



## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	<b>Arabic Language</b>		Module Delivery	
Module Type	Supplement		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	<b>UOB1204</b>			
ECTS Credits	2			
SWL (hr/sem)	<b>50</b>			
Module Level	1	Semester of Delivery		1
Administering Department	Mathematics	College	Science	
Module Leader	Dr. Leqaa faleh owdaa		e-mail	<a href="mailto:leqaa.falih@ircoedu.uobaghdad.edu.iq">leqaa.falih@ircoedu.uobaghdad.edu.iq</a>
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.	
Module Tutor			E-mail	
Peer Reviewer Name			E-mail	
Scientific Committee Approval Date	11/06/2023	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

<b>Module Objectives</b> أهداف المادة الدراسية	<p>1-تعلم مهارات الكتابة والاملاء والتعبير الصحيح خلال تطبيق قواعد اللغة العربية بشكل مفصل وتطبيقي على نصوص عربية.</p> <p>2- لفهم الجمع وأنواع الاسماء وكيفية التعامل معها.</p> <p>3- لفهم العدد واستعماله بشكل صحيح من حيث المطابقة والمخالفة للتفريق بين الضاد والظاء.</p> <p>4- للتفريق ومعرفة استعمال التاء المربوطة والتاء الطويلة.</p> <p>5-التمييز بين العلامات الاصلية والفرعية.</p> <p>6- تعلم استعمال الأدوات وعمل كل أداة ومعناها في التعبير.</p>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<p>1-التعرف على كيفية جمع الأسماء وأنواع الجموع وسبب اختلافها وقائمة بالمصطلحات المختلفة المرتبطة ببلاغة اللغة العربية تعلم كتابة الهمزة وانواعها.</p> <p>2-وصف عمل الجمل الفعلية وأنواع الافعال</p> <p>3-ناقش وتفاعل ومشاركة قواعد الجمل الاسمية وعلامات الاعراب الاصلية والفرعية والتطبيقات ضمن نصوص أدبية وقرآنية.</p> <p>4-القدرة على استعمال علامات الترقيم في كتابة البحوث والتقارير .</p> <p>5-التمييز بين الأدوات وأسلوب العطف والجر.</p> <p>6-التعرف على قواعد اللغة العربية الأساسية وتطبيقاتها.</p>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>يتضمن المحتوى الإرشادي ما يلي.</p> <p>مقدمة في البداية التي أسس لها علماء اللغة العربية وكيف بدأت كتابة المؤلفات بالمعاجم والقواعد وجمع اللهجات واستقراء اللغة وحركة الترجمة والفتوحات وتطور اللغة.</p> <p>ومشكلات المراجعة (6 ساعات)</p> <p>ودراسة الجمل وانواعها والافعال والعلامات الاصلية والفرعية والعدد. ومشكلات الكتابة والاملاء التي يقع فيها الطلبة في التفرقة بين الضاد والظاء والتاء المربوطة والطويلة والهمزة وانواعها وكيفية كتابتها. (6ساعات)</p> <p>ودراسة الموضوعات الصرفية التي تخص المشتقات من اسم الفاعل واسم المفعول وصيغة المبالغة واوزانها ومعانيها وصيغها السماعية والقياسية.</p> <p>وعلامات الترقيم وكيفية توظيفها في كتابة التقارير والبحوث والمخطوطات. (6ساعات)</p>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>الاستراتيجية الرئيسية التي سيتم تبنيها في تقديم هذه الوحدة هي تشجيع الطلاب على المشاركة في التمارين، مع تحسين مهارات التفكير النقدي وتوسيعها في نفس الوقت. سيتم تحقيق ذلك من خلال الفصول والبرامج التعليمية التفاعلية ومن خلال النظر في أنواع التجارب البسيطة التي تتضمن بعض أنشطة أخذ العينات التي تهم الطلاب.</p>
-------------------	--

Student Workload (SWL)			
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.33
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	Assignments	6	10% (10)	2,3,6,8,10 and 12	LO #3, #4 and #6, #7
	Projects / Lab.		10% (10)	Continuou s	All
	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			<b>100% (100 Marks)</b>		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	علامات الترتيم والتنقيط والنواسخ
Week 2	المشتقات
Week 3	الجملة الاسمية
Week 4	الجملة الفعلية
Week 5	الفرق بين الضاد والطاء
Week 6	التاء المربوطة والتاء المفتوحة
Week 7	العدد
Week 8	Midterm Exam

Week 9	الجمع
Week 10	العلامات الاصلية والعلامات الفرعية
Week 11	اعلام عراقيون بدر شاكر السياب والجواهري
Week 12	العطف
Week 13	حروف الجر
Week 14	الاسم المؤنث والاسم المذكر
Week 15	الحذف والزيادة
Week 16	مراجعة

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	جامع الدروس العربية وشرح ابن عقيل	Yes
Recommended Texts	—	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.



## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Calculus I</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>MAT1101</b>		
ECTS Credits	8		
SWL (hr./sem)	<b>200</b>		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	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

<b>Module Aims</b> أهداف المادة الدراسية	<ol style="list-style-type: none"><li>1. To provide students with a solid foundation in Calculus at degree level and equip them with a knowledge of the necessary methods and techniques in applied mathematics for further study.</li><li>2. It deals with the basic concept of functions limit, continuity, derivation and their consequences.</li><li>3. To develop problem solving skills and understanding of differentiation rules through the application.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Students will become familiar with functions and limits. They will gain an understanding of convergence of sequences and series, and understanding of the foundations of differentiation and integration.</li><li>2. Students will be able to compute limits of sequences and series, find derivatives, integrate elementary functions.</li><li>3. Students will have enhanced skills in the following areas: modelling, spatial awareness, abstract reasoning and numeracy.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>The course will supply the students with basic concepts of differentiation (chain, product, quotient). Derivatives of standard functions (powers, polynomials, trigonometric). The exponential function: and logarithm as inverse. Derivatives of inverse functions via chain rule, local extrema and curve sketching.</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>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 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.</p>
-------------------	---

### Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	140	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	9.3
<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
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 3 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	2, 6 and 10
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Basic concepts: sets, lines, circles and functions.
<b>Week 2</b>	Domain, range and inverse of functions.
<b>Week 3</b>	Derivative: motivation, informal definition of limit
<b>Week 4</b>	Limits properties
<b>Week 5</b>	Continuity
<b>Week 6</b>	Trigonometric functions, their target and continuity
<b>Week 7</b>	Derivative rules of elementary functions
<b>Week 8</b>	Mid-term Exam + Discussion
<b>Week 9</b>	Derivatives of trigonometric and inverse trigonometric functions
<b>Week 10</b>	Applications of derivative; maximum and minimum
<b>Week 11</b>	Mean value theorem with applications

<b>Week 12</b>	Roll's theorem with applications
<b>Week 13</b>	Introduction to L'Hospital's rule
<b>Week 14</b>	Graph sketching
<b>Week 15</b>	Review
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Thomas Calculus, Joel R. Hass, Maurice D. Weir, 15th edition (2022).	Yes
<b>Recommended Texts</b>	Differential calculus and their applications, M. Barun, 3 <sup>rd</sup> edition, Applied mathematical sciences.	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	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>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.





## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Calculus II</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>MAT1215</b>		
ECTS Credits	8		
SWL (hr./sem)	<b>200</b>		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Calculus I	Semester	1
Co-requisites module	None	Semester	—

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. To develop a good understanding of three-dimensional vectors, the geometry of space.</li> <li>2. To acquire basic skills needed to apply integration techniques to solve a wide range of integration problems.</li> <li>3. To develop a basic understanding of infinite series and their applications.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Upon successful completion of this course, students will:</p> <ol style="list-style-type: none"> <li>1. Use the concepts of definite integrals to solve problems involving area, volume, work, and other physical applications.</li> <li>2. Use substitution, integration by parts, trigonometric substitution, partial fractions, and tables of anti-derivatives to evaluate definite and indefinite integrals.</li> <li>3. Define an improper integral and apply the concepts of limits, convergence, and divergence to evaluate some classes of improper integrals.</li> <li>4. Determine convergence or divergence of sequences and series.</li> <li>5. Use the concept of polar coordinates to find areas, lengths of curves, and representations of conic sections.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ul style="list-style-type: none"> <li>• <b>Integral calculus.</b> The definite integral. Anti-derivatives and the indefinite integral. Fundamental Theorem of Calculus. Rules and techniques for integration: partial fractions, by parts, by substitution. Improper integrals. Recursion formulae, the gamma function.</li> <li>• <b>Hyperbolic functions.</b> Conic sections as polynomial equations of degree 2 in two variables. Relationships between trigonometric and hyperbolic functions, connections with <b>Algebra</b>: the complex numbers, Euler's formula.</li> <li>• <b>Parametric curves.</b> Vector-valued functions. Arc length, speed, velocity.</li> <li>• <b>Functions of two variables.</b> Surfaces as graphs, level curves. Partial derivatives: intuitive notion, statement of chain rule, examples. Directional derivatives derived from chain rule. Tangent plane as linear approximation to the surface at a point. Equality of mixed second partial derivatives, chain rule. The gradient vector: geometric interpretation, directional derivative, tangent planes. Vector fields. Implicit differentiation: of functions of one variable and of scalar fields; tangent lines to level curves. Application of chain rule to coordinate transformations.</li> <li>• <b>Double integrals.</b> Surface area, volumes of revolution. Double integral as the volume under a surface. Evaluation over rectangular regions, as iterated integrals; changing order of integration. Integrals over more general regions and in polar coordinates; the Gaussian integral as example. Change of variables in double integrals, the Jacobian.</li> </ul>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

#### Strategies

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 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 للطلاب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطلاب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطلاب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطلاب خلال الفصل	140	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطلاب أسبوعيا	9.3
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطلاب خلال الفصل	200		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 3 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	2, 6 and 10
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Introduction to integration
<b>Week 2</b>	The definite integral
<b>Week 3</b>	The Fundamental Theorem of Calculus with applications
<b>Week 4</b>	Integration by substitution
<b>Week 5</b>	Special functions: Natural logarithm and exponential functions

<b>Week 6</b>	Hyperbolic function and inverse hyperbolic function
<b>Week 7</b>	Trigonometric functions integrals
<b>Week 8</b>	Mid-term Exam +Discussion
<b>Week 9</b>	Integration on infinite periods
<b>Week 10</b>	Infinite sequences and series
<b>Week 11</b>	Test the divergence of series
<b>Week 12</b>	Polar coordinate and its relation to Cartesian coordinate
<b>Week 13</b>	Cone coordinate
<b>Week 14</b>	Applications
<b>Week 15</b>	Review
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Thomas Calculus, Joel R. Hass, Maurice D. Weir, 15th edition (2022).	Yes
<b>Recommended Texts</b>	Differential calculus and their applications, M. Barun, 3 <sup>rd</sup> edition, Applied mathematical sciences.	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	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>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.



## MODULE DESCRIPTION FORM

### نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	<b>Computer I</b>		Module Delivery
Module Type	Supplement		<input type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>UOB1204</b>		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader	Dr. Leqaa faleh owdaa		e-mail <a href="mailto:leqaa.falih@ircoedu.uobaghdad.edu.iq">leqaa.falih@ircoedu.uobaghdad.edu.iq</a>
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor		E-mail	
Peer Reviewer Name		E-mail	
Scientific Committee Approval Date	11/06/2023	Version Number	1.0

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	Semester	1
Co-requisites module	None	Semester	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ul style="list-style-type: none"><li>• This module sets out essential concepts and skills relating to the use of devices.</li><li>• This module covers the key skills and main concepts relating to computers, devices, file creation and management, web browsing, and data security.</li><li>• Help students to demonstrate the ability to use word processing application to accomplish everyday tasks associated with creating, formatting, finishing small-sized word processing documents, such as letters and other everyday documents.</li><li>• Help students to demonstrate the ability to use a power point application to accomplish tasks associated with creating, and formatting a presentation.</li><li>• Help students to demonstrate the ability to use Excel application to accomplish a spreadsheet for tasks.</li></ul>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Upon successful completion of the course, a student will be able to:</p> <ol style="list-style-type: none"><li>1. Understand key concepts relating to computers, devices and software.</li><li>2. Identify the main types of Integrated and External equipment</li><li>3. Understand concepts of online communities, communications and e-mail</li><li>4. Adjust the main operating system settings and use built-in help features.</li><li>5. Know about the main concepts of file management and be able to efficiently organize files and folders.</li><li>6. Create a report by Ms. Word document and print an output.</li><li>7. Use University email to Collaborate inside and outside university and How to participate in video conference using meet</li><li>8. Create a presentation using power point application.</li><li>9. Create a spreadsheet using Excel application.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following:</p> <ul style="list-style-type: none"><li>- The general purpose computer model: All types of computers follow the same structure and perform the basic operations (Input, Processing, Output, Storage and controlling) to converting raw input (data) to information.</li><li>- Components of a computer Hardware: Each computer consists of Hardware and software. The Hardware includes input devices, output devices, system units, storage devices, and communication devices.</li><li>- System Units (Internal &amp; External components of system units): The internal component of the system units is consists of (CPU, Motherboard, RAM, Ports, Hard disk ...).</li><li>- Central Processing Unit: ALU, CU, and memory unit.</li><li>- Memory and its Types<ul style="list-style-type: none"><li>▪ Cache Memory</li><li>▪ Primary memory -Comparison between RAM &amp; ROM</li><li>▪ Secondary Storage</li></ul></li><li>- Ports and their types (Ports: is a connection points used as an interface between the computer and its peripheral devices (Serial ports, Parallel ports, PS/2, USB, VGA ...)).</li></ul>

<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم					
<b>Strategies</b>		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 critical thinking skills. Different forms of teaching will be used to reach the objective of this module, including power point presentation for the subjects which contains titles, definitions, summary and conclusions, whiteboard will be used and classroom discussion with assignments, the students will be asked to prepare papers on selective topics.			
<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا					
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		62	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا		4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		13	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا		1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل		75			
<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	6 and 10	1, 2, 3,4,5,6, 7, 8,9
	<b>Assignments</b>	2	10% (10)	11 and 13	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	10% (10)	Continuou s	All
	<b>Report</b>	1	10% (10)	10	
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr:	10% (10)	13	
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			<b>100% (100 Marks)</b>		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Introduction to Computers – definition -The purposes of using a computer. -The general purpose computer model. -The difference between Data and Information concepts.



