



Ministry of Higher Education and  
Scientific Research - Iraq  
University of Technology  
Laser and Optoelectronic Engineering  
Department



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	COMPUTER PROGRAMMING	Module Delivery	
Module Type	SUPPLEMENT	Theory Lecture Lab Practical	
Module Code	COSC108		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	1	Semester of Delivery	2
Administering Department	Laser and Optoelectronic Engineering Department	College	
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name	-	e-mail	
Review Committee Approval		Version Number	1.0

## Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

<b>Prerequisite module</b>	None	<b>Semester</b>	-
<b>Co-requisites module</b>	None	<b>Semester</b>	-

## 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. Learning Windows 7 , Copy, Cut, Paste and delete</li> <li>2. Learning the use of basic windows office application</li> <li>3. Learn how to create, save, edit text files spreadsheet files.</li> <li>4. Understanding the concept of programming languages</li> <li>5. Learning input and output methods, menu bar, toolbar, and images</li> <li>6. Learning how to program physics, chemical, and mathematics lows in Visual Basic</li> <li>7. Drawing methods</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Understanding the basic component of computers</li> <li>2. Understanding the concept of operating systems</li> <li>3. Understanding the concept of computer networks</li> <li>4. Understanding the concept of number systems</li> <li>5. Understanding the concept of logic gates</li> <li>6. Windows 7</li> <li>7. Learn how to create, save, edit text files</li> <li>8. Learn how to create spread sheet</li> <li>9. Learn how to create a presentation file</li> <li>10. Integrated Development Environment of Visual Basic</li> <li>11. Objects, Properties, Methods, and Events</li> <li>12. Input and Output methods</li> <li>13. Menu bar , ToolBar, and images</li> <li>14. Drawing Methods</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<ol style="list-style-type: none"> <li>1. Learn the main concept of digital computers</li> <li>2. Learn different computer types</li> <li>3. Understand the main components of a computer</li> <li>4. Understand the meaning of operating systems and how they work</li> <li>5. Understand the concept of computer networks</li> <li>6. Learn the number systems and how to convert between different number systems</li> <li>7. Learn about the logic gates</li> <li>8. Learn how to use windows</li> <li>9. Learning The main icons of the desktop, start menu, and desktop,</li> </ol>

	<p>changing display and time. Copy, Cut, Paste and delete.</p> <ol style="list-style-type: none"> <li>10. Learn how to create, edit, and print documents in (Word) program</li> <li>11. Learn how to organize, format, calculate, and sort the values in the spreadsheet in (Excel) program</li> <li>12. Learn how to create a slide show of important information, charts, and images in presentation software (Power Point)</li> <li>13. Learn the concept of programming language (Visual Basic).</li> <li>14. Understanding Objects, Properties, Methods, and Events</li> <li>15. Learning input and output methods like using labels, textbox, and command button, or using inputbox and messagebox or by using vertical bar to select number within range and writing programs in different fields by using these methods.</li> <li>16. Writing programs by using menu bar and tool bar, display pictures by using images.,CheckBox and OptionButton and learn the difference between them, and use both of them within picturebox., drawing methods by using tools or by using methods.</li> </ol>
<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<ol style="list-style-type: none"> <li>1. Analyze the problem and put the procedure to solve then writing the program together and select the suitable method to solve the problem</li> <li>2. Give the students another problem to be solved alone</li> </ol>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	45	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	3
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	30	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	2
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	75		

## Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes				
	Assignments				
	Projects				
	Report				
Summative assessment	Midterm Exam	1 hr	10% (10)	Week 8	
	Final Exam	2 hr	50% (50)	Week 15	
Total assessment			100% (100 Marks)	-	

## Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Introduction to Computers Practical: Windows (Windows 7)
Week 2	Computer types, Practical: Windows (Windows 7)
Week 3	Components of computers Practical: Windows (Windows 7)
Week 4	Components of computers word processing software / Word
Week 5	Concept of operating systems word processing software / Word
Week 6	Introduction to computer networks word processing software / Word
Week 7	Number systems spreadsheet software / Excel
Week8	Number systems spreadsheet software / Excel
Week9	Logic gates Presentation software/ Power point
Week10	Visual Basic part1, Constant, and variable
Week11	Math function
Week12	Menu and image applications
Week13	CheckBox, OptionButton, PictureBox applications
Week14	Drawing , Drawing applications
Week15	Final Exam

## Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
<b>Required Texts</b>	<b>Fundamentals of Computer</b>	-
<b>Recommended Texts</b>		
<b>Websites</b>		

### APPENDIX:

#### GRADING SCHEME

مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.



Ministry of Higher Education and  
Scientific Research - Iraq  
University of Baghdad  
College of Engineering  
Department of Electrical Engineering



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	AC ELECTRICAL ANALYSIS		Module Delivery
Module Type	CORE		Theory Lecture Lab Tutorial Practical Seminar
Module Code	LOEC114		
ECTS Credits	9		
SWL (hr/sem)	225		
Module Level	1	Semester of Delivery	
Administering Department	Type Dept. Code	College	Type College Code
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.
Module Tutor	None	e-mail	None
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
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 problem solving skills and understanding of circuit theory through the application of techniques.</li> <li>2. This course deals with the basic concept of electrical circuits.</li> <li>3. This is the basic subject for all electrical.</li> <li>4. To understand Kirchhoff's current and voltage Laws problems.</li> <li>5. To perform mesh and Nodal analysis.</li> <li>6. To understand the sinusoidal waveforms and phasors.</li> <li>7. To analyze the electrical circuits under ac currents.</li> <li>8. To study the rms and average power.</li> <li>9. To study the resonance and filters circuits.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Recognize how electricity works in electrical circuits.</li> <li>2. List the various terms associated with electrical circuits.</li> <li>3. Summarize what is meant by a basic electric circuit.</li> <li>4. Describe electrical power, charge, and current.</li> <li>5. Define Ohm's law.</li> <li>6. Identify the basic circuit elements and their applications.</li> <li>7. Discuss the operations of sinusoid and phasors in an electric circuit.</li> <li>8. Discuss the various properties of resistors, capacitors, and inductors.</li> <li>9. Explain the two Kirchoff's laws used in circuit analysis.</li> <li>10. Identify the capacitor and inductor phasor relationship with respect to voltage and current.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	
<p><b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم</p>	
<p><b>Strategies</b></p>	<p>Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their 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>



<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	117	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	108	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	225		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	Quizzes				
	Assignments				
	Projects / Lab.				
	Report				
<b>Summative assessment</b>	Midterm Exam				
	Final Exam				
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الأسبوعي النظري	
	Material Covered
<b>Week 1</b>	<b>AC Electrical Analysis</b> - Sinusoidal Alternating Waveforms - Average and RMS Values
<b>Week 2</b>	- The Basic Elements and Phasors (response of the R, L, and C to a sinusoidal voltage and current. - Average power & power factor
<b>Week 3</b>	- Complex Numbers - Phasors
<b>Week 4</b>	- Series ac Circuits - Parallel ac Circuits - Series -Parallel ac Circuits
<b>Week 5</b>	- Series -Parallel ac Circuits
<b>Week 6</b>	- Power (ac) - Series resonant circuit
<b>Week 7</b>	- Parallel Resonant circuit
<b>Week 8</b>	<b>MidTerm Exam</b>

<b>Week 9</b>	Filters - R-C low pass filters - R-C high pass filters
<b>Week 10</b>	- Pass band filters. - Stop band filters
<b>Week 11</b>	- Techniques of AC circuit analysis - Mesh analysis
<b>Week 12</b>	- Thevenin's Theorem
<b>Week 13</b>	- Norton's Theorem
<b>Week 14</b>	- Superposition Theorem
<b>Week 15</b>	- Magnetic circuits
<b>Week 16</b>	<b>Final Exam</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	- Lab 1: - Transient Response of R.L. Circuit
<b>Week 2</b>	- Lab 2: - Transient Response of R.C. Circuit
<b>Week 3</b>	- Lab 3: - Power on (resistive –inductive & capacitive) load Series connection
<b>Week 4</b>	- Lab 4: Resonant Circuit (Series Resonance)
<b>Week 5</b>	- Lab 5: Resonant Circuit (Parallel Resonance)
<b>Week 6</b>	- Lab 6: Filters - Low –pass filter (integrator R.C. circuit)
<b>Week 7</b>	- Lab 7: Pass-Band Filter

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	- Electric Circuits, Nilsson. Riedel, ninth edition.	

