	Ministry of Higher Education and Scientific Research - Iraq Al-Mustaqbal University College for engineering and technology Department of Biomedical Engineering	

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Mathematics I			**Module Delivery**	
Module Type	Basic			**Theory** **Lecture** **Tutorial**	
Module Code	UOMU0102032				
ECTS Credits	٥				
SWL (hr/sem)	125				
Module Level		2	**Semester of Delivery**		1
Administering Department		CES.PR	**College**	CES	
Module Leader	Dr. Mohammed Ali Saihood		**e-mail**	mohammed.ali.saihood@uomus.edu.iq	
Module Leader's Acad. Title		Assistant Professor Dr.Mohammed Ali Saihood	**Module Leader's Qualification**		Ph.D.
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**		

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	UOMU0102022	**Semester**	2
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. To develop an understanding with the concepts of calculus and analytic geometry and the applications of these concepts to the solution of engineering problems. 2. Introduction to functions, limits, derivatives and their applications. 3. Provide practice at developing critical thinking skills, solving open ended problems and to work in teams. ٤. Able to evaluate double, triple integrals and the area, volume by double & Triple Integrals respectively. 5. Understand the concept of Fourier-series representation of periodic functions and their applications**.....** **6.** Develop the technical knowledge and understanding of mathematical techniq and the ability to apply them appropriately in context.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Develop a deep understanding of issues related to the basic principles of calculus, and how to solve problems in chemical engineering. 2. The ability to understand and analysis problems related to specific field. 3. Understanding the necessary of all subject of mathematics in other sciences. 4. Understanding the necessary of derivatives and its application in other sciences. 5. An ability to apply effective, creative and innovative solutions, both independently and cooperatively, to current and future problems. 6. Characterization and analyses the performance of any problems in any object of chemical engineering.
Indicative Contents المحتويات الإرشادية	Double Integral (15hr) Area and volume by using double integral, Double Integral in polar coordinates, Triple Integral in rectangular coordinates, physical application of double and triple integration., Function and definite Integrals: (10hr) The error function, the gamma function, The beta function, factorial function, Infi (10hr) Sequences, Convergence, Geometric series, nth partial sum, Tests of convergence, alternating series, power and Taylor's series, Fourier series: (10hr) Periodic functions, Fourier series, Even and odd functions, Half range expansion.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted is to encourage students' participation in the exercises forms, while at the same time refining and expanding their critical thinking skills. This will be achieved through a homework, classes, interactive tutorials and by considering type of simple problems and design involving activities that are interesting to the students. The lectures are given in terms of questionable manner and answers are shared among the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	48	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.1
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**	3	15% (5)	4,8,12	LO #2, 3, 4 and 5
	Online Assignments	3	12% (4)	Continuous	All
	Onset Assignments	4	6% (2)	Continuous	All
	Report	1	5% (5)	14	LO # 1 and 6
Summative assessment	**Midterm Exam**	3hr	10% (10)	10	LO # 2, 3, 4 and 5
	Final Exam	3hr	50% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Double Integral
Week 2	Area and volume by using double integral
Week 3	Double Integral in polar coordinates
Week 4	Triple Integral in rectangular coordinates, physical application of double and triple integration.
Week 5	The error function, the gamma function
Week 6	The beta function, factorial function.
Week 7	The beta function, factorial function.
Week 8	Sequences, Convergence, Geometric series, nth partial sum,
Week 9	Sequences, Convergence, Geometric series, nth partial sum,
Week 10	Tests of convergence, alternating series, power and Taylor's series
Week 11	Tests of convergence, alternating series, power and Taylor's series
Week 12	Periodic functions, Fourier series

Week 13	Periodic functions, Fourier series
Week 14	Even and odd functions, Half range expansion.
Week 15	Even and odd functions, Half range expansion
Week 16	Final Exam

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"Thomas' Calculus Early Transcendentals", George B.Thomas, Jr. , Twelfth Edition, Addison-Wesley, 2010	Yes
Recommended Texts	"Mathematical Methods in Chemical Engineering", Jenson. V.J. and Jeffereys, G.V, 2nd Edition, Academic Press New York, 1977 Advanced Engineering Mathematics by Erwin Kreyszig, 8th edition, 2007.	Yes

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.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي