reading comprehension, reading out of the lesson, and Paragraph writing.</p> <p>3- A student may be able to listen to native speakers and speak English Language.</p> <p>4- A student may be able to write and have creativity in his writing.</p>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<p>1- Uses expressions of Quantity in elementary level of English.</p> <p>2- Constructs sentences in Present Perfect Tense, Simple Future Tense and Going to Future Tense both in an oral and written task.</p> <p>3- Defines basic Modals and employ them in elementary level of communication and writing skills.</p> <p>4- Translates sentences in elementary level from English to another language.</p> <p>5- Interprets the texts written in elementary level of English.</p>
<b>Indicative Contents</b> المحتويات الإرشادية	<p><b>Language</b> is a rule-governed behavior. It is defined as the comprehension and/or use of a spoken (i.e., listening and speaking), written (i.e., reading and writing), and/or <b>other communication symbol system</b> (e.g., American Sign Language).</p> <p><b>Spoken and written language</b> are composed of receptive (i.e., listening and reading) and expressive (i.e., speaking and writing) components.</p> <p>Spoken language, written language, and their associated components (i.e., receptive and expressive) are each a synergistic system comprised of individual language domains (i.e., phonology, morphology, syntax, semantics, pragmatics) that form a dynamic integrative whole</p> <p><b>Phonology</b> study of the speech sound (i.e., phoneme) system of a language, including the rules for combining and using phonemes.</p> <p><b>Morphology</b> study of the rules that govern how morphemes, the minimal meaningful units of language, are used in a language.</p> <p><b>Syntax</b> the rules that pertain to the ways in which words can be combined to form sentences in a language.</p> <p><b>Semantics</b> the meaning of words and combinations of words in a language.</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>1- Uses the available material to increase his efficiency.</p> <p>2- Constructs sentences in Present Perfect Tense, Simple Future Tense and Going to Future Tense both in an oral and written task.</p>
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	3-Defines basic Modals and employ them in elementary level of communication and writing skills. 4- Develop and enhance students' language skills to communicate in English properly. 5- Interprets the texts written in elementary level of English.
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<b>Student Workload (SWL)</b> الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	78	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	7
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	72	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	150		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	Material Covered
<b>Week 1</b>	- Definitions , phase change , pure substance - Steam tables
<b>Week 2</b>	T-s , P v diagrams and h- s chart Steam process

<b>Week 3</b>	Dryness fraction measurement Steam cycles Carnot cycle
<b>Week 4</b>	Rankine cycles Ranking cycle with superheat
<b>Week 5</b>	The effect of steam condition on thermal, efficiency Reheat cycle
<b>Week 6</b>	Regenerative cycle , open feed heater Regenerative cycle , closed feed heater
<b>Week 7</b>	Air standard cycle ; Otto cycle Air standard cycle ; Diesel cycle
<b>Week 8</b>	Air standard cycle ; Daul cycle Mean effective pressure , and comparison between air standard cycles
<b>Week 9</b>	Simple gas turbine cycle ; Brayton cycle
<b>Week 10</b>	Effect of clearance volume, Volumetric efficiency
<b>Week 11</b>	Actual indicator diagram
<b>Week 12</b>	Multi – stage compressor :Plus inter cooler, The ideal inter mediate pressure
<b>Week 13</b>	The condition for minimum work Isothermal efficiency
<b>Week 14</b>	Energy balance for two – stage machine with inter – cooler
<b>Week 15</b>	The steady flow analysis of the compressor process
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
<b>Week 1</b>	
<b>Week 2</b>	
<b>Week 3</b>	
<b>Week 4</b>	
<b>Week 5</b>	
<b>Week 6</b>	
<b>Week 7</b>	

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Headway book for learning English	Yes
Recommended Texts	Skills in writing and Learning English	Yes
Websites	<a href="https://www.bbc.co.uk/learningenglish/">https://www.bbc.co.uk/learningenglish/</a>	

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
<b>Note:</b> 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.				