	- Introductory Circuit Analysis, Robert L Boylestad, Twelfth Edition, 2014.	
<b>Recommended Texts</b>	Introductory AC circuit theory by K. mann and G. I. Russel.	
<b>Websites</b>		

**APPENDIX:**

<b>GRADING SCHEME</b> مخطط الدرجات				
<b>Group</b>	<b>Grade</b>	<b>التقدير</b>	<b>Marks (%)</b>	<b>Definition</b>
<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>	مقبول بقرار	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<b>Note:</b>				
<p>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.</p>				





Ministry of Higher Education and  
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University of Technology  
Department of laser and optoelectronics  
Engineering



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	ENGINEERING DRAWING		Module Delivery
Module Type	CORE		Theory Lecture Lab
Module Code	ENDR121		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department		College	
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

## Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى

<b>Prerequisite module</b>	None	<b>Semester</b>	
<b>Co-requisites module</b>	None	<b>Semester</b>	

## Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<b>Module Aims</b> أهداف المادة الدراسية	<ul style="list-style-type: none"> <li>Explain the concept of graphic communication, their type, and their role in sanitary construction.</li> <li>Familiarize with different drawing equipment, technical standards, and procedures for construction of geometric figures.</li> <li>Equipped with the skill that enables them to convert pictorial (3-D) drawings to orthographic (2-D) drawings and vice versa.</li> <li>Explain the principle and application of sectioning.</li> <li>Well familiar with the purpose, procedures, materials, and conventional symbols utilized to make sketch maps.</li> </ul>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<p>L01 communicate effectively in a modern technical environment;</p> <p>L02 construct and present quality engineering drawings in a well-drafted manner.</p> <p>L03 present correct lettering, figures, and dimensions to a defined style and standard</p> <p>L04 produce detailed Civil Engineering drawings using AutoCAD</p>
<b>Indicative Contents</b> المحتويات الإرشادية	a) Paper size, Lettering & title blocks (b) Orthographic projection (c) Isometric and oblique projection (d) Perspective drawing (e) Freehand sketching (f) Basic geometrical solids (g) Development of surfaces (h) Practical freehand sketching exercises
<h3 style="margin: 0;">Learning and Teaching Strategies</h3> <p style="margin: 0;">استراتيجيات التعلم والتعليم</p>	
<b>Strategies</b>	

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	93	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	6
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	57	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	4	10% (10)	3, 5, 7, 10	LO #1-4, 5-8
	<b>Assignments</b>	24	20% (20)	1-14	LO # 1-4
	<b>Projects</b>	1	10% (10)	14	LO# 1-4
	<b>Report</b>	0	0	0	0
<b>Summative assessment</b>	<b>Midterm Exam</b>	1 hr	10% (10)	7	LO # 1-4
	<b>Final Exam</b>	3 hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الاسبوعي النظري	
	Material Covered
<b>Week 1</b>	Introduction to Graphic Communication+ Drawing Equipment
<b>Week 2</b>	Lettering and Lines +Lettering and Lines
<b>Week 3</b>	Geometric Construction + Engineering drawing process
<b>Week 4</b>	Projection + Projection
<b>Week 5</b>	Section + Projection of a point, Lines, and planes
<b>Week 6</b>	Dimension and mapping
<b>Week 7</b>	Mid-term Exam
<b>Week 8</b>	AutoCAD Introduction
<b>Week 9</b>	Commands orthographic Drawing
<b>Week 10</b>	Commands Dimensioning Drawing
<b>Week 11</b>	Commands Section View

Week 12	Working Drawing in AutoCAD
Week 13	Isometric drawing
Week 14	AutoCAD tutorial
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Engineering Drawing	Yes
Recommended Texts		
Websites		

**APPENDIX:**

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
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**Note:**

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	Ministry of Higher Education and Scientific Research - Iraq University of Technology Department of Laser & Optoelectronic Engineering	
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## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information					
معلومات المادة الدراسية					
Module Title	MATHEMATICS			Module Delivery	
Module Type	SUPPLEMENT			Theory Lecture Lab Tutorial Practical Seminar	
Module Code	LOEC113				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1	Semester of Delivery			
Administering Department	Type Dept. Code	College	Type College Code		
Module Leader	Dr. Saad Zahraw Sekhi		e-mail	140094@uotechnology.edu.iq	
Module Leader's Acad. Title			Module Leader's Qualification	Ph.D.	
Module Tutor	None		e-mail	None	
Peer Reviewer Name			e-mail		
Review Committee Approval	01/06/2023		Version Number		

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>The objective of teaching Mathematics has some main aspects:</p> <ol style="list-style-type: none"><li>1. The aims of teaching and learning mathematics are to encourage and enable students to: recognize that mathematics permeates the world around us. appreciate the usefulness, power, and beauty of mathematics. enjoy mathematics and develop patience and persistence when solving problems.</li><li>2. The following prominent methods for effective instruction in mathematics include the Problem-solving method, Lecture method, Questioning method, and Discovery method. Problem-solving is the most independent learning method used in teaching mathematics.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Students will recognize problem-solving techniques appropriate to a given situation, including the development of mathematical models, the identification of assumptions, the understanding of the limitations of models, and the use of both graphical and numerical methods.</li><li>2. Comprehend, analyze, synthesize, evaluate, and make generalizations so as to solve mathematical problems.</li><li>3. Collect, organize, represent, analyze, interpret data, and make conclusions and predictions from its results.</li><li>4. Apply mathematical knowledge and skills to familiar and unfamiliar situations.</li><li>5. Recognize the basic of mathematics.</li><li>6. Define the functions, domain, range, and graph of functions.</li><li>7. Recognize how combining functions; shifting and scaling graphs.</li><li>8. Study the inverse functions and logarithms.</li><li>9. Recognize limits and continuity.</li><li>10. Study the trigonometric and inverse trigonometric functions.</li><li>11. Define differentiation, the basic rule of differentiation, and the application of differentiation.</li><li>12. Study the Integration; Indefinite integral and the basic rule of -integrations.</li><li>13. Identify the standard method of integration.</li><li>14. Study the definite integral and their applications in calculating the area under the curves.</li><li>15. Study the integration by substitution.</li><li>16. Study the integration by parts.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	

## 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 much homework involving some sampling activities that are interesting to the students.
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## Student Workload (SWL)

### الحمل الدراسي للطالب

<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	60	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	90	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

## Module Evaluation

### تقييم المادة الدراسية

		Time/ Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	6	20 % (20)	3, 5, 7, 13, 14, 15	LO # 8, 9, 11, 14, 15 and 16
	<b>Assignments</b>	4	20 % (20)	5, 7, 14, 15	LO # 9, 11, 15 and 16
	<b>Projects / Lab.</b>	-	-		
	<b>Report</b>	-	-		
<b>Summative assessment</b>	<b>Midterm Exam</b>	3 hr	10 % (10)		LO # 5 - 11
	<b>Final Exam</b>	3 hr	50 % (50)		All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> <span style="float: right;">المنهاج الاسبوعي النظري</span>	
	<b>Material Covered</b>
<b>Week 1</b>	- Integration; Indefinite integral
<b>Week 2</b>	- Integration; Indefinite integral
<b>Week 3</b>	- Basic rule of integrations
<b>Week 4</b>	- Standard Method of integration
<b>Week 5</b>	- Standard Method of integration
<b>Week 6</b>	- Definite integral
<b>Week 7</b>	- Definite integral
<b>Week 8</b>	<b>Mid Term Exam</b>
<b>Week 9</b>	- Application of integration; calculation area under the curves
<b>Week 10</b>	- Application of integration; calculation area under the curves
<b>Week 11</b>	- Application of integration; calculation area under the curves
<b>Week 12</b>	- Integration by substitution
<b>Week 13</b>	- Integration by substitution
<b>Week 14</b>	- Integration by parts
<b>Week 15</b>	- Integration by parts
<b>Week 16</b>	<b>Final Exam</b>

<b>Learning and Teaching Resources</b> <span style="float: right;">مصادر التعلم والتدريس</span>		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	- Thomas, Calculus, 12th Edition, 2010.	
<b>Recommended Texts</b>		
<b>Websites</b>		

**APPENDIX:**

<b>GRADING SCHEME</b> مخطط الدرجات				
<b>Group</b>	<b>Grade</b>	<b>التقدير</b>	<b>Marks (%)</b>	<b>Definition</b>
<b>Success Group</b> <b>(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</b> <b>(0 - 49)</b>	<b>FX – Fail</b>	مقبول بقرار	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<b>Note:</b>				
<p>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.</p>				



Ministry of Higher Education and  
Scientific Research - Iraq  
University of Technology  
College of Engineering  
Department of Laser and Optoelectronics  
Engineering



## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	ENGINEERING MECHANICS		Module Delivery	
Module Type	CORE		Theory Lecture Tutorial Seminar	
Module Code	ENME122			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level	1	Semester of Delivery		2
Administering Department	Type Dept. Code	College	Type College Code	
Module Leader	Dr. Sudad I. Younis		e-mail	Sudad.i.younis@uotechnology.edu.iq
Module Leader's Acad. Title	Asst. Prof.	Module Leader's Qualification	Ph.D.	
Module Tutor	None		e-mail	None
Peer Reviewer Name		e-mail		
Review Committee Approval		Version Number		

Relation With Other Modules				
العلاقة مع المواد الدراسية الأخرى				
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. This course deals with the basic concept of Mechanical Engineering.</li><li>2. providing students with the basics of scientific knowledge in the field of mechanical engineering and improving their professional abilities in the direction of analytical and creative thinking using mathematical laws and equations, data analysis and modern methods in formulating and solving problems.</li><li>3. Providing theoretical knowledge and linking between the principles of static science and Dynamics, and the ability to analyze and solve engineering mechanics problems.</li><li>4. Clarifying and discussing the main theoretical principles and improving teamwork ability.</li><li>5. Using different methods to solve the same problem.</li><li>6. Ensure accuracy in solving problems without any approximation.</li><li>7. Preparing the student to understand the mechanics of different materials to use this information and methods of solution later in the specialized lessons in the stages that follow the first stage</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Make the students able to recognize different force systems, moments, and couples.</li><li>2. The ability to draw Free Body Diagram and label the reactions on it.</li><li>3. Make the students able to apply equilibrium equations in statics.</li><li>4. Make the students able to find the center of any shape from its area or volume.</li><li>5. The ability to understand Newton's law in motion and recognize different kinds of particle motions.</li><li>6. Identify the equations of linear and nonlinear motion and the relationship between displacement, velocity and acceleration and represent them graphically.</li><li>7. Recognize the movement of the hypotheses and solve the problems related to them.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	
<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The lectures must provide a method for solving each problem that includes the steps to be followed to analyze and understand the problem before proceeding to solve it.</p> <p>Discuss a phenomenon and its interpretation by watching a video.</p> <p>Each student must solve the problems at home and submit it as a report.</p> <p>Students are divided into groups or work teams to solve a problem that is identified by us.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	63	<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	87	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	10min/2	10% (10)	4,10	LO #1, 2 & 5,6
	<b>Assignments</b>	2	10% (10)	2,12	LO # 3,4 & 6
	<b>Projects</b>	1	10% (10)	5	LO # 3,4
	<b>Report</b>	2	10% (10)	6,14	LO # 1-4 & 5-7
<b>Summative assessment</b>	<b>Midterm Exam</b>	1 hr	10% (10)	7	LO # 1-4
	<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	
	Material Covered
<b>Week 1</b>	Statics 1.1 Definitions and units 1.2 Force systems 1.3 Resultant
<b>Week 2</b>	Moments and couples
<b>Week 3</b>	Equilibrium
<b>Week 4</b>	Centroid and moment of inertia
<b>Week 5</b>	Friction
<b>Week 6</b>	Tutorial
<b>Week 7</b>	Mid Term Exam
<b>Week 8</b>	Dynamics Newton's laws of motion
<b>Week 9</b>	9.1 linear motion 9.2 Rectilinear motion
<b>Week 10</b>	The relationship between displacement, velocity, and acceleration (derivative method)
<b>Week 11</b>	The relationship between displacement, velocity, and acceleration (integral method)



