



Ministry of Higher Education and  
Scientific Research – Iraq  
Al-Mustaqbal University College  
College of Sciences



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	MATHEMATICS		Module Delivery
Module Type	BASIC		Theory Lecture Lab Tutorial Practical Seminar
Module Code	UOMU035012		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	Semester of Delivery	
Administering Department	AI	College	College of Sciences
Module Leader	Reyam Thair	e-mail	reyam.thair.ahmed@uomus.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	Ms.c
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

### Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

<b>Prerequisite module</b>	None	<b>Semester</b>	
<b>Co-requisites module</b>	None	<b>Semester</b>	
<b>Module Aims, Learning Outcomes and Indicative Contents</b> أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
<b>Module Aims</b> أهداف المادة الدراسية	1. To learn how solve and develop problem solving skills		
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	1. Learning how solve equations by hand without computer. 2. Develop the brain ability.		
<b>Indicative Contents</b> المحتويات الإرشادية	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>➤ Mathematical background</li> <li>➤ Matrix <ul style="list-style-type: none"> <li>• Types of matrix</li> <li>• Matrix addition, subtraction, and multiplication</li> <li>• Determinant, transpose, and rank of matrix</li> <li>• Inverse of matrix, absolute value, and polynomials</li> </ul> </li> <li>➤ Functions <ul style="list-style-type: none"> <li>• Function Definition</li> <li>• Domain and range of functions</li> </ul> </li> <li>➤ Derivation <ul style="list-style-type: none"> <li>• Mathematical definition of derivation, rule of derivation</li> <li>• Derivation of trigonometric, inverse trigonometric, logarithm, exponential .</li> </ul> </li> <li>➤ Series</li> <li>➤ integration <ul style="list-style-type: none"> <li>• Integration Indefinite integral</li> <li>• Rules of integral</li> <li>• Method of integration</li> </ul> </li> </ul> <p>-Partial derivative Partial derivative of two variables, total differential. -Differential equations First order differential equations Variable separable, homogeneous differential equation, Exact differential equation, first order linear differential equation.</p> <ul style="list-style-type: none"> <li>➤ Second order differential equation</li> </ul>		

	<p>Homogeneous second order with constant coefficient, non Homogeneous second order with constant coefficient, Variation of parameter.</p> <p>-Laplace transformation Definition, Laplace transformation of some function, Laplace transformation of differential Properties of L.T</p> <p>(1) Shifting (2) L.T of integrals</p> <p>Multiplication by <math>t^n</math>.</p> <p>-Inverse laplace transformation Properties of inverse L.T</p> <p>1- Partial fraction, 2- Application of Laplace transformation Linear(D.E) with constant coefficient.</p>
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### Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their mathematical 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.</p>
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### Student Workload (SWL)

الحمل الدراسي للطالب

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	108	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	7.3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	92	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	6
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	200		

### Module Evaluation

## تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	5% (5)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	3% (3)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report	1	2%(2)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	20% (20)	7	LO # 1-7
	Final Exam	3hr	70% (70)	16	All
Total assessment			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
Week 1	<ul style="list-style-type: none"> <li>➤ Mathematical background</li> <li>➤ Matrix Types of matrix, Matrix addition, subtraction, and multiplication, Determinant, transpose, and rank of matrix</li> </ul>
Week 2	Inverse of matrix, absolute value,
Week 3	<ul style="list-style-type: none"> <li>➤ Functions , Function Definition, Domain and range of functions and polynomials,</li> </ul>
Week 4	<ul style="list-style-type: none"> <li>➤ Derivation Mathematical definition of derivation, rule of derivation Derivation of trigonometric, inverse trigonometric, logarithm, exponential.</li> </ul>
Week 5	<ul style="list-style-type: none"> <li>➤ Series</li> </ul>
Week 6	<ul style="list-style-type: none"> <li>➤ Integration Indefinite integral, Rules of integral.</li> </ul>
Week 7	Method of integration
Week 8	Partial derivative Partial derivative of two variables, total differential.
Week 9	Differential equations First order differential equations Variable separable, homogeneous differential equation
Week 10	Exact differential equation, first order linear differential equation.
Week 11	<ul style="list-style-type: none"> <li>➤ Second order differential equation</li> <li>➤ Homogeneous second order with constant coefficient, non Homogeneous second order with constant coefficient.</li> </ul>

<b>Week 12</b>	Variation of parameter
<b>Week 13</b>	Laplace transformation Definition, Laplace transformation of some function, Laplace transformation of differential Properties of L.T  (3) Shifting (4) L.T of integrals (5) Multiplication by $t^n$ .
<b>Week 14</b>	Inverse laplace transformation Properties of inverse L.T  2- Partial fraction
<b>Week 15</b>	3- Application of Laplace transformation 4- Linear(D.E) with constant coefficient.

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر (ليس مرتبط بمختبر)

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<b>Thomas, G. Calculus and Analytic Geometry, Fifth Edition, Addition Wesley, 1999</b>	Yes
<b>Recommended Texts</b>		
<b>Websites</b>	<a href="https://youtube.com/@soraali5120">https://youtube.com/@soraali5120</a>	

#### APPENDIX:

### GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	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

	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings
	<b>E - Sufficient</b>	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX – Fail</b>	مقبول بقرار	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required

