MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mathematics (2)			**Module Delivery**	
Module Type	B			☒ **Theory** ☒ **Lecture** ☒ **Lab** ☐ **Tutorial** ☐ **Practical** ☐ **Seminar**	
Module Code	FETE123				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	UGI		**Semester of Delivery**	Two	
Administering Department	Fuel and Energy Techniques Engineering Department		**College**	**Shatt Al-Arab University College**	
Module Leader	Hasan Salman Hudar		**e-mail**	Hasan.alhuddar@gmail.com	
Module Leader's Acad. Title	Assistant Lecturer		**Module Leader's Qualification**	M.Sc	
Module Tutor	Hasan Salman Hudar		**e-mail**		
Peer Reviewer Name			**e-mail**		
Scientific Committee Approval Date			**Version Number**		

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Mathematics 1	**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	students will be able to: 1. To develop problem solving skills and understanding differentiation and integration 2. To understand rule of derivatives, composition of functions and chain rule. 3. This course deals with the differentiation and integration. 4. Understand and study applications of differentiation and integration. 5. To understand methods of integration.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of the course, students are able to: 1. Describe elementary special functions (e.g., exponential, log, and trigonometric functions) which arise in engineering. 2. Practice the skills obtained from differential and integral calculus to deal with models in engineering.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1. Derivative for types of functions [36hr] 2. Integral and methods of integration [48hr]

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to courage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, 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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	73	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	107	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	180

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	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2hr	10% (10)	7	LO # 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	Differentiation: Rules of derivatives.
Week 2	Composition of functions, chain rule, and higher derivative.
Week 3	Application of derivatives L-Hospital's Rule: Indeterminate quantity
Week 4	Derivative of non-algebraic function: differentiation of trigonometric functions and Invers trigonometric functions.
Week 5	Derivative of logarithm functions and Invers logarithm functions.
Week 6	Derivative of Exponential functions, Derivative of hyperbolic functions and invers hyperbolic functions.
Week 7	Integrals: rules of integrals, integrals of exponential functions, integral of inverse trigonometric function.
Week 8	Integral of hyperbolic function, special cases ($tanx, cotx, secx, and\ cscx$) of even power.
Week 9	Integration methods: 1st method integration by parts.

Week 10	Integration methods: 2nd products and powers of trigonometric function.
Week 11	Integration methods: 3rd Trigonometric substitutions.
Week 12	Integration methods: 4th integral involving $ax^2 + bx + c.$, and Integration methods: 5th partial fractional.
Week 13	Integration methods: 6th rational functions of $sinx$ & $cosx$.
Week 14	Applications of integrals.
Week 15	Final exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	G. Stephenson, " Mathematical methods for science students " Longman Hausa , 1981	no
Recommended Texts	G. Thomas and R. Finney " calculus and analytic geometry " sixth edition, 2008.	yes
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.