<b>Week 12</b>	Graphical representation of displacement, velocity, and acceleration
<b>Week 13</b>	Projectile
<b>Week 14</b>	Tutorial
<b>Week 15</b>	<b>Preparatory Week</b>
<b>Week 16</b>	<b>Final Exam</b>
<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	-Engineering Mechanics, Volume 1, Statics & Dynamics, Fifth Edition by J.L. Meriam & L.G. Kraig -Engineering Mechanics, Singer. -Lecture notes.	yes
<b>Recommended Texts</b>	Engineering Mechanics, Statics, 11 <sup>th</sup> Edition by R.C. Hibler -Engineering Mechanics, Dynamics , 11 <sup>th</sup> Edition by R.C. Hibler	yes
<b>Websites</b>		

**APPENDIX:**

<b>GRADING SCHEME</b> مخطط الدرجات				
<b>Group</b>	<b>Grade</b>	<b>التقدير</b>	<b>Marks (%)</b>	<b>Definition</b>
<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>	مقبول بقرار	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.



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## MODULE DESCRIPTOR FORM

### نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	MEDICAL PHYSICS		Module Delivery
Module Type	BASIC		Theory Lecture Tutorial Seminar
Module Code	MPHY123		
ECTS Credits	6		
SWL (hr/sem)	150		
Module Level	1	Semester of Delivery	
Administering Department		College	
Module Leader		e-mail	
Module Leader's Acad. Title		Module Leader's Qualification	
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Review Committee Approval		Version Number	

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module		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. This course deals with the basic concept of Medical Physics.</li><li>2. Providing students with the basics of scientific knowledge in the physical principles on which many processes in the human body depend.</li></ol>
<b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية	<ol style="list-style-type: none"><li>1. Make the students able to understand physical issues concerning the human body.</li><li>2. The ability to understand fluids and how pressures and forces affect them.</li><li>3. Understanding the types of fluid flow and the effect of viscosity on it, and linking these concepts to blood flow in the human body, in addition to knowing how to measure blood pressure.</li><li>4. Make the student able to know how vision occurs and the structure of the human eye.</li><li>5. The student is given information on how to detect light entering the eye through the retina, which is the light detector in the human eye.</li><li>6. The student learns the basics of sound waves and their properties because of their great importance in medical applications.</li><li>7. The student understands the method of hearing and the structure of the human ear as well as ultrasound and its medical applications.</li><li>8. The student studies the mechanical properties of the human body, especially what is related to the skeletal system and bones.</li><li>9. The student is given basic information about radiation, radiation doses, nuclear decay and their effect on cells and the human body.</li><li>10. Understand the basics of X-rays and how they are generated due to their wide use in medical applications.</li></ol>
<b>Indicative Contents</b> المحتويات الإرشادية	
<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<p>The lectures must provide a method for solving each problem that includes the steps to be followed to analyze and understand the problem before proceeding to solve it.</p> <p>Discuss a phenomenon and its interpretation by watching a video.</p> <p>Each student must solve the problems at home and submit it as a report.</p> <p>Students are divided into groups or work teams to solve a problem that is identified by us.</p>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	63	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعياً	4
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعياً	5.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	150		

<b>Module Evaluation</b> تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	4	10% (10)	2, 4, 8, 10	LO #1, 2,3,4,5 & 6,7,8,9
	<b>Assignments</b>	4	10% (10)	2,12	LO # 3,4 & 6
	<b>Projects / Disc.</b>	1	10% (10)	5	LO # 3,4
	<b>Report</b>	2	10% (10)	6,14	LO # 1-4 & 5-7
<b>Summative assessment</b>	<b>Midterm Exam</b>	1 hr	10% (10)	7	LO # 1-4
	<b>Final Exam</b>	3hr	50% (50)	16	All
<b>Total assessment</b>			100% (100 Marks)		

<b>Delivery Plan (Weekly Syllabus)</b> المنهاج الأسبوعي النظري	
	Material Covered
<b>Week 1</b>	<b>INTRODUCTION</b>
<b>Week 2</b>	<b>FLUID</b>
<b>Week 3</b>	<b>THE MOTION OF FLUIDS</b>
<b>Week 4</b>	<b>VISION AND EYES</b>
<b>Week 5</b>	<b>EYES IMAGE DETECTOR</b>
<b>Week 6</b>	<b>SOUND</b>
<b>Week 7</b>	<b>Midterm Exam</b>
<b>Week 8</b>	<b>HEARING AND ULTRASONIC WAVE</b>
<b>Week 9</b>	<b>ELASTIC PROPERTIES OF THE BODY</b>
<b>Week 10</b>	<b>BONE FRACTURES</b>
<b>Week 11</b>	<b>Radiation</b>
<b>Week 12</b>	<b>Radiation Dosimetry</b>
<b>Week 13</b>	<b>EFFECT OF RADIATION ON THE BODY</b>

<b>Week 14</b>	<b>NUCLEAR DECAY PROCESSES</b>
<b>Week 15</b>	<b>X-ray</b>
<b>Week 16</b>	<b>Final Exam</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	<b>Material Covered</b>
<b>Week 1</b>	The fall of a body through a viscous medium The aim: Determine the viscosity of the medium by using a small sphere falls with constant terminal velocity.
<b>Week 2</b>	The surface tension The aim: To calculate the surface tension of water by the capillary tube method
<b>Week 3</b>	Pressure and Blood Pressure The aim: Measurement of blood pressure
<b>Week 4</b>	Hooke's Law The aim: Confirm Hooke's law for coil springs under tension
<b>Week 5</b>	Bernoulli's experiment
<b>Week 6</b>	Archimedes' Principle The aim: Determining buoyant updraught as a function of immersion depth.
<b>Week 7</b>	Static and Dynamic Friction The aim: Measurement of friction forces

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	<b>Text</b>	<b>Available in the Library?</b>
<b>Required Texts</b>	- Introduction to Medical Physics, by Stephen Keevil Renato Padovani Slavik Tabakov Tony Greener Cornelius Lewis - Physics in Biology and Medicin, Third Edition by Paul Davidovits.	yes
<b>Recommended Texts</b>	-Physics of the Human Body by Irving P. Herman - Introduction to Health Physics Fourth Edition by Herman Cember and Thomas E. Johnson	yes
<b>Websites</b>		

**APPENDIX:**

<b>GRADING SCHEME</b> مخطط الدرجات				
<b>Group</b>	<b>Grade</b>	<b>التقدير</b>	<b>Marks (%)</b>	<b>Definition</b>
<b>Success Group</b> <b>(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
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	<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</b> <b>(0 - 49)</b>	<b>FX – Fail</b>	مقبول بقرار	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	راسب	(0-44)	Considerable amount of work required
<b>Note:</b>				

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.

## Course Description Form

<b>1. Course Name</b>					
Computer Applications					
<b>2. Course Code:</b>					
LOPCL211					
<b>3. Semester / Year:</b>					
1 <sup>st</sup> / 2024					
<b>4. Description Preparation Date:</b>					
24/4/2024					
<b>5. Available Attendance Forms:</b>					
Practical attendance in lab					
<b>6. Number of Credit Hours (Total) / Number of Units (Total) 2 hours</b>					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Lec. Eman Yousif Nasir Email: <a href="mailto:Eman.Y.Nasir@uotechnology.edu.iq">Eman.Y.Nasir@uotechnology.edu.iq</a>					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>			<ul style="list-style-type: none"> <li>• Understanding principles of programming using MatLab</li> <li>• Convert mathematics equations to Matlab instruction</li> <li>• Input and output methods</li> <li>• Drawing methods</li> <li>• Writing conditional and repetition statements</li> <li>• Solve series, integration and differentiation equations</li> </ul>		
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<i>Practical applications by using computers</i>			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
One	2 hours	Learn Matlab window	Introduction to MATLAB window	Practical	Practical Quiz+Homework
Two	2 hours	Format types	Format types		
Three	2 hours	Arithmetic operations with vectors	Vectors		
Four	2 hours	Arithmetic operations with matrices	Matrices		
Five	2 hours	Basic functions in MATLAB	Basic functions in MATLAB		
Six	2 hours	Plotting 2D methods	Plotting functions		
Seven	2 hours	Midterm Exam	Midterm Exam		
Eight	2 hours	Plotting 3D methods	Plotting 3D		
Nine	2 hours	Plotting multiple plots	Plotting multiple plots		
Ten	2 hours	Conditional statement: if	Conditional statement: if		
Eleven	2 hours	Conditional statement: Switch	Conditional statement: Switch		