	<p>Introduction to windows</p> <ul style="list-style-type: none"> <li>- Desktop Components</li> <li>- The start menu (its functions and properties)</li> </ul>
<b>Week 2</b>	<p>The Components of a computer: Hardware</p> <ul style="list-style-type: none"> <li>- System Units (Internal &amp; External components of system units)</li> <li>- Central Processing Unit (Features and components)</li> </ul> <p>Windows:</p> <ul style="list-style-type: none"> <li>- Task bar and its functions and properties</li> </ul>
<b>Week 3</b>	<p>Memory and its Types</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Cache Memory</li> <li><input type="checkbox"/> Primary memory –Comparison between RAM &amp; ROM</li> <li><input type="checkbox"/> Secondary Storage</li> </ul> <p>Windows:</p> <ul style="list-style-type: none"> <li>- Files and Folders: All operations on files and folders (selection, creation, saving, moving and renaming).</li> </ul>
<b>Week 4</b>	<p>Ports and their types</p> <ul style="list-style-type: none"> <li>- Input Devices,</li> <li>- Output Devices</li> </ul> <p>Windows:</p> <ul style="list-style-type: none"> <li>- Delete Files.</li> <li>- Recycle bin.</li> <li>- Creating a Shortcut.</li> <li>- Desktop Icons.</li> <li>- The Windows Explorer Views.</li> <li>- Sort files.</li> </ul>
<b>Week 5</b>	<ul style="list-style-type: none"> <li>- Software</li> </ul> <p>Types of Software</p> <ul style="list-style-type: none"> <li>▪ Operating System</li> <li>▪ Application Software &amp; their types</li> </ul> <p>Programming Languages</p> <p>Windows:</p> <ul style="list-style-type: none"> <li>-Customizing the desktop.</li> <li>-Change screen resolution.</li> <li>- Change Desktop Background</li> </ul>
<b>Week 6</b>	<ul style="list-style-type: none"> <li>- Communication Technology</li> <li>- E-mail</li> </ul> <p>Windows:</p>

	<ul style="list-style-type: none"> <li>- Print Screen</li> <li>- Cleaning Up the Disk</li> <li>- Defragmenting the Disk</li> </ul> <p><b>Quiz (1, 2, 3, 4, 5) -Windows only</b></p>
<b>Week 7</b>	<ul style="list-style-type: none"> <li>- Internet, Browsing the Web (Web Browser) , Search the web (search engine)</li> <li>- Security and keeping information safe</li> <li>-Virus transmission ways to the computer</li> <li>-Protection against viruses</li> <li>-Antivirus, benefits and Types</li> </ul>
<b>Week 8</b>	<p>Microsoft Word</p> <ul style="list-style-type: none"> <li>- Word Program Interface</li> <li>- Keyboard Shortcuts in Microsoft Word</li> <li>- The operations on Text</li> <li>- File Menu</li> </ul>
<b>Week 9</b>	<p>Microsoft Word</p> <ul style="list-style-type: none"> <li>- Home Tab &amp; it commands</li> <li>- Insert Tab (Pages &amp; tables Groups)</li> <li>- Table Tools</li> </ul>
<b>Week 10</b>	<p>Microsoft Word</p> <ul style="list-style-type: none"> <li>- Insert Tab (Illustrations, Header &amp; Footer, Text and Symbols Groups)</li> <li>- Page Layout, References, Review Tabs</li> </ul> <p><b>Quiz (Week 8, 9)</b></p>
<b>Week 11</b>	<p>Microsoft PowerPoint</p> <ul style="list-style-type: none"> <li>- PowerPoint program Interface.</li> <li>- File Menu</li> <li>- Home Tab &amp; it commands</li> <li>- Operations on the Slides (duplicate, Delete, and Move)</li> </ul>
<b>Week 12</b>	<p>Microsoft PowerPoint</p> <ul style="list-style-type: none"> <li>- Insert Tab, Design Tab, Slide Show Tab and their commands</li> <li>- Transitions, and Animations Tabs</li> </ul>
<b>Week 13</b>	<p>Microsoft Excel</p> <ul style="list-style-type: none"> <li>- File Menu, Home Tab &amp; it commands</li> </ul>
<b>Week 14</b>	<p>Microsoft Excel</p> <ul style="list-style-type: none"> <li>- Excel Worksheet Basics</li> <li>- Cell format</li> </ul>
<b>Week 15</b>	<b>Preparatory Week</b>
<b>Week 16</b>	<b>Final Exam</b>

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	1. M. E. Vermaat and G. B. Shelly, <i>Discovering Computers Fundamentals: Living in a Digital World</i> , Shelly Cashman, 2011 Edition. 2. J. Lambert, J. Cox , and C. Frye, <i>Microsoft Office Professional 2010 Step by Step</i> , 1' st Edition, Microsoft Press, 2010, 152P.	E-Copy
<b>Recommended Texts</b>	D. Hajek and C. Herrera, <i>Introduction to Computers 2022 Edition</i> , Independently published, May 19, 2022, 255P.	No
<b>Websites</b>	<ol style="list-style-type: none"> <li>1. <a href="https://theictbook.com/components-of-the-system-unit-and-their-functions/">https://theictbook.com/components-of-the-system-unit-and-their-functions/</a></li> <li>2. <a href="https://www.tutorialspoint.com/computer_fundamentals/index.htm">https://www.tutorialspoint.com/computer_fundamentals/index.htm</a></li> <li>3. <a href="https://www.slideshare.net/Jamjolojessa/types-of-application-software?from_action=sav">https://www.slideshare.net/Jamjolojessa/types-of-application-software?from_action=sav</a></li> <li>4. <a href="https://www.bbc.co.uk/bitesize/guides/zbfny4j/revision/1">https://www.bbc.co.uk/bitesize/guides/zbfny4j/revision/1</a></li> <li>5. <a href="https://generalnote.com/Computer-Fundamental/">https://generalnote.com/Computer-Fundamental/</a></li> <li>6. <a href="https://edu.gcfglobal.org/en/word2010/#">https://edu.gcfglobal.org/en/word2010/#</a></li> <li>7. <a href="https://edu.gcfglobal.org/en/powerpoint2010/#">https://edu.gcfglobal.org/en/powerpoint2010/#</a></li> <li>8. <a href="https://edu.gcfglobal.org/en/excel2010/#">https://edu.gcfglobal.org/en/excel2010/#</a></li> <li>9. <a href="https://antivirus.comodo.com/blog/computer-safety/what-is-antivirus">https://antivirus.comodo.com/blog/computer-safety/what-is-antivirus</a></li> <li>10. <a href="https://thingscouplesdo.com/what-is-the-antivirus-software-that-is-best-for-a-user">https://thingscouplesdo.com/what-is-the-antivirus-software-that-is-best-for-a-user</a></li> </ol>	

## Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	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>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.



## MODULE DESCRIPTOR

### وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	<b>HUMAN RIGHTS &amp; DEMOCRACY</b>		Module Delivery	
Module Type	SUPPLEMENT		Theory Lecture Tutorial Seminar	
Module Code	UOB1102			
ECTS Credits	2			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		1
Administering Department	Mathematics	College	Science	
Module Leader	Ansam Faik Abdul - Rezzak Al-Obidi		e-mail	ansam.faik@sc.uobaghdad.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	M.Sc.	
Module Tutor	None		e-mail	None
Peer Reviewer Name			e-mail	
Review Committee Approval	8/06/2023	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

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1.This course deals with the basic concept of human rights&amp; democracy</li><li>2.Clarifying and training students on the most important principles of human rights and democracy.</li><li>3.Organizing discussions and presentations on the most vital and basic topics affecting community building, related to human rights and democracy.</li><li>4.Adopting teamwork with students to develop their cognitive abilities and create a spirit of cooperation, initiative, creativity and exchange of views in an effort to build the foundations of peaceful community coexistence.</li><li>5.Providing society with conscious youth aware of the importance of its role in building society, its unity and cohesion through spreading the culture of human rights and establishing the rules of correct democracy.</li><li>6.Human rights guarantee the protection and respect of an individual's interests, even when he or she is not a majority. In a democratic climate, sustainable democratic power cannot be conceived without respecting, protecting and fulfilling human rights. Through their combined influence, they allow the individual a life based on the freedom of self-determination and collective. That is why the protection and realization of human rights truly form the basis of the democratic project.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<p>Cognitive goals.</p> <ol style="list-style-type: none"><li>1. Educate students and inform them about the importance of human rights and democracy.</li><li>2.Recognize and understand the methods of teamwork for the exchange of ideas and creative discussions</li><li>3.Developing students' performance through guidance in preparing mini-research on modern vocabulary on vital topics related to human rights and democracy.</li><li>4.Providing students with creative development abilities in modern proposals and creative developmental ideas by discussing awareness videos presented on electronic classes.</li><li>5.Developing the skills of sharing opinions and ideas and respecting others opinion.</li></ol> <p>6.Objective Skills:</p> <ol style="list-style-type: none"><li>7.Basic knowledge in the principles of human rights and democracy.</li><li>8.Building the innovative personality of knowledge through online research and the transfer and exchange of information.</li><li>9.Discuss the various properties about everything related to human rights and their importance in our daily lives.</li><li>10. Identify everything related to democracy and the foundations of the performance of the electoral process and its importance in building the nation.</li><li>11. Identify the capacitor and inductor phasor relationship with respect to voltage and current.</li></ol>

<b>Indicative Contents</b> المحتويات الإرشادية	<ul style="list-style-type: none"> <li>- Developing the student's analytical and critical skills regarding the reality and future of human rights and democracy</li> <li>- Training the student on the importance of active participation in aspects of public life, such as promoting respect for the principles of public human rights and active participation in political and cultural life.</li> <li>- Enable students to understand the importance of education and its role in spreading the culture of human rights and democracy in building a civilized society based on good governance, the most important component of which is belief in human rights, education and active participation in governance through free and fair elections.</li> </ul>
<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the discussions, dialogues and group work lectures &amp; exercises, while at the same time refining and expanding their critical thinking skills. There are many teaching and learning methods used, and the most important of these methods are:</p> <p>Theoretical lecture, discussion and dialogue, panel discussions on certain topics, theoretical student research</p> <p>Library and electronic activities (which helps students to reach the following results:</p> <ol style="list-style-type: none"> <li>1- The scientific ability to distinguish between correct information and wrong information.</li> <li>2- Ease of scientific drafting and ease of correction.</li> <li>3. Ability to memorize and guess.</li> <li>4- The ability to link concepts and principles with reality.</li> <li>5. Ability to invoke, link, interpret.</li> </ol>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	32	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.25
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	50		

### Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	<b>Assignments</b>	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	<b>Attending lectures</b>	1	10% (10)	1.5	41#15 weeks
	<b>Report</b>	1	10% (10)	13	LO # 5, 8 and 10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr	10% (10)	7	LO # 1-7
	<b>Final Exam</b>	2hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

### Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري لمادة حقوق الانسان والديمقراطية

<b>Material Covered for Human rights &amp; Democracy</b>	
<b>Week 1</b>	Familiarity with the concept of human rights and the definitions approaching it, discussing, dismantling and criticizing them in a scientific way in order to reach the most accurate and objective. - Definition of right , of human, of the concept of human rights. Human rights qualities, Types of human rights Human Rights Categories
<b>Week 2</b>	The historical development of human rights: Orcagina Reforms 1- Urnamo Law.2- The law of Ishtar Bit. 3- The law of the Kingdom of Eshnuna.4- Code of Hammurabi.
<b>Week 3</b>	Human rights in other ancient civilizations: 1- Indian and Chinese civilization 2-Pharaonic civilization of Egypt 3- Greek civilization 4- Roman civilization
<b>Week 4</b>	Human rights in heavenly laws Human Rights in Judaism, Human rights in Christianity, Human Rights in Islam.
<b>Week 5</b>	Human rights in Renaissance - modern and contemporary societies Introducing the student to the most important UN document in the field of human rights, which was approved and approved by the Assembly on January 10, 1948 Universal Declaration of Human Rights 1948.
<b>Week 6</b>	Non-governmental organizations defending human rights: Amnesty International, b. International Committee of the Red Cross. Arab Organization for Human Rights.
<b>Week 7</b>	Definition of the phenomenon of administrative corruption, Types of administrative corruption, Causes of administrative corruption. The repercussions of the phenomenon of administrative corruption on human rights and society. Successful treatments to combat corruption and protect society from it.
<b>Week 8</b>	Mid-term exam + Discussion

<b>Week 9</b>	Introduction - Historical development of the concept of <u>democracy</u> , definition of democracy, freedom. The difference between freedom and democracy, The relationship between the rights and public freedoms of individuals and democracy, Islamic views in a democratic system of government, Shura and Democratic System
<b>Week 10</b>	Specifications and duties of the Islamic ruler reading, the era of Imam Ali "peace be upon him" to his governor over Egypt: Specifications of the Islamic ruler: First: The moral and doctrinal components of the ruler Second: The general culture of the Islamic ruler, Third: Acumen and good choice: -Fourth: Direct relationship with people: Fourth: Direct relationship with people. Duties of the Islamic ruler: First: Social Reform: Second: Achieving security and defense Third: The architecture of the country "economic development"
<b>Week 11</b>	Conditions for the success of the elements and pillars of the democratic system General conditions for the success of the democratic system: 1. Respect for human rights, 2. Political pluralism 3. Peaceful transfer of power 4. Political equality 5. Respect the principle of the majority 6. Existence of the rule of law.
<b>Week 12</b>	Components or elements of democracy: 1 – Citizenship 2- Political participation 3. Elections 4. MPs and Responsibility 5. Opposition 6- Separation of government and parliament 7- Constitutional legitimacy
<b>Week 13</b>	The concept of elections and their legal adaptation: First: The concept of election Second: Legal adaptation of the Election, Third: Conditions of Election, Fourth: Concepts of Elections, Fifth: Types of Electoral Systems. Assessing the Democratic System, Pros and advantages of the democratic system, Disadvantages and disadvantages of the democratic system, Implementing the democratic system in Iraq.
<b>Week 14</b>	Lobbyists: First: the concept and definition. Second: Types of pressure groups. Third: The methods of pressure groups that they use to achieve their goals. Fourth: Lobbying and Democracy.
<b>Week 15</b>	Review
<b>Week 16</b>	Preparing to final exam

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Martyrdom verses from the Holy Quran	Yes



	Mohammed Al-Tarawneh et al., International Humanitarian Law, ICRC, Amman, 2005 Diamond Larry, Democracy: Its Development and Ways to Enhance It, translated by Fawzia Naji, Dar Al-Mamoun for Translation, Iraq, 2005.	
<b>Recommended Texts</b>	journal.un.org Hadi, Riad Azabz. (2005). Human rights (evolving contents and protection) (Baghdad).	Yes
<b>Websites</b>	<u>Universal Declaration of Human Rights   United Nations</u> <a href="https://sc.uobaghdad.edu.iq/?page_id=8415">https://sc.uobaghdad.edu.iq/?page_id=8415</a> <a href="https://www.youtube.com/@ansamalobidimanagerofhuman2891">https://www.youtube.com/@ansamalobidimanagerofhuman2891</a>	

<b>GRADING SCHEME</b> مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group</b> (50 - 100)	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group</b> (0 - 49)	<b>FX</b> - Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	<b>F</b> - 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.				





## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>English Language I</b>		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>UoB1203</b>		
ECTS Credits	2		
SWL (hr/sem)	<b>50</b>		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader	Dr. Muthana Hameed Khalaf	e-mail	muthana.khalaf@sc.uobaghdad.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor		E-mail	
Peer Reviewer Name		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

