Ministry of Higher Education and
Scientific Research - Iraq

University of Warith Al_Anbiyaa....
College of Engineering
Oil and Gas Department

Module Information	
معلومات المادة الدراسية	

			Module Delivery	
Module Title	**Calculus II**		**Module Delivery**	
Module Type	**Basic**		☒ Theory ☐ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar	
Module Code	**ENG123**			
ECTS Credits	**6**			
SWL (hr/sem)	**150**			
Module Level	UGI		**Semester of Delivery**	2
Administering Department	OGE		**College**	Engineering
Module Leader	Nihad Abdul Jalil		**e-mail**	Nihad.Abduljalil@uowa.edu.iq
Module Leader's Acad. Title	Pro.		**Module Leader's Qualification**	Ph.D
Module Tutor	2		**e-mail**	E-mail
Peer Reviewer Name	Hawraa Majeed		**e-mail**	hawraa.majeed@uowa.edu.iq
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	ENG113	**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	1-The main objective is to understand the process of integration and its benefits in practical life and to enable the student to solve various problems of integration 2-Study different matrices and explain the usefulness of matrices in petroleum industry 3-Study and draw complex numbers so that the student can understand the purpose of complex numbers
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Teaching the student, the scientific basis and the benefits of integration 2- Carry out the integration process using integration methods 3- Integration of trigonometric and quadrilateral functions 4- Study definite integration and its applications in calculating areas and volumes 5- Studying matrices, knowing their properties, mathematical operations related to them, and how to benefit from them in practical life 6- Studying Complex Number, knowing their properties, mathematical operations related to them, and how to benefit from them in practical life
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: **Part I: fundamentals of integration** **Technique of Integral, Defined integral, Mode of Integral, Integral the Odd and even powers of sine and cosine.** (10 hrs) **Part II: method of integration** Method of integration: Integration by Part, Integral by trigonometric substitutions, Integral by completing the square, Integral by reducing an improper fraction, Integral by partial fraction Integral by Rational function. (30 hrs) **Part III: Definite Integral** Application of Definite Integral, Areas and Volume. (5 hrs) **Part IIII: Matrices** **Determinants and Introduction to Matrices, Determine the inverse of matrices.** (10 hrs) **Part IIIII: Complex Number** Polar Coordinates, Complex Number, Complex Variables, Draw the complex function. (20 hrs)

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	The major technique for delivering this module will be a lot of homework and solved exercises, as well as attempting to connect mathematical operations to real life for the purpose of enhancing interest and solidifying knowledge.

Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ **16** اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	96	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	54	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
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	10% (10)	4, 11	1,2,3,4 and 5
	Assignments	2	10% (10)	3, 10	1,2,3,4 and 5
	Projects /	1	10% (10)	Continuous	All
	Report	1	10% (10)	13	1,2,3,4,5 and 6
Summative assessment	Midterm Exam	2 hr	10% (10)	8	1,2, and 3
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Technique of Integral, Defined integral, Mode of Integral
Week 2	Method of integration: Integration by Part
Week 3	Integral the Odd and even powers of sine and cosine
Week 4	Integral by trigonometric substitutions
Week 5	Integral by completing the square
Week 6	Integral by reducing an improper fraction
Week 7	Integral by partial fraction
Week 8	Integral by Rational function
Week 9	Application of Definite Integral, Areas and Volume
Week 10	Determinants and Introduction to Matrices
Week 11	Determine the inverse of matrices
Week 12	Polar Coordinates
Week 13	Complex Number
Week 14	Complex Variables
Week 15	Draw the complex function
Week 16	Preparatory week before the final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Strang, G. (2017). Calculus. United States: Wellesley-Cambridge Press.	yes
Recommended Texts		
Websites	https://www.geogebra.org/3d?lang=en https://www.wolframalpha.com/	

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.