Twelve	2 hours	For – end loop with series	For – end loop		
Thirteen	2 hours	While – end loop with series	While – end loop		
Fourteen	2 hours	Integration & differentiation	Integration & differentiation		
Fifteen	2 hours	Final Exam	Final Exam		

### 11.Course Evaluation

*Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc*  
 20% Homework (10% Homework+10% Quiz), 25% Midterm Exam, 5% Attendance, 50% Final exam

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. MATLAB an Introduction with Applications 2. An Introduction to Programming and Numerical Methods in MATLAB
Main references (sources)	
Recommended books and references (scientific journals, reports...)	BASICS OF MATLAB and Beyond
Electronic References, Websites	



## Course Description Form

<b>1. Course Name:</b>					
Electromagnetic fields					
<b>2. Course Code:</b>					
LOPC 223					
<b>3. Semester / Year:</b>					
2023-2024					
<b>4. Description Preparation Date:</b>					
Dec, 2023					
<b>5. Available Attendance Forms:</b>					
<i>On-campus</i>					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
<i>60 hour per semester</i>					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: <i>Dr. Aya Hekmet Makki</i> Email: <i>140101@uotechnology.edu.iq</i>					
<b>8. Course Objectives</b>					
<b>A. Course Objectives</b>	<ol style="list-style-type: none"> <li>1. Give Students an Introduction to and deep study of the physical and Mathematical concepts of electricity and magnetism and any other related aspects.</li> <li>2. Build strong physical, quantitative, and analytical abilities for students to deal with static electric and magnetic theorems and conditions.</li> <li>3. Prepare students to understand and apply Maxwell's equations to solve</li> </ol>				
<b>9. Teaching and Learning Strategies</b>					
<b>B. Strategy</b>	<ol style="list-style-type: none"> <li>1. Cooperative learning with group assignments</li> <li>2. Tutorials</li> <li>3. Visualizing technologies during classes</li> </ol>				
<b>C. Assessment Method:</b>	<ol style="list-style-type: none"> <li>1. Final exam</li> <li>2. Midterm exam</li> <li>3. Quizzes and assignments</li> </ol>				
<b>4. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	None	Introduction to course structure	B.3	None
2	4	A.1&2	Vectors Algebra	B.1&2	C 2&3
3	4	A.1&2	Advanced Vectors Theorem	B.1&2	C 2&3
4	4	A.1&2	Electrostatic Force and Field	B.1&2	C
5	4	A.1&2	Gauss's Law and its Applications	B.1&2	C
6	4	A	DIT and DIF FFT algorithms	B	C
7	4	A	Current, Potentials and Capacitance	B	C
8	4	A	Electrostatic Boundary Condition	B.1 & B.2	C
9	4	A	Introduction to Steady Magnetics	B.1&2	C
10	4	A	Magnetic Force and Gauss Law	B.1&2	C

<b>11</b>	4	A	Ampere's Law and its Applications	B.1&2	C
<b>12</b>	4	A	Magnetic Field in Matters	B.1&2	C
<b>13</b>	4	A	Magnetic Field Boundary Condition	B.1&2	C
<b>14</b>	4	A	Faraday's Law and Maxwell's Eqs.	B.1&2	C
<b>15</b>	4	A	Final Exam	None	C

### 5. Course Evaluation

*Attendance : 5%*

*Assignments : 10%*

*Quizzes : 5%*

*Midterm exam : 20%*

### 6. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Introduction to Electrodynamics by Griffith
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. <i>Course Name:</i>	
<b>English Language</b>	
2. <i>Course Code:</i>	
LOPC326	
3. <i>Semester / Year:</i>	
2 <sup>nd</sup> / 2024	
4. <i>Description Preparation Date:</i>	
24\4\2024	
5. Available Attendance Forms:	
<i>In class</i>	
6. Number of Credit Hours (Total) / Number of Units (Total)	
<b>2 Hours</b>	
7. Course administrator's name (mention all, if more than one name)	
<i>Name: Duaa Hammoud</i> <i>Email: doaa.h.dayyir@uotechnology.edu.iq</i>	
8. Course Objectives	
<p><b>Course Objectives</b></p> <ul style="list-style-type: none"> <li>To enable the students comprehend the spoken form</li> <li>To develop students ability to use English in day-to-day life and real life situation</li> <li>To understand the written text and able to use skimming, scanning skills</li> </ul> <p>To write simple English to express ideas etc</p>	<ul style="list-style-type: none"> <li>To enable the students comprehend the spoken form</li> <li>To develop students ability to use English in day-to-day life and real life situation</li> <li>To understand the written text and able to use skimming, scanning skills</li> </ul> <p>To write simple English to express ideas etc</p>

## 9. Teaching and Learning Strategies

### Strategy

- Identify genres, conventions, and period-specific discourses and their relevance to broader historical forces.
- Describe their own writing practices and how they have evolved.
- Apply relevant theoretical concepts to literary or other texts and practices
- Students will heighten their awareness of correct usage of English grammar in writing and speaking.
- Students will improve their speaking ability in English both in terms of fluency and
- Comprehensibility.

## 10. Course Structure

Week	Hours	Module Topic \ Title	Teach				
1	2	<b>Getting to know you</b>					
2	2	<b>Whatever makes you happy</b>					
3	2	<b>What's in the news</b>					
4	2	<b>Eat, drink and be merry</b>					
5	2	<b>Looking forward</b>					
6	2	<b>The way I see it</b>					
7	2	<b>Living history</b>					
8	2	<b>Girls and boys</b>					
9	2	<b>Time for a story</b>					
10	2	<b>Our interactive world</b>					
11	2	<b>Life's what it make you</b>					
12	2	<b>Just wondering</b>					

13	2	<b>Be happy</b>						
14		<b>Mid Term Exam</b>						
15		<b>Review Lecture</b>						

### 11.Course Evaluation

Pre-requisites	Pass the second year of BSc level
Min. No. of Students	10
Max. No. of Students	35

### 12.Learning and Teaching Resources

<ul style="list-style-type: none"> <li>1- Lecture Methods (lecture)</li> <li>2- Dialogue modalities</li> <li>3- Methods centered on the learner's activity (paper and oral tests)</li> </ul>	
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## Course Description Form

<b>1. Course Name:</b>					
<i>AC Circuit Electrical Analysis II</i>					
<b>2. Course Code:</b>					
<i>LOPC 221</i>					
<b>3. Semester / Year:</b>					
<i>2023 - 2024</i>					
<b>4. Description Preparation Date:</b>					
<i>24.4.2024</i>					
<b>5. Available Attendance Forms:</b>					
<i>On-campus</i>					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
<i>30 hours</i>					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
<i>Name: Dr. Saad Zahraw Sekhi</i>					
<i>Email: 140094@uotechnology.edu.iq</i>					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>	<ol style="list-style-type: none"> <li><i>1.To develop problem solving skills and understanding of Ac circuit theory through the application of techniques.</i></li> <li><i>2.This course deals with the basic concept of Ac electrical circuits.</i></li> <li><i>3. To understand the types of powers in Ac electrical circuits.</i></li> <li><i>4.To study the rms and average power.</i></li> <li><i>5. To study the Apparent power.</i></li> <li><i>6. To study the reactive power.</i></li> <li><i>7. To study the resonance circuits.</i></li> <li><i>8. To perform series and parallel Ac circuit analysis.</i></li> <li><i>9. To study the filters circuits.</i></li> </ol>				
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>	<p><i>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, by looking at a lot of homework, doing calculations, and by connecting some circuits in the lab.</i></p>				
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>

1	2	Recognize the power types in Ac electrical circuits.	Power (AC)	The following prominent methods for effective instruction in Ac circuits include the Problem-solving method, Lecture method, Questioning method, and Discovery method. Problem-solving is the most independent learning method used in teaching Ac circuits and empowers the students to initiate their own learning.	Divide students into different groups and ask them to solve the Equations depending on their syllabus- then assess them. 1. Homework 2. Midterm exam 3. Final exam
2	2	Recognize the power types in Ac electrical circuits.	Power (AC)		
3	2	Describe average, apparent, and reactive power in electrical circuits.	Power (AC)		
4	2	Describe average, apparent, and reactive power in electrical circuits.	Power (AC)		
5	2	Study the resonance in electrical circuits	resonance		
6	2	Study the resonance in electrical circuits	resonance		
7	2	Study the resonance in electrical circuits	resonance		
8	2	Analysis series resonance circuits.	resonance		
9	2	Analysis series resonance circuits.	resonance		
10	2	Analysis parallel resonance circuits.	resonance		
11	2	Analysis parallel resonance circuits.	resonance		
12	2	Study the filters types	filters		
13	2	Study the filters types	filters		
14	2	Study the filters types	filters		
15	2	Study the filters types	filters		

#### 11. Course Evaluation

Quizzes & Homework: 10 %

the attendance: 5 %

Evaluation: 5 %

Midterm Exam: 20 %

Final Exam: 60 %

#### 12. Assignments

Required textbooks (curricular books, if any)

Robert L Boylestad, *Introductory Circuit Analysis, 12th ed.*  
Pearson Education Limited 2014.

Main references (sources)

Robert L Boylestad, *Introductory Circuit Analysis, 12th ed.*  
Pearson Education Limited 2014.

Recommended books and references  
(scientific journals, reports...)

Electronic References, Websites

## Course Description Form

1. <i>Course Name:</i>	
Probability and Engineering Statistics	
2. <i>Course Code:</i>	
LOPC224	
3. <i>Semester / Year:</i>	
2 <sup>nd</sup> / 2024	
4. <i>Description Preparation Date:</i>	
2024-02-01	
5. <i>Available Attendance Forms:</i>	
<i>On Campus</i>	
6. <i>Number of Credit Hours (Total) / Number of Units (Total)</i>	
60 / 4	
7. <i>Course administrator's name (mention all, if more than one name)</i>	
Name: <i>Lec. Dr. Taif A. Faisal</i> Email: <a href="mailto:taif.a.faisal@uotechnology.edu.iq">taif.a.faisal@uotechnology.edu.iq</a>	
8. <i>Course Objectives</i>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• <b>Providing students with a general knowledge of probability theories and their scientific applications</b></li> <li>• <b>Equipping students with the essential tools for statistical analyses.</b></li> <li>• <b>Fostering understanding through real-world statistical applications</b></li> </ul>
9. <i>Teaching and Learning Strategies</i>	
<b>Strategy</b>	<p><i>A- Knowledge and Understanding</i></p> <p><i>A1: Develop problem-solving techniques needed to accurately calculate probabilities.</i></p> <p><i>A2: Apply problem-solving techniques to solving real-world events</i></p> <p><i>A3: Apply selected probability distributions to solve problems</i></p> <p><i>A4: Present the analysis of derived statistics to all audiences</i></p> <p><i>B- Subject-specific skills</i></p> <p><i>B1: Using Software tools that help evaluate the student level in day-to-day statistical use</i></p> <p><i>B2: Applying implementation of probability objects and critical thinking skills</i></p> <p><i>1- Group participation.</i></p> <p><i>2- Homework</i></p> <p><i>3- Quizzes</i></p>



4- Reports  
 5- Mid-term exam  
 6- Final exam  
 C- Thinking Skills  
 C1: Support mental ability to understand basic probability roles  
 C2: Support decision making statistical approach  
 C3: Support Application and software skills and implementation  
 1- Group participation.  
 2- Homework  
 3- Quizzes  
 4- Reports  
 5- Mid-term exam  
 6- Final exam  
 D- General and Transferable Skills (other skills relevant to employability and personal development)  
 D1: Using Microsoft Excel  
 D2: Using SPSS Software  
 D3: Apply Knowledge to everyday life events  
 D4: Apply knowledge to different scientific realms

#### 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 <sup>st</sup>	2	The student Understand the Lesson	Sample Space	1,2,3,4	1-4
2 <sup>nd</sup>	2	The student Understand the Lesson	General Probability	1,2,3,4	1-4
3 <sup>rd</sup>	2	The student Understand the Lesson	Permutation and Combination	1,2,3,4	1-4
4 <sup>th</sup>	2	The student Understand the Lesson	Conditional Probability	1,2,3,4	1-4
5 <sup>th</sup>	2	The student Understand the Lesson	Discrete Random Variables	1,2,3,4	1-4
6 <sup>th</sup>	2	The student Understand	Probability Distribution	1,2,3,4	1-4

		<i>the Lesson</i>	<i>Functions (PDF)</i>		
7 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Special Discrete Distribution Functions</i>	1,2,3,4	1-4
8 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Continuous Distribution Functions</i>	1,2,3,4	1-4
9 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Special Continuous Distribution Functions</i>	1,2,3,4	1-4
10 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Introduction to Statistics</i>	1,2,3,4	1-4
11 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Understanding Statistical Plots</i>	1,2,3,4	1-4
12 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Statistical Methods</i>	1,2,3,4	1-4
13 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Parametric and Nonparametric Analysis</i>	1,2,3,4	1-4
14 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>SPSS</i>	1,2,3,4	1-4
15 <sup>th</sup>	2	<i>The student Understand the Lesson</i>	<i>Variable Analysis</i>	1,2,3,4	1-4

### 11.Course Evaluation

*Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc*

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)

*Hwei P. Hsu , "Theory and Problems of Probability, Random Variables, and Random Processes", McGraw Hill, 1997*

Main references (sources)

**Ronald E. Walpole "Probability and Statistics for Engineers and Scientists" 9<sup>th</sup> Edition, 2021, Pearson**

Recommended books and references (scientific journals, reports...)	<i>Murray R. Spiegel, "Probability and Statistics", 4<sup>th</sup> edition, McGraw Hill, 2013</i>
Electronic References, Websites	<a href="http://www.jmap.org">www.jmap.org</a>

## Course Description Form

<b>1. Course Name:</b>					
Imaging system					
<b>2. Course Code:</b>					
OPE222					
<b>3. Semester / Year:</b>					
SECOND SEMESTER 2023-2024					
<b>4. Description Preparation Date:</b>					
24/4/2024					
<b>5. Available Attendance Forms:</b>					
Full Physical attendance					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
30= 15* 2hours/ / credit 2					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Zahraa Sabeeh Qasim Alshaikhli Email: <a href="mailto:zahraa.s.qasim@uotechnology.edu.iq">zahraa.s.qasim@uotechnology.edu.iq</a>					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>	Considering the following basic questions: What is an image and how is it distinguished from each other? Where did it come from, where does it go, and what are its basics and characteristics? What are the effects on genes, physics, physics, devices and modern imaging systems? How are images formed? How is it affected and influenced by surveillance? How do we evaluate the performance of such pressure different systems What is aberration and how does it affect photography? And how is it treated? A what kinds				
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>	1- Lecture Methods (lecture) 2- Dialogue modalities 3- Methods centered on the learner's activity (paper and oral tests)				
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learning and understanding	What is Im Processing	1,2,3	1-4
2	2	Learning understanding	A Generalized Im Processing System	1,2,3	1-4
3	2	Learning understanding	Lightand Opt Imaging Systems	1,2,3	1-4
4	2	Learning understanding	Luminous Transfer Simple Optical Syster	1,2,3	1-4

5	2	Learning understanding	The Cosine <sup>4</sup> Law Vignetting	1,2,3	1-4		
6	2	Learning understanding	Aberration	1,2,3	1-4		
7	2	Learning understanding	Diffraction	1,2,3	1-4		
8	2	Learning understanding	The Linearity of Opt Systems	1,2,3	1-4		
9	2	Mid term exam					
10	2	Learning understanding	The Quantum Nature Light	1,2,3	1-4		
11	2	Learning understanding	Shot Noise	1,2,3	1-4		
12	2	Learning understanding	Other Noise Sources	1,2,3	1-4		
13	3	Final exam					

### 11.Course Evaluation

- Daily Duties
- Monthly Reports
- Mid Term Exam
- Final Exam

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Electronic Imaging Systems, Some Aspects of Image Processing Springer Series in Information Sciences Editors: Thomas S. Huang Teuvo Kohonen Manfred R. Schroeder Managing Editor: H. K. V. Lotsch. Introduction To Aberrations In Optical Imaging Systems, Jose´ Sasia´ N Optical design fundamentals for infrared systems / Max J. Riedl. ed.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. Course Name:	
AC Circuits Electrical Analysis I	
2. Course Code:	
LOPC213	
3. Semester / Year:	
1 <sup>st</sup> /Second year	
4. Description Preparation Date:	
24/4/2024	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours(week)/2 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Lec. Dr. Esraa kahtan Hamed Email: Esraa.K.Hamed@uotechnology.edu.iq	
8. Course Objectives	
<b>Course Objectives</b>	This course deals with the basic concept of electrical ac circuits. It aims to develop problem solving skills and understanding of circuit theory through the application of techniques by understand sinusoidal waveforms and phasors, analyze the electrical circuits under ac currents.
9. Teaching and Learning Strategies	
<b>Strategy</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.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge and Understanding	Sinusoidal Alternating Waveforms_1	Lectures	Discussion Home works Quizzes
2	2	Knowledge Understanding	Sinusoidal Alternating Waveforms_2	Lectures	=
3	2	=	Average and RMS Values	Lectures	=
4	2	=	The Basic Elements and Phasors	Lectures	=
5	2	=	Solving Problems	Lectures	=
6	2	=	The Basic Elements and Phasors	Lectures	=
7	2	=	Mid-Term Exam	Lectures	=
8	2	=	Complex Numbers	Lectures	=
9	2	=	Phasors	Lectures	=
10	2	=	Solving Problems	Lectures	=
11	2	=	Series ac Circuits	Lectures	=
12	2	=	Parallel ac Circuits	Lectures	=
13	2	=	Series and Parallel ac Circuits	Lectures	=
14	2	=	Series -Parallel ac Circuits II	Lectures	=
15	2	=	Solving problems	Lectures	=
11. Course Evaluation					
Home works =5M Sudden exams=5M Mid Term exam=20M The student's performance=5M Discussions=5M Final Exam=60M					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			- Introductory Circuit Analysis, Robert L Boylestad, Twelfth Edition, 2014.		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			Lecture Notes		
Electronic References, Websites			---		

## Course Description Form

<b>1. Course Name:</b>					
Semiconductor devices					
<b>2. Course Code:</b>					
LOPCL325					
<b>3. Semester / Year:</b>					
2 <sup>nd</sup> semester/2023-2024					
<b>4. Description Preparation Date:</b>					
24/4/2024					
<b>5. Available Attendance Forms:</b>					
Attendance in the classroom					
<b>6. Number of Credit Hours (Total) / Number of Units (Total):</b>					
56/4					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Prof.Dr.Abdulhadi Kadhim Email: Abdulhadi.k.judran@uotechnology.edu.iq					
<b>8. Course Objectives</b>					
Course Objectives			<b>Teaching third-year students semiconductor materials</b> <b>How to form energy packs</b> <b>Types of these materials according to the energy gap</b> <b>Charge carriers and their transport methods</b> <b>The process of manufacturing devices and their specifications and applicaions.</b>		
<b>9. Teaching and Learning Strategies</b>					
Strategy		Learn , understand and application			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Engineering i laser and .. optoelectronic	structure of atoms . hydrogen atom -2 many- electron atoms 1-3 degeneracy of energy levels in free atoms 1-4 formation of energy bands in crystals -5 filling of energy	Attendanc in the classroom	QUIZES Reports Mid. Exam Final exam