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<p>New Headway Beginner Plus is a Beginner course in English intended to provide students with the fundamentals of the language and a foundation at First Year students / college of science, moving towards a higher level of proficiency at this stage.</p> <ol style="list-style-type: none"><li>1. Listening Objectives:<ul style="list-style-type: none"><li>• Understand and respond to basic greetings, introductions, and simple instructions.</li><li>• Comprehend and extract information from short, simple spoken passages related to everyday topics.</li><li>• Identify and understand common vocabulary and expressions in spoken English.</li></ul></li><li>2. Speaking Objectives:<ul style="list-style-type: none"><li>• Engage in basic conversations using simple greetings, introductions, and expressions related to personal information.</li><li>• Ask and answer simple questions about personal details, daily routines, and familiar topics.</li><li>• Participate in short dialogues and role-plays to practice communication skills.</li></ul></li><li>3. Reading Objectives:<ul style="list-style-type: none"><li>• Read and comprehend simple texts, such as signs, labels, short passages, and dialogues.</li><li>• Recognize and understand basic vocabulary words and phrases in context.</li><li>• Extract information from texts related to everyday situations and topics.</li></ul></li><li>4. Writing Objectives:<ul style="list-style-type: none"><li>• Write short sentences and paragraphs about personal information, experiences, and familiar topics.</li><li>• Fill out basic forms with personal details, such as name, age, and nationality.</li><li>• Write simple messages, notes, and emails related to everyday situations.</li></ul></li><li>5. Vocabulary and Grammar Objectives:<ul style="list-style-type: none"><li>• Acquire a basic vocabulary related to common topics, such as greetings, numbers, time, family, food, and everyday objects.</li><li>• Understand and use basic grammatical structures, including present simple, present continuous, simple past, and basic question forms.</li><li>• Recognize and use common prepositions, articles, and basic sentence structures.</li></ul></li><li>6. Cultural Awareness Objectives:<ul style="list-style-type: none"><li>• Develop an understanding of cultural customs and practices related to greetings, social norms, and everyday interactions in English-speaking countries.</li><li>• Gain exposure to cultural elements through reading or listening to texts about customs, traditions, and holidays.</li></ul></li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Listening and Speaking Skills:<ul style="list-style-type: none"><li>• Understand and respond appropriately to basic questions and statements.</li><li>• Engage in simple conversations related to personal information, daily routines, and immediate surroundings.</li><li>• Follow simple instructions and directions.</li></ul></li></ol>

	<ul style="list-style-type: none"> <li>• Develop basic pronunciation and intonation skills.</li> </ul> <p>2. Reading Skills:</p> <ul style="list-style-type: none"> <li>• Recognize and understand basic vocabulary words and phrases in simple texts.</li> <li>• Comprehend and extract information from short, simple texts such as signs, notices, and labels.</li> <li>• Understand basic sentence structures and common grammatical patterns.</li> </ul> <p>3. Writing Skills:</p> <ul style="list-style-type: none"> <li>• Write simple sentences and short paragraphs about personal information, experiences, and familiar topics.</li> <li>• Fill out simple forms and write basic personal information.</li> <li>• Write simple messages, notes, and emails related to everyday situations.</li> </ul> <p>4. Vocabulary and Grammar:</p> <ul style="list-style-type: none"> <li>• Acquire and use a basic range of vocabulary related to everyday topics, such as greetings, numbers, time, family, food, and common objects.</li> <li>• Understand and use basic grammatical structures, including present simple, present continuous, simple past, and basic question forms.</li> <li>• Recognize and use common prepositions, articles, and basic sentence structures.</li> </ul> <p>5. Cultural Awareness:</p> <ul style="list-style-type: none"> <li>• Develop an understanding of cultural customs and practices related to greetings, social norms, and everyday interactions in English-speaking countries.</li> <li>• Gain exposure to cultural elements through reading or listening to texts about customs, traditions, and holidays.</li> </ul>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>1. Use simple forms of polite expressions to establish basic social contact and to perform everyday functions including making requests and offers, conducting simple phone conversations, asking and telling time, giving simple directions, asking about price, ordering a meal, etc.</p> <p>2. Use a narrow range of positive and negative adjectives to describe objects, people and places.</p> <p>2.3. Exchange information by forming and responding to simple questions.</p> <p>3. Produce simple sentences using the correct word order and punctuation marks.</p> <p>4. Use capital and lower case letters accurately in writing.</p> <p>5. Construct a short guided paragraph on a familiar topic concerning home, family, friends and holidays.</p> <p>5. Use the basic tenses including the present and past simple, and present continuous correctly.</p> <p>6. Use the basic auxiliary verbs (am/is/are/was/were/can) and a range of regular and irregular verbs.</p> <p>7. Demonstrate awareness of the essential grammatical features and functions including questions and negatives, plural nouns, frequency adverbs, possessives, pronouns and determiners.</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

#### Strategies

1. Communicative Approach: Emphasize communicative activities that promote interaction among students. Encourage pair and group work, role-plays, and discussions to practice language skills in meaningful contexts.
2. Integrated Skills: Integrate the four language skills (speaking, listening, reading, and writing) in lessons to create a balanced approach to language learning. Provide opportunities for students to use and develop these skills simultaneously.
3. Vocabulary Expansion: Incorporate vocabulary-building exercises and activities throughout the course. Use real-life contexts, visuals, and practical examples to help students learn and remember new words.
4. Grammar Focus: Teach and reinforce grammar structures in a systematic and progressive manner. Provide clear explanations, examples, and practice exercises to ensure students understand and can apply the grammar rules correctly.
5. Authentic Materials: Include authentic texts, such as articles, newspaper clippings, songs, and videos, to expose students to real-world language usage. This helps develop their reading and listening comprehension skills and exposes them to cultural aspects of English-speaking countries.
6. Cultural Awareness: Integrate cultural topics and discussions into the lessons to foster cultural awareness and sensitivity. Encourage students to share their own cultural backgrounds and experiences to promote understanding and appreciation of diverse perspectives.
7. Error Correction: Provide constructive feedback and error correction during speaking and writing activities. Help students identify and correct their mistakes, focusing on accuracy while encouraging fluency and self-expression.
8. Technology Integration: Utilize technology tools, such as interactive whiteboards, online resources, and language learning apps, to engage students and enhance their language learning experience. Incorporate multimedia materials for listening and speaking practice.
9. Regular Assessment: Assess students' progress regularly through quizzes, tests, and assignments. Provide timely feedback to guide their learning and address areas that need improvement.
10. Individualization: Cater to the individual needs and learning styles of students. Offer differentiated tasks and activities to ensure all learners are appropriately challenged and supported.
11. Cooperative Learning: Promote collaboration and teamwork among students through pair work, group projects, and peer feedback. This encourages active participation and a supportive learning environment.
12. Review and Revision: Schedule regular review sessions to consolidate previously learned material. Encourage students to revise and practice independently, providing resources for self-study and additional practice.

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	32	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	2
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.25
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>50</b>		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		<b>Time/Number</b>	<b>Weight (Marks)</b>	<b>Week Due</b>	<b>Relevant Learning Outcome</b>
<b>Formative assessment</b>	<b>Quizzes</b>	2	10% (10)	5 and 10	LO #1, #2 and #10, #11
	<b>Assignments</b>	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	<b>Projects</b>	1	10% (10)	Continuou s	All
	<b>Report</b>	1	10% (10)	13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Midterm Exam</b>	2hr	10% (10)	7	LO #1 - #7
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	<b>Material Covered</b>
<b>Week 1</b>	Hello! p6 <i>am/are/is, my/your</i> I'm Pablo. My name's Judy. What's your name? p6 <i>This is ...</i> This is Ben. Nice to meet you. p7
<b>Week 2</b>	Your world p12 <i>he/she/they, his/her</i> He's from the United States.

