



Ministry of Higher Education and
Scientific Research - Iraq
Northern Technical University
College of Oil & Gas Techniques
Engineering/Kirkuk
Department of Fuel and Energy
Engineering



MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Math Principles		Module Delivery
Module Type	Basic		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input checked="" type="checkbox"/> Tutorial
Module Code	COGTEK 100		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	1
Administering Department	Type Dept. Code	College	COGTEK
Module Leader	Mohammed Z. Hasan	e-mail	Mohamop49@ntu.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	M.Sc.
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

Module Aims أهداف المادة الدراسية	<ol style="list-style-type: none">1. Lectures.2. Assigning students to do homework or writing research papers so that students can acquire self-learning and presentation skills.3. Take sudden exams.4. Conducting semester and final exams at the specified dates.5. Inform students about how grades are calculated for students during the semester.6. Providing textbooks and help books that they need in the vocabulary of the course.7. Demonstrations such as: the smart board
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	<p>A- Cognitive goals</p> <ol style="list-style-type: none">1. Broad 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, pure sciences and engineering. -4. The ability to use the techniques, skills and tools of contemporary engineering in the engineering field.5. The ability to design systems to meet the required needs through realistic determinants in terms of economics. -6. The possibility of designing and implementing experiments, analyzing the results and translating them into reality.
Indicative Contents المحتويات الإرشادية	<p>Emotional and value goals</p> <ol style="list-style-type: none">1. The ability to make decisions. -2. Methods of innovation among students. -3. The student's ability to think. -

	4. Collecting the data required to accomplish a specific subject and their solutions. Time response (natural and step responses)
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lectures Graduation projects Creative thinking among students and keeping up with the latest scientific methods available in teaching and learning interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	95	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	80	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.3
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	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction: System of Real Numbers, Functions
Week 2	Functions and Their Graph
Week 3	Domain & Ranges
Week 4	Trigonometric Functions
Week 5	Exponential functions, Logarithms Functions
Week 6	Limits & Continuity
Week 7	Differentiation
Week 8	Differentiation Rules.
Week 9	Derivative as a rule of change
Week 10	Derivative of trigonometric functions
Week 11	Integration
Week 12	Sigma notation & limits of finite sums.
Week 13	The Definite Integrals
Week 14	Polar Coordination
Week 15	Graphing in Polar Coordination
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Thomas Calculus 12 th edition George B. Thomas , Maurice D. Weir, Joel R. hass	Yes
Recommended Texts		No
Websites		

Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
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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.