			<p>ands by electrons  6 division of solids  into conductors ,  miconductors and  dielectrics  -Band structure of  semiconductors  l free electrons and  holes  2-2 types of  semiconductors  -3 Intrinsic (pure)  Extrinsic (doping)  2-5 the general  uations of intrinsic  and Extrinsic  semiconductor  semiconductor in  Equilibrium  none- Equilibrium  Excess carriers in  semiconductor  2-6 movement of  change carrier in  miconductor (major  an min carriers)  -7 Hall effect and  carrier density  8 photoconduction  absorption of light  2-9 Avalanche  breakdown ,  reakdown devices  1- UJT  2- SCR  3- Triac  4- Diac  5- SCS  ontact phenomena  3-1 Metal -  miconductor contact  -2 Fermi-level in  semiconductor</p> <p>4- Semiconductor  odes and junction  transistors  . P-N junction (Zero  plied bias , forward  biasing , reverse  biasing )  junction transistor  Bipolar transistor  -3 Tunnel Diodes  4-4 Field effect  transistor (JFET  ,MOSFET[ DE-  OSFET,E-MOSFET])</p>		
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			-5 Semiconductor injection ( Diode ) laser 6 semiconductor at present and future		
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### 11.Course Evaluation

The course is evaluated through daily and surprise examinations and monthly oral and written examinations

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Semiconductor physics and devices by Neamen , 3 <sup>rd</sup> edition
Main references (sources)	Semiconductor devices physics and Technology by Sze , 2 <sup>nd</sup> edition
Recommended books and references (scientific journals, reports...)	<b>Solid state electronic devices by streetman, 4<sup>th</sup> edition</b>
Electronic References, Websites	

## Optics Course Description

<b>1. Course Name:</b>					
optics					
<b>2. Course Code:</b>					
OPE 323					
<b>3. Semester / Year:</b>					
Second semester 2024					
<b>4. Description Preparation Date:</b>					
23/4/2024					
<b>5. Available Attendance Forms:</b>					
In class delivery mode					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
Two Hour per week (30 Hps) / 2 Credit unit					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Marwa Sabah Mohsin Email: <a href="mailto:Marwa.S.mohsin@uotechnology.edu.iq">Marwa.S.mohsin@uotechnology.edu.iq</a>					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>display the main optical phenomena and their requirements</li> <li>derive the mathematical representation for this optical phenomena</li> <li>Study the most important application in optical system</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ol style="list-style-type: none"> <li>1. Knowledge and understanding</li> <li>2. Derive most important law</li> <li>3. Mathematical solution</li> </ol>			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Two	1	introduction	Lectures	ALL
2	Two	1	superposition of waves and sine wave	Lectures	ALL
3	Two	1	superposition methods and standing wave	Lectures	ALL
4	Two	1.2	Interference and its mathematical representation	Lectures	ALL
5	Two	1.2	Types of interference and its mathematical formula	Lectures	
6	Two	1	Diffraction and its law	Lectures	All
7	Two	1	Important types of diffraction and its law	Lectures	ALL
8	Two	1.2	Med term exam	Lectures	ALL
9	Two	1.2	Polarization and its types	Lectures	ALL

10	Two	1	Polarization methods and Brewster angle	Lectures	ALL
11	Two	1	Tutorial	Lectures	ALL
12	Two	1.2	Fourier transformer in lenses	Lectures	ALL
13	Two	1.2	Fourier transformer and diffraction	Lectures	ALL
14	Two	1.2	Lecture revision	Lectures	ALL
15	Two	1.2	Final exam	Lectures	ALL

### 11.Course Evaluation

Quizzes, Med-term exam, discussion in side class , homework, final exam

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	E. Hecht ,Optics 4th addition, 2002
Main references (sources)	<ol style="list-style-type: none"> <li>1. Fowles, Grant R. Introduction to modern optics. Courier Corporation, 1989.</li> <li>2. Physical Optics, Giovanni Giusfredi, Concepts, Optical Elements, and Techniques, springer, 2019.</li> <li>3. OKAN K. ERSOY, Diffraction, Fourier Optics and Imaging, 2007</li> </ol>
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	-

## Course Description Form

<b>1. Course Name:</b>					
Engineering analysis I					
<b>2. Course Code:</b>					
LOPC311					
<b>3. Semester / Year:</b>					
1st Semester 2024					
<b>4. Description Preparation Date:</b>					
24 April 2024					
<b>5. Available Attendance Forms:</b>					
In class delivery mode					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
2 Hpw (30 Hps) / 2 Credit Units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Razi Jabur Al-azawi Email: 140009@uotechnology.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		Teaching the student how to apply mathematical functions within the field of study specialized in optics and lasers. The student also learns to use mathematics in solving scientific problems.			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ol style="list-style-type: none"> <li>1. Knowledge and Understanding</li> <li>2. Analyzing algorithms</li> </ol>			
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1	2	1	Complex Variables: Complex Numbers	Lectures	ALL
2	2	1	Complex Variables: Cauchy-Riemann Equations	Lectures	ALL
3	2	1	Complex Variables: Complex Functions	Lectures	ALL
4	2	1	Complex Variables: Integrations	Lectures	ALL
5	2	2	Fourier Analysis :Fourier Series	Lectures	ALL
6	2	2	Fourier Analysis: Odd and Even Functions	Lectures	ALL
7	2	1,2	Fourier Analysis: Half- Wave Fourier series.	Lectures	ALL
8	2	1	Fourier Analysis: Frequency spectra Transformations.	Lectures	ALL
9	2	1,2	Z Transform	Lectures	ALL

10	2	1	Laplace Transformation: Partial Fractions	Lectures	ALL
11	2	1,2	Laplace Transformation: Transformations	Lectures	ALL
12	2	1,2	Laplace Transformation: Solving Differential Equations	Lectures	ALL
13	2	1,2	Laplace Transformation: Solving Differential Equations	Lectures	ALL
14	2	1,2	Applications	Lectures	ALL
15	2	1,2	Final Examination	Lectures	ALL

### 11. Course Evaluation

Mid-term Exam, Quizzes, Final Exam, In class cooperation

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1) Erwin Kreyszig "Advanced Engineering Mathematics", 1979, John Wiley & Sons, New York. 2) Murray R. Spiegel "Advanced Calculus", 1998, McGraw-Hill book company.
Main references (sources)	1) Erwin Kreyszig "Advanced Engineering Mathematics", 1979, John Wiley & Sons, New York. 2) Murray R. Spiegel "Advanced Calculus", 1998, McGraw-Hill book company.
Recommended books and references (scientific journals, reports...)	N/A
Electronic References, Websites	N/A

## Course Description Form

<b>1. Course Name:</b>					
Engineering analysis II					
<b>2. Course Code:</b>					
LOPC321					
<b>3. Semester / Year:</b>					
2nd Semester 2024					
<b>4. Description Preparation Date:</b>					
24 April 2024					
<b>5. Available Attendance Forms:</b>					
In class delivery mode					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
2 Hpw (30 Hps) / 2 Credit Units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Razi Jabur Al-azawi Email: 140009@uotechnology.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		Teaching the student how to apply mathematical functions within the field of study specialized in optics and lasers. The student also learns to use mathematics in solving scientific problems.			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ol style="list-style-type: none"> <li>1. Knowledge and Understanding</li> <li>2. Analyzing algorithms</li> </ol>			
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1	2	1	Fourier Transform	Lectures	ALL
2	2	1	Fourier Transform :Odd and Even Functions	Lectures	ALL
3	2	1	Table transformation of Fourier Transform	Lectures	ALL
4	2	1	Laws Fourier Transform	Lectures	ALL
5	2	2	Inverse Fourier Transform	Lectures	ALL
6	2	2	Table transformation of Inverse Fourier Transform	Lectures	ALL
7	2	1,2	Laws of Inverse Fourier Transform	Lectures	ALL
8	2	1	Partial Fraction of Inverse Fourier Transform	Lectures	ALL
9	2	1,2	First order of Differential equation	Lectures	ALL

10	2	1	Separable Differential equation	Lectures	ALL
11	2	1,2	Homogenous Differential equation	Lectures	ALL
12	2	1,2	Exact Differential equation	Lectures	ALL
13	2	1,2	Linear Differential equation	Lectures	ALL
14	2	1,2	Bernoulli Differential equation	Lectures	ALL
15	2	1,2	Final Examination	Lectures	ALL

### 11.Course Evaluation

Mid-term Exam, Quizzes, Final Exam, In class cooperation

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	1) Erwin Kreyszig "Advanced Engineering Mathematics" 1979, John Wiley & Sons, New York. 2) Murray R. Spiegel "Advanced Calculus", 1968, McGraw-Hill book company.
Main references (sources)	1) Erwin Kreyszig "Advanced Engineering Mathematics" 1979, John Wiley & Sons, New York. 2) Murray R. Spiegel "Advanced Calculus", 1968, McGraw-Hill book company.
Recommended books and references (scientific journals, reports...)	N/A
Electronic References, Websites	N/A