	<p><i>Her name's Karima.</i> p13  <i>They're on holiday.</i> p16  <b>Questions</b>  <i>What's his name?</i>  <i>Where's she from?</i> p13</p>
<b>Week 3</b>	<p>All about you p18  <b>am/are/is</b>  <i>We're all singers.</i> p20  <b>Negatives</b>  <i>She isn't a nurse.</i> p18  <i>I'm not from Scotland.</i> p20  <i>They aren't builders.</i> p20  <b>Questions</b>  <i>What's her address? How old is she?</i>  <i>Is she married?</i> p19  <b>Short answers</b>  <i>Yes, she is. / No, she isn't.</i> p20</p>
<b>Week 4</b>	<p>Family and friends p24  <b>Possessive adjectives</b>  <i>my, your, our, their</i> p24  <b>Possessive 's</b>  <i>Annie's husband Jim's office</i> p24  <b>has/have</b>  <i>I have a small hotel. She has a job.</i>  <i>We have three sons.</i> p27  <b>Adjective + noun</b>  <i>a small hotel a big house a good job</i> p27 <i>apples, beer, bread, cake</i> p36  <b>Shopping</b>  <i>newsagent's, chemist's,</i>  <i>off-licence</i> p36  <b>Can you come for dinner?</b>  <i>Would you like some</i>  <i>more rice?</i>  <i>Could you pass the</i>  <i>salt, please?</i>  <i>How would you like</i>  <i>your coffee?</i>  <i>This is delicious!</i> p37</p>
<b>Week 5</b>	<p>The way I live p32  <b>Present Simple I/you/we/they</b>  <i>I like ice-cream. I don't like tennis.</i>  <i>Do you like football?</i> p33  <i>Where do you work? Do you live in Dundee?</i> p34  <i>In Brazil they speak Portuguese.</i> p36  <b>a and an</b>  <i>a waiter, an actor, an Italian restaurant</i> p34  <b>Adjective + noun</b>  <i>an American car Spanish oranges</i> p37</p>

<p><b>Week 6</b></p>	<p>Every day p40  <b>Present Simple he/she</b>  <i>He gets up at 6.00.</i>  <i>He has lunch in his office. p42</i>  <i>She lives in a small house. p44</i>  <b>Questions and negatives</b>  <i>What time does he have breakfast?</i>  <i>He doesn't live in London. p43</i>  <b>Adverbs of frequency</b>  <i>He always works late.</i>  <i>He never goes out. p42</i></p>
<p><b>Week 7</b></p>	<p>My favourites p48  <b>Question words</b>  <i>who, where, why, how p48</i>  <b>Pronouns</b>  <b>Subject/Object/Possessive</b>  <i>I/me/my we/us/our they/them/ their p49</i>  <b>this and that</b>  <i>I like this wine. Who's that? p50</i></p>
<p><b>Week 8</b></p>	<p>Where I live p56  <b>There is/are ...</b>  <i>There's an old sofa.</i>  <i>Are there any armchairs?</i>  <i>There are some books. p57</i>  <b>Prepositions</b>  <i>in, on, under, next to p58</i></p>
<p><b>Week 9</b></p>	<p>Times past p64  <b>was/were born</b>  <i>When were you born?</i>  <i>I was born in 1996. p65</i>  <b>Past Simple – irregular verbs</b>  <i>went, came, saw</i>  <i>She went shopping. p68</i></p>
<p><b>Week 10</b></p>	<p>Midterm Exam</p>
<p><b>Week 11</b></p>	<p>We had a great time! p72  <b>Past Simple – regular and irregular</b>  <i>played, got, watched, did p72</i>  <b>Questions</b>  <i>What did you do?</i>  <i>Did you go out? p73</i>  <b>Negatives</b>  <i>They didn't go to work. p73</i>  <b>ago</b>  <i>I went to Rome ten years ago. p78</i></p>
<p><b>Week 12</b></p>	<p>I can do that! p80  <b>can/can't</b>  <i>He can speak French. I can't draw.</i>  <i>Can she run fast? p80</i></p>



	<p><b>Adverbs</b>  <i>I can cook a little bit. I can't cook at all.</i>  <i>really well, fluently</i> p82</p> <p><b>Requests and offers</b>  <i>Can you tell me the time? Can I help you?</i> p83</p>
<b>Week 13</b>	<p>Please and thank you p88</p> <p><b>I'd like ...</b>  <i>I'd like some ham.</i>  <i>How much would you like?</i> p88</p> <p><b>some and any</b>  <i>I'd like some cheese.</i>  <i>Do you have any Emmental?</i>  <i>I don't have any apple juice.</i> p89</p> <p><b>like and would like</b>  <i>I like Coke.</i>  <i>I like going to the cinema.</i>  <i>I'd like to go out.</i> p91</p>
<b>Week 14</b>	<p>Here and now p96</p> <p><b>Present Continuous</b>  <i>She's wearing a T-shirt.</i>  <i>What's he doing?</i> p97</p> <p><b>Present Simple and Present Continuous</b>  <i>He lives in London.</i>  <i>They're staying in a hotel.</i> p98</p>
<b>Week 15</b>	<p>It's time to go! p104</p> <p><b>Future plans</b>  <i>They're going on holiday.</i>  <i>Which countries are you going to visit?</i>  <i>I'm leaving on Tuesday.</i>  <i>What are you doing this evening?</i> p104</p> <p><b>Revision</b>  <b>Question words</b> – <i>when, where, who, how</i> p106  <b>Tenses</b> – present, past, and future tenses p110</p>
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	Soars, John and Liz, (2011), New Headway Plus, Special Edition, Beginner Level, Oxford University Press.	Yes
<b>Recommended Texts</b>	New Headway Plus provides an integrated skills course with each unit divided into grammar, vocabulary, skills work and everyday English segments	yes

<b>Websites</b>	Oxford University Press: The New Headway series is published by Oxford University Press. Visit their website at <a href="http://www.oup.com">www.oup.com</a> and search for "New Headway Plus, Special Edition, Beginner Level " or browse their English language teaching section for information on the course.
-----------------	---

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	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>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Financial Mathematics</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>MAT1208</b>		
ECTS Credits	4		
SWL (hr./sem)	<b>100</b>		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	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

<b>Module Aims</b> أهداف المادة الدراسية	<p>This course introduces the students to the concepts in financial mathematics, a field of mathematics that uses mathematical and numerical models to make educated decisions in the face of uncertainty in the financial markets. The primary learning goals of the course are to:</p> <ol style="list-style-type: none"><li>1. Introduce the concepts of financial mathematics.</li><li>2. Provide an introduction to financial instruments related to financial mathematics.</li><li>3. Introduce students to the use of mathematical models for financial products.</li><li>4. Develop student abilities to create, derive, and apply mathematical models.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Students should be able to effectively communicate mathematical and/or statistical ideas to diverse audiences, both orally and in writing</li><li>2. Students should be effective problem solvers, using technology and connections between different areas of disciplinary knowledge as appropriate.</li><li>3. Students should demonstrate engagement in their discipline.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<p>This module will cover foundational topics in financial and actuarial mathematics. In particular, the topics will include those on the Financial Mathematics exam given by the Society of Actuaries and Casualty Actuarial Society, as well as additional topics. These additional topics will include financial derivatives, the inputs to the Black-Scholes equation, Value at Risk, and the theory underlying cash flows and the derivations of calculations such as portfolio yield rate and the time-weighted rate of return.</p>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>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 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.</p>
-------------------	---

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	40	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.6
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	100		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 4 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	3, 6 and 11
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Mathematical modelling
<b>Week 2</b>	Demand function and supply function
<b>Week 3</b>	Cost function and revenue function
<b>Week 4</b>	Elasticity of demand with applications
<b>Week 5</b>	Elasticity of supply with applications
<b>Week 6</b>	Market equilibrium and labor market
<b>Week 7</b>	Review
<b>Week 8</b>	Mid-term exam + Discussion
<b>Week 9</b>	Break even analysis
<b>Week 10</b>	Simple and compound interest
<b>Week 11</b>	Annual percentage rate

<b>Week 12</b>	Depreciation and net present value
<b>Week 13</b>	Internet rate of return
<b>Week 14</b>	Annuities debt repayment and sinking funds
<b>Week 15</b>	Review
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<i>Financial Mathematics: A Practical Guide for Actuaries and Other Business Professionals</i> . Chris Ruckman and Joe Francis. Publisher: BPP Professional Education; 2nd edition (October 2005).	Yes
<b>Recommended Texts</b>	<i>Derivatives Markets</i> (3rd Edition) (Pearson Series in Finance) 3rd Edition by Robert L. McDonald	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> – 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.



## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Finite Mathematics</b>		Module Delivery
Module Type	<b>Core</b>		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	<b>MAT1103</b>		
ECTS Credits	<b>5</b>		
SWL (hr./sem)	<b>125</b>		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	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

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. To develop in the student's effective habits in logical thinking.</li><li>2. To develop the student's quantitative skills.</li><li>3. To develop the student's capacity in problem solving and decision making.</li><li>4. To strengthen concepts important to students in their own major (e.g. probability in the social sciences or financial math for business majors)</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. The ability to represent a system of linear equations as an augmented matrix and solve the system using Gauss-Jordan elimination.</li><li>2. The ability to solve application problems using matrices and systems of equations.</li><li>3. The ability to solve linear programming problems.</li><li>4. Familiarity with the concept of sample spaces and be able to identify appropriate sample spaces for probability situations.</li><li>5. The ability to apply the basic laws of probability to find the probability of unions, complements, and intersections of events.</li><li>6. The ability to compute conditional probabilities.</li><li>7. The ability to construct and to interpret data in various formats, such as: bar graphs, histograms, frequency distributions, and frequency polygons and cumulative frequency polygons.</li><li>8. The ability to determine mean, median, and mode of both grouped and ungrouped discrete distributions.</li><li>9. The ability to use discrete probability distributions to compute expected values, standard deviation, and variance.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ul style="list-style-type: none"><li>▪ <b>Sets and counting Sets:</b> Fundamental principle of counting, Venn diagrams and counting, the multiplication principle, permutations and combinations, further counting problems, the binomial theorem, multinomial coefficients and partitions.</li><li>▪ <b>Probability:</b> Experiments, outcomes, events, assignment of probabilities, calculating probabilities of events, conditional probability and independence, tree diagrams, Bayes' theorem.</li><li>▪ <b>Linear equations and straight lines:</b> Coordinate systems and graphs, linear inequalities, the intersection point of a pair of lines, the slope of a straight line.</li><li>▪ <b>Matrices:</b> Solving systems of linear equations, arithmetic operations on matrices, the inverse of a matrix, the Gauss-Jordan method for calculating inverses, input-output analysis.</li></ul>



## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	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 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 محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	65	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.3
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	125		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 4 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	3, 6 and 11
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
Week 1	Permutations and combinations, further counting problems, the binomial theorem
Week 2	Sets and set operations; cardinality of a finite set.
Week 3	Introduction - systems of linear equations
Week 4	Elementary Row Operations
Week 5	Gauss-Jordan elimination
Week 6	Matrix Algebra: Multiplication of matrices, inverse of a square matrix.
Week 7	Descriptive statistic
Week 8	Mid-term exam+ Discussion
Week 9	Introduction to probability
Week 10	calculating probabilities of events.
Week 11	Conditional probability and independence.
Week 12	Tree diagrams with applications.
Week 13	Bayes' theorem with applications.
Week 14	Some statistical distributions
Week 15	Review
Week 16	<b>Preparatory week before the final Exam</b>

## Delivery Plan (Weekly Lab. Syllabus)

### المنهاج الاسبوعي للمختبر

None

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<i>Finite Mathematics: An Applied Approach</i> (11th edition) by Sullivan.	Yes
<b>Recommended Texts</b>	<i>Finite Mathematics for Business, Economics, Live Sciences, and Social Sciences</i> , 14th Edition, by Barnett, Ziegler, and Byleen	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	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>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F - Fail</b>	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.



## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Foundation of Mathematics I</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MAT1102		
ECTS Credits	8		
SWL (hr./sem)	200		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	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

<p><b>Module Aims</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"><li>1. To introduces progressively more and more abstract ideas and structures, and demands more and more in the way of proof, until by the end of a mathematics degree most of the student's time is occupied with understanding proofs and creating his or her own. This is not because university mathematicians are more pedantic than schoolteachers, but because proof is how one knows things in mathematics, and it is in its proofs that the strength and richness of mathematics is to be found.</li><li>2. Learning to deal with abstraction and with proofs takes time. This module aims to bridge the gap between school and university mathematics, by beginning with some rather concrete techniques where the emphasis is on calculation, and gradually moving towards abstraction and proof.</li></ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"><li>1. Demonstrate competent numeracy skills</li><li>2. Use scientific notation and identify significant figures</li><li>3. Solve linear equations involving fractions and brackets</li><li>4. Build a number plane plotting points, graphing straight lines, gradients and solving equations for straight lines.</li></ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ul style="list-style-type: none"><li>▪ <b>Set Theory:</b> Sets and functions, injections, surjections and bijections, permutations. Lists, sublists, lists as functions, strings. Subsets, power sets, partition, infinite versus finite, Cantor's Theorem.</li><li>▪ <b>Operations on Sets, Lists, Functions:</b> Ordered pairs, cartesian products, functions and graphs, functions and lookup tables. Union, intersection, set difference, list concatenation. Composition, iteration, orbits, Cantor-Schroeder-Bernstein, cardinalities.</li><li>▪ <b>Relations:</b> Reflexive, symmetric, transitive. Orders, equivalence classes and relations: integers, rational numbers, partitions. Kernels and co-kernels, well-definedness, modular arithmetic.</li><li>▪ <b>Logic:</b> Variables, booleans, negation, operations. Operators and formulas via truth tables. Quantifiers, tautologies, deduction rules.</li><li>▪ <b>Proof:</b> What is proof? False proofs, examples, subtle issues (diagrams, hand-waving) Kinds of proof: direct, contraposition, contradiction, construction, cases.</li></ul>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>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 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.</p>
-------------------	---

## Student Workload (SWL)

### الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	140	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	9.3
<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
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 4 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	3, 6 and 11
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction: Sets
Week 2	Universal set and proper subset
Week 3	Power sets and Properties
Week 4	Union, intersection and disjoint sets
Week 5	Power set, compliment set, algebra of sets
Week 6	Statements: compound statement, conditional and biconditional statements
Week 7	Tautology and argument
Week 8	Mid-term Exam+ Discussion
Week 9	Open sentences and quantified sentences
Week 10	Cartesian product
Week 11	Relations
Week 12	Symmetric relation
Week 13	Transitive relation
Week 14	Equivalence and partition of sets
Week 15	Review
Week 16	Preparatory week before the final Exam

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Eves, Howard, FOUNDATIONS AND FUNDAMENTAL CONCEPTS OF MATHEMATICS, PWS-Kent Publishing Co., Boston, MA, 1991.	Yes
Recommended Texts	Kurtz, David, FOUNDATIONS OF ABSTRACT MATHEMATICS, McGraw Hill Publishing Co., Hightstown, NJ, 1992.	No
Websites	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

## Grading Scheme

### مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	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>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F - Fail</b>	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.





## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Foundation of Mathematics II</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MAT1216		
ECTS Credits	8		
SWL (hr./sem)	200		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Foundations of Mathematics I	Semester	1
Co-requisites module	None	Semester	—

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Aims</b> أهداف المادة الدراسية	<ol style="list-style-type: none"><li>1. To introduces progressively more and more abstract ideas and structures, and demands more and more in the way of proof, until by the end of a mathematics degree most of the student's time is occupied with understanding proofs and creating his or her own. This is not because university mathematicians are more pedantic than schoolteachers, but because proof is how one knows things in mathematics, and it is in its proofs that the strength and richness of mathematics is to be found.</li><li>2. Learning to deal with abstraction and with proofs takes time. This module aims to bridge the gap between school and university mathematics, by beginning with some rather concrete techniques where the emphasis is on calculation, and gradually moving towards abstraction and proof.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Demonstrate competent numeracy skills</li><li>2. Use scientific notation and identify significant figures</li><li>3. Solve linear equations involving fractions and brackets</li><li>4. Build a number plane plotting points, graphing straight lines, gradients and solving equations for straight lines.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<ul style="list-style-type: none"><li>▪ <b>Cardinal Numbers:</b> This part devoted to introduce the algebraic operations on cardinal numbers, piano assumption and quotient algorithm.</li><li>▪ <b>Rational Numbers:</b> This part illustrate the relation between the field of rational numbers and the field of real numbers.</li><li>▪ <b>Fundamental Theorem of Algebra and Finite Fields.</b></li></ul>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>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 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.</p>
-------------------	---