## Course Description Form

<b>1. Course Name:</b>					
Signal and systems					
<b>2. Course Code:</b>					
LOPC312					
<b>3. Semester / Year:</b>					
1 <sup>st</sup> semester / 2023-2024					
<b>4. Description Preparation Date:</b>					
24/04/2024					
<b>5. Available Attendance Forms:</b>					
Full attendance on campus					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
2*15=30 / 2 credits					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: zahraa sabeeh qasim Email: <a href="mailto:zahraa.s.qasim@uotechnology.edu.iq">zahraa.s.qasim@uotechnology.edu.iq</a>					
<b>8. Course Objectives</b>					
<b>Course Objective</b>	Analysis and processing of signals in the time and frequency domains. Evaluation of power density spectra, electricity and energy. Evaluation of signal components using Fourier series and representation transform. Study some applications of Fourier transform such as modulation, sampling, and correlation. Analysis of linear time constant systems using response functions, impulse transfer and Fourier techniques. Study low-pass, band-pass and high-pass filters (LPF, BPF, HPF). Analysis of discrete time signals and systems using discrete Fourier transform (DFT) and fast Fourier transform. Introduction to the Discrete Fourier Transform.				
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>	Lecture Methods (lecture) Dialogue modalities Methods centered on the learner's activity (paper and oral tests)				
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learning and knowledge	Representation and classification of systems and signals		
2	2	Learning and knowledge	A signal continuous with time in the continuous time domain		
3	2	Learning and knowledge	Representation using the general Fourier series		

		knowledge			
4	2	Learning and knowledge	Energy and power signal cont		
5	2	Learning and knowledge	Spectrum of the signal		
6	2	Learning and knowledge	Fourier and its application Fourier transform		
7	2	Learning and knowledge	Conjugation functions. T analysis of continuous system time - Analysis of the t domain of the signal		
8	2	Learning and knowledge	Intermittent signals over t Discrete Fourier transf (DFT).		
9	2	Learning and knowledge	Fast Fourier transform (F DFT spectroscopy		
10	2	Learning and knowledge	Z-Transform and examples		
11	2	Learning and knowledge	Computer project - project at signals and systems		
12	2	Learning and knowledge	review		

### 11.Course Evaluation

Daily Duties  
Monthly Reports  
Mid Term Exam  
Final Exam

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	-Signals and Systems Primer with MATLAB Alexander D. Poularikas · 2018 -Signals and Systems Shaila Dinkar Apte · 2016
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. Course Name:	
Optical Wave Propagation	
2. Course Code:	
OPE324	
3. Semester / Year:	
2 <sup>nd</sup> /Third year	
4. Description Preparation Date:	
24/4/2024	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
4 hours(week)/4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Lec. Dr. Esraa kahtan Hamed Email: Esraa.K.Hamed@uotechnology.edu.iq	
8. Course Objectives	
<b>Course Objectives</b>	This course aims to give a theoretical experience in Optical fields, Applying physical fundamentals of light wave propagation in space, dielectric and conductors. And give the student a fundamental knowledge in different phenomena that produced during the optical light propagation.
9. Teaching and Learning Strategies	
<b>Strategy</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.

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Knowledge and Understanding	Review of Vector Analysis	Lectures	Discussion Home works Quizzes
2	4	Knowledge Understanding	Time-Varying Fields Maxwell's equations	Lectures	=
3	4	=	Displacement Current	Lectures	=
4	4	=	Time-Harmonic Fields	Lectures	=
5	4	=	Electromagnetic Wave Propagation	Lectures	=
6	4	=	Wave Propagation in Lossy Dielectrics	Lectures	=
7	4	=	Plane Waves in Lossless Dielectrics and Plane Waves in Free Space	Lectures	=
8	4	=	Plane Waves in Good Conductors and The Skin Depth	Lectures	=
9	4	=	Power and the Poynting Vector	Lectures	=
10	4	=	Reflection of a Plane Wave at Normal Incidence	Lectures	=
11	4	=	Reflection of a Plane Wave at Oblique incidence	Lectures	=
12	4	=	Wave Propagation in Dispersive Media	Lectures	=
13	4	=	Pulse Broadening in Dispersive Media	Lectures	=
14	4	=	Wave Polarization	Lectures	=
15	4	=	Overview on Optical Communications	Lectures	=
11. Course Evaluation					
Home works =5M Sudden exams=5M Mid Term exam=20M The student's performance=5M Discussions=5M Final Exam=60M					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			W. H. Hayt, Engineering Electromagnetics, 9th ed. , 2017.		
Main references (sources)			MATTHEW N. O. SADIKU, "ELEMENTS OF ELECTROMAGNETICS" 7th ed. ,2018.		
Recommended books and references (scientific journals, reports...)			Lecture Notes		
Electronic References, Websites			---		

## Course Description Form

<b>1. Course Name:</b>					
Signal Processing II					
<b>2. Course Code:</b>					
OPE 421					
<b>3. Semester / Year:</b>					
2 <sup>nd</sup> Semester 2024					
<b>4. Description Preparation Date:</b>					
20 April 2024					
<b>5. Available Attendance Forms:</b>					
In class delivery mode					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
2 Hpw (30 Hps) / 2 Credit Units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Kareem Hussein jawad. Email: kareem.h.jawad@uotechnology.edu.iq.					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ol style="list-style-type: none"> <li>1. .1An explanation of the medical laser applicati used in treating eyes, teeth, and skin</li> <li>2. .1An explanation of the medical laser applicati used in treating eyes, teeth, and skin</li> </ol>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ol style="list-style-type: none"> <li>1. Knowledge and Understanding</li> <li>2. Analyzing algorithms</li> </ol>			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	1	Introduction to medical laser applications	Class lectures	All methods mentioned
2	2	1	The front and back parts of the eye	Class lectures	All methods mentioned
3	2	1	The use of laser types in treatment	Class lectures	All methods mentioned
4	2	1	Posterior parts of the eye	Class lectures	All methods mentioned
5	2	2	Farsightedness, myopia, and how to treat it with laser	Class lectures	All methods mentioned
6	2	2	Methods of cataracts and how to treat them	Class lectures	All methods mentioned

7	2	1,2	Diagnosis and diseases affecting the cornea	Class lectures	All methods mentioned
8	2	1	The use of specific lasers in the iris, pupil and lens of the eye	Class lectures	All methods mentioned
9	2	1,2	The retina and the vitreous fluid	Class lectures	All methods mentioned
10	2	1	Laser applications in dentistry	Class lectures	All methods mentioned
11	2	1,2	Dental laser treatment and diagnosis	Class lectures	All methods mentioned
12	2	1,2	Study of the hard and soft tissues of teeth	Class lectures	All methods mentioned
13	2	1,2	Interactions of laser radiation with tissues	Class lectures	All methods mentioned
14	2	1,2	Types of reactions and the function of each reaction	Class lectures	All methods mentioned
15	2	1,2	Final Exam	Lectures	ALL

### 11.Course Evaluation

Mid-term Exam, Quizzes, Final Exam, In class cooperation

### 12.Learning and Teaching Resources

MEDICAL APPLICATIONS OF LASERS

Niemz, M. H., & Niemz, M. H. (2019). Medical applications of lasers. *Laser-tissue interaction fundamentals and applications*, 153-249.

Introduction to Laser-Tissue Interactions

Cox, B. (2007). Introduction to laser-tissue interactions. *PHAS*, 4886, 1-61.

## Course Description Form

1. Course Name:	
Digital Electronics	
2. Course Code:	
LE414	
3. Semester / Year:	
4 <sup>th</sup> / 2023 - 2024	
4. Description Preparation Date:	
2023-09-01	
5. Available Attendance Forms:	
On Campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 / 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Lec. Dr. Taif A. Faisal Email: <a href="mailto:taif.a.faisal@uotechnology.edu.iq">taif.a.faisal@uotechnology.edu.iq</a>	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> <li>• Providing students with a general knowledge of digital electronics and their scientific applications</li> <li>• Equipping students with the essential tools for digital circuit analysis.</li> <li>• Fostering understanding through real-world digital applications</li> </ul>
9. Teaching and Learning Strategies	
Strategy	<p>A- Knowledge and Understanding</p> <p>A1: Develop problem-solving techniques needed to accurately solve digital problems.</p> <p>A2: Apply problem-solving techniques to solving real-world applications</p> <p>A3: Apply selected theories to solve problems</p> <p>A4: Present the analysis of digital circuits to all audiences</p> <p>B- Subject-specific skills</p> <p>B1: Applying implementation of digital circuits and critical thinking skills</p> <p>1- Group participation.</p> <p>2- Homework</p> <p>3- Quizzes</p> <p>4- Reports</p> <p>5- Mid-term exam</p> <p>6- Final exam</p>

	<p>C- Thinking Skills</p> <p>C1: Support mental ability to understand basic digital design</p> <p>C2: Support strategies for complex digital design</p> <p>C3: Support Application and software skills and implementation</p> <p>1- Group participation.</p> <p>2- Homework</p> <p>3- Quizzes</p> <p>4- Reports</p> <p>5- Mid-term exam</p> <p>6- Final exam</p> <p>D- General and Transferable Skills (other skills relevant to employability and personal development)</p> <p>D1: Apply Knowledge to everyday life events</p> <p>D3: Apply knowledge to different scientific realms</p>
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**10. Course Structure**

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1 <sup>st</sup>	2	The student Understand the Lesson	Digital Concepts	1,2,3,4	1-4
2 <sup>nd</sup>	2	The student Understand the Lesson	Number System Arithmetic	1,2,3,4	1-4
3 <sup>rd</sup>	2	The student Understand the Lesson	Logic Gates and their Applications I	1,2,3,4	1-4
4 <sup>th</sup>	2	The student Understand the Lesson	Logic Gates and their Applications II	1,2,3,4	1-4
5 <sup>th</sup>	2	The student Understand the Lesson	Boolean Algebra and Logic Simplification I	1,2,3,4	1-4
6 <sup>th</sup>	2	The student Understand the Lesson	Boolean Algebra and Logic Simplification II	1,2,3,4	1-4
7 <sup>th</sup>	2	The student Understand the Lesson	Combinational Logic Analysis	1,2,3,4	1-4
8 <sup>th</sup>	2	The student	Functions of	1,2,3,4	1-4