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	140	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	9.3
<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
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 4 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	3, 6 and 11
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Finite, infinite and countable sets
<b>Week 2</b>	Summation and multiplication of the cardinal numbers
<b>Week 3</b>	Piano assumption for the natural numbers
<b>Week 4</b>	Rational numbers and their consequences
<b>Week 5</b>	Construction of the integral numbers, quotient algorithm
<b>Week 6</b>	The relation between the field of rational numbers and the field of real numbers
<b>Week 7</b>	Complex numbers and geometrical representation
<b>Week 8</b>	Mid-term Exam + Discussion
<b>Week 9</b>	Argument of complex numbers
<b>Week 10</b>	The roots of the complex numbers
<b>Week 11</b>	The fundamental theorem of algebra and the binary operation
<b>Week 12</b>	Lagrange theorem

<b>Week 13</b>	Types of polynomials
<b>Week 14</b>	Polynomials of higher degree
<b>Week 15</b>	Review
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	Eves, Howard, FOUNDATIONS AND FUNDAMENTAL CONCEPTS OF MATHEMATICS, PWS-Kent Publishing Co., Boston, MA, 1991.	Yes
<b>Recommended Texts</b>	Kurtz, David, FOUNDATIONS OF ABSTRACT MATHEMATICS, McGraw Hill Publishing Co., Hightstown, NJ, 1992.	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - 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.



## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Physical Mathematics I</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MAT1104		
ECTS Credits	4		
SWL (hr./sem)	100		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	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

<b>Module Aims</b> أهداف المادة الدراسية	This module aims to enable the student to build on the knowledge and skills in order to achieve a deeper understanding of and greater competence in some central mathematical ideas and techniques used throughout physics.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Formulate and tackle problems in a logical and systematic manner;</li><li>2. Present work clearly with justification of techniques and methods;</li><li>3. Work co-operatively with peers and with the demonstrators to solve guided problems.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<ul style="list-style-type: none"><li>• Use basis vectors to transform differential operator equations to matrix form and hence apply eigen equation techniques.</li><li>• Calculate eigenvalues and eigenvectors and apply the techniques to physical problems</li><li>• Solve partial differential equations by separation of variables.</li><li>• Obtain approximate solutions to differential equations through the use of perturbation theory.</li><li>• Solve problems involving classical particles by applying the Lagrangian formulation classical mechanics.</li><li>• Explain the calculus of variations and apply it to the solution of problems.</li></ul>

## Learning and Teaching Strategies

### استراتيجيات التعلم والتعليم

<b>Strategies</b>	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 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 محسوب لـ ١٥ أسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	40	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.6
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	100		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 4 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	3, 6 and 11
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Vectors and scalars: properties, dot product and cross product.
<b>Week 2</b>	Equality of two vectors
<b>Week 3</b>	Component of vectors and Inertia mass
<b>Week 4</b>	Newton and Dyne
<b>Week 5</b>	Newton's three laws of motion
<b>Week 6</b>	Newton's law of gravity, Kepler's law
<b>Week 7</b>	Review
<b>Week 8</b>	Midterm exam+ Discussion
<b>Week 9</b>	Calculus of variations, Euler-Lagrange equations
<b>Week 10</b>	Wave equation and diffusion equation.
<b>Week 11</b>	Separation of variables: The Laplacian family of equations in physics

<b>Week 12</b>	Cylindrical polar co-ordinates
<b>Week 13</b>	spherical polar co-ordinates
<b>Week 14</b>	Examples: quantum particle in a well and mass on drum
<b>Week 15</b>	Review
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	K.F. Riley, Hobson M.P. and Bence S.J. (2006), <i>Mathematical Methods for Physics and Engineering: A Comprehensive Guide</i> (3 <sup>rd</sup> edition), Cambridge University Press.	Yes
<b>Recommended Texts</b>	Gregory R.D. (2006), <i>Classical Mechanics</i> , Cambridge University Press.	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - 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.





## MODULE DESCRIPTION

### وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	<b>Physical Mathematics II</b>		Module Delivery
Module Type	Core		<input type="checkbox"/> Theory <input checked="" type="checkbox"/> Lecture <input type="checkbox"/> Lab <input checked="" type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	MAT1217		
ECTS Credits	4		
SWL (hr./sem)	100		
Module Level	1	Semester of Delivery	
Administering Department	Mathematics	College	Science
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	22/06/2023	Version Number	1.0

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	Physical Mathematics I	Semester	1
Co-requisites module	None	Semester	—

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Aims</b> أهداف المادة الدراسية	This module aims to enable the student to build on the knowledge and skills in order to achieve a deeper understanding of and greater competence in some central mathematical ideas and techniques used throughout physics.
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Formulate and tackle problems in a logical and systematic manner;</li><li>2. Present work clearly with justification of techniques and methods;</li><li>3. Work co-operatively with peers and with the demonstrators to solve guided problems.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	<ul style="list-style-type: none"><li>• Use basis vectors to transform differential operator equations to matrix form and hence apply eigen equation techniques.</li><li>• Calculate eigenvalues and eigenvectors and apply the techniques to physical problems</li><li>• Solve partial differential equations by separation of variables.</li><li>• Obtain approximate solutions to differential equations through the use of perturbation theory.</li><li>• Solve problems involving classical particles by applying the Lagrangian formulation classical mechanics.</li><li>• Explain the calculus of variations and apply it to the solution of problems.</li></ul>

## Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

<b>Strategies</b>	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 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 محسوب لـ ١٥ اسبوعا

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	40	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.6
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	100		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	20% (20)	5, 10	1, 4 and 13
	<b>Assignments</b>	2	20% (20)	2, 12	3, 6 and 11
	<b>Projects / Lab.</b>	0	0	—	—
	<b>Report</b>	0	0	—	—
<b>Summative assessment</b>	<b>Midterm Exam</b>	2 hr.	10% (10)	7	1-7
	<b>Final Exam</b>	3 hr.	50% (50)	17	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Periodic motion: Hook's law
<b>Week 2</b>	Applications of Hook's law
<b>Week 3</b>	Type of waves
<b>Week 4</b>	Dynamic viscosity
<b>Week 5</b>	Kinetic viscosity
<b>Week 6</b>	Pascal principle
<b>Week 7</b>	Archimedes principle
<b>Week 8</b>	Mid-term exam + Discussion
<b>Week 9</b>	Surface tension
<b>Week 10</b>	Continuity equation with applications
<b>Week 11</b>	Bernoulli's equation with applications

<b>Week 12</b>	Energy and Kepler's law
<b>Week 13</b>	The magnetic field
<b>Week 14</b>	Pacts of the magnetic fields
<b>Week 15</b>	Review
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

### Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

None

### Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	K.F. Riley, Hobson M.P. and Bence S.J. (2006), <i>Mathematical Methods for Physics and Engineering: A Comprehensive Guide</i> (3 <sup>rd</sup> edition), Cambridge University Press.	Yes
<b>Recommended Texts</b>	Gregory R.D. (2006), <i>Classical Mechanics</i> , Cambridge University Press.	No
<b>Websites</b>	<a href="https://www.sciencebooksonline.info/mathematics.html">https://www.sciencebooksonline.info/mathematics.html</a>	

### Grading Scheme

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	<b>A</b> - Excellent	امتياز	90 - 100	Outstanding Performance
	<b>B</b> - Very Good	جيد جدا	80 - 89	Above average with some errors
	<b>C</b> - Good	جيد	70 - 79	Sound work with notable errors
	<b>D</b> - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	<b>E</b> - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	<b>FX</b> - Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F</b> - 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.