		Understand the Lesson	Combinational Logic I		
9 <sup>th</sup>	2	The student Understand the Lesson	Functions of Combinational Logic II	1,2,3,4	1-4
10 <sup>th</sup>	2	The student Understand the Lesson	Sequential Circuits I	1,2,3,4	1-4
11 <sup>th</sup>	2	The student Understand the Lesson	Sequential Circuits II	1,2,3,4	1-4
12 <sup>th</sup>	2	The student Understand the Lesson	Sequential Circuits III	1,2,3,4	1-4
13 <sup>th</sup>	2	The student Understand the Lesson	Design of Complex digital Circuits I	1,2,3,4	1-4
14 <sup>th</sup>	2	The student Understand the Lesson	Design of Complex digital Circuits II	1,2,3,4	1-4
15 <sup>th</sup>	2	The student Understand the Lesson	Design of Complex digital Circuits III	1,2,3,4	1-4

### 11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Thomas Floyd, "Digital Fundamentals", 11th edition, Pearson, 2015
Main references (sources)	Samuel C. Lee "Digital Circuits and Logic Design" 1st edition, Prentice-Hall, 1976.
Recommended books and references (scientific journals, reports...)	M. Morris Mano, "Digital Design", 4th edition, Prentice Hall, 1995
Electronic References, Websites	<a href="https://www.youtube.com/@khanacademypartners6264">https://www.youtube.com/@khanacademypartners6264</a>

## Course Description Form

<b>1. Course Name:</b>	
Digital Electronics	
<b>2. Course Code:</b>	
LE414	
<b>3. Semester / Year:</b>	
4 <sup>th</sup> / 2023 – 2024	
<b>4. Description Preparation Date:</b>	
2023-09-01	
<b>5. Available Attendance Forms:</b>	
On Campus	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
30 / 4	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Lec. Dr. Taif A. Faisal Email: <a href="mailto:taif.a.faisal@uotechnology.edu.iq">taif.a.faisal@uotechnology.edu.iq</a>	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• Providing students with a general knowledge of digital electronics and their scientific applications</li> <li>• Equipping students with the essential tools for digital circuit analysis.</li> <li>• Fostering understanding through real-world digital applications</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<p>A- Knowledge and Understanding</p> <p>A1: Develop problem-solving techniques needed to accurately solve digital problems.</p> <p>A2: Apply problem-solving techniques to solving real-world applications</p> <p>A3: Apply selected theories to solve problems</p> <p>A4: Present the analysis of digital circuits to all audiences</p> <p>B- Subject-specific skills</p> <p>B1: Applying implementation of digital circuits and critical thinking skills</p> <p>1- Group participation.</p>

	<p>2- Homework  3- Quizzes  4- Reports  5- Mid-term exam  6- Final exam  C- Thinking Skills  C1: Support mental ability to understand basic digital design  C2: Support strategies for complex digital design  C3: Support Application and software skills and implementation  1- Group participation.  2- Homework  3- Quizzes  4- Reports  5- Mid-term exam  6- Final exam  D- General and Transferable Skills (other skills relevant to employability and personal development)  D1: Apply Knowledge to everyday life events  D3: Apply knowledge to different scientific realms</p>
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 <sup>st</sup>	2	The student Understand the Lesson	Digital Concepts	1,2,3,4	1-4
2 <sup>nd</sup>	2	The student Understand the Lesson	Number System Arithmetic	1,2,3,4	1-4
3 <sup>rd</sup>	2	The student Understand the Lesson	Logic Gates and their Applications I	1,2,3,4	1-4
4 <sup>th</sup>	2	The student Understand the Lesson	Logic Gates and their Applications II	1,2,3,4	1-4
5 <sup>th</sup>	2	The student Understand the Lesson	Boolean Algebra and Logic Simplification I	1,2,3,4	1-4

6 <sup>th</sup>	2	The student Understand the Lesson	Boolean Algebra and Logic Simplification II	1,2,3,4	1-4
7 <sup>th</sup>	2	The student Understand the Lesson	Combinational Logic Analysis	1,2,3,4	1-4
8 <sup>th</sup>	2	The student Understand the Lesson	Functions of Combinational Logic I	1,2,3,4	1-4
9 <sup>th</sup>	2	The student Understand the Lesson	Functions of Combinational Logic II	1,2,3,4	1-4
10 <sup>th</sup>	2	The student Understand the Lesson	Sequential Circuits I	1,2,3,4	1-4
11 <sup>th</sup>	2	The student Understand the Lesson	Sequential Circuits II	1,2,3,4	1-4
12 <sup>th</sup>	2	The student Understand the Lesson	Sequential Circuits III	1,2,3,4	1-4
13 <sup>th</sup>	2	The student Understand the Lesson	Design of Complex digital Circuits I	1,2,3,4	1-4
14 <sup>th</sup>	2	The student Understand the Lesson	Design of Complex digital Circuits II	1,2,3,4	1-4
15 <sup>th</sup>	2	The student Understand the Lesson	Design of Complex digital Circuits III	1,2,3,4	1-4

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Thomas Floyd, "Digital Fundamentals", 11th edition, Pearson, 2015
Main references (sources)	Samuel C. Lee "Digital Circuits and Logic Design" 1st edition, Prentice–Hall, 1976.

Recommended books and references (scientific journals, reports...)	M. Morris Mano, "Digital Design", 4th edition, Prentice Hall, 1995
Electronic References, Websites	<a href="https://www.youtube.com/@khanacademypartners6264">https://www.youtube.com/@khanacademypartners6264</a>

## Course Description Form

1. Course Name:	
Digital Signal Processing I	
2. Course Code:	
LE415	
3. Semester / Year:	
1 <sup>st</sup> / 2023	
4. Description Preparation Date:	
2023-09-01	
5. Available Attendance Forms:	
On Campus	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 / 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Lec. Dr. Taif A. Faisal Email: <a href="mailto:taif.a.faisal@uotechnology.edu.iq">taif.a.faisal@uotechnology.edu.iq</a>	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> <li>• Providing students with a general knowledge of digital signals and their scientific applications</li> <li>• Equipping students with the essential tools for digital signals analysis.</li> <li>• Fostering understanding through real-world DSP applications</li> </ul>
9. Teaching and Learning Strategies	
Strategy	<p>A- Knowledge and Understanding</p> <p>A1: Develop problem-solving techniques needed to accurately solve digital problems.</p> <p>A2: Apply problem-solving techniques to solving real-world applications</p> <p>A3: Apply selected theories to solve problems</p> <p>A4: Present the analysis of digital processing techniques to all audiences</p> <p>B- Subject-specific skills</p> <p>B1: Applying implementation of digital Signal Processing and critical thinking skills</p> <p>1- Group participation.</p> <p>2- Homework</p> <p>3- Quizzes</p> <p>4- Reports</p>

	<p>5- Mid-term exam          6- Final exam          C- Thinking Skills          C1: Support mental ability to understand basic DSP design          C2: Support strategies for complex diagram representation          C3: Support Application and software skills and implementation          1- Group participation.          2- Homework          3- Quizzes          4- Reports          5- Mid-term exam          6- Final exam          D- General and Transferable Skills (other skills relevant to employability and personal development)          D1: Apply Knowledge to everyday life events          D2: Apply knowledge to different scientific realms</p>
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**10. Course Structure**

<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1 <sup>st</sup>	2	The student Understand the Lesson	Fundamentals of Digital Signal Processing	1,2,3,4	1-4
2 <sup>nd</sup>	2	The student Understand the Lesson	Discrete-Time Signals and Systems	1,2,3,4	1-4
3 <sup>rd</sup>	2	The student Understand the Lesson	Block Diagram Representation	1,2,3,4	1-4
4 <sup>th</sup>	2	The student Understand the Lesson	Convolution	1,2,3,4	1-4
5 <sup>th</sup>	2	The student Understand the Lesson	Correlation	1,2,3,4	1-4
6 <sup>th</sup>	2	The student Understand the Lesson	Z-Transform and its Applications I	1,2,3,4	1-4
7 <sup>th</sup>	2	The student Understand the Lesson	Z-Transform and its Applications II	1,2,3,4	1-4

8 <sup>th</sup>	2	The student Understand the Lesson	Z-Transform and its Applications III	1,2,3,4	1-4
9 <sup>th</sup>	2	The student Understand the Lesson	Discrete-Time Fourier Transform (DTFT) I	1,2,3,4	1-4
10 <sup>th</sup>	2	The student Understand the Lesson	Discrete-Time Fourier Transform (DTFT) II	1,2,3,4	1-4
11 <sup>th</sup>	2	The student Understand the Lesson	Sampling	1,2,3,4	1-4
12 <sup>th</sup>	2	The student Understand the Lesson	Quantization	1,2,3,4	1-4
13 <sup>th</sup>	2	The student Understand the Lesson	Digital Filtering I	1,2,3,4	1-4
14 <sup>th</sup>	2	The student Understand the Lesson	Digital Filtering II	1,2,3,4	1-4
15 <sup>th</sup>	2	The student Understand the Lesson	Digital Filtering III	1,2,3,4	1-4

### 11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Richard C Lyons , "Understanding Digital Signal Processing", Prentice Hall, 2004
Main references (sources)	<b>John G. Proakis, and Dimitris G. Manolakis, "Digital Signal Processing: Principles, Algorithms and Applications", 3rd Edition, Prentice Hall, 1995</b>



Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	<a href="https://www.youtube.com/@KnowledgeAmplifier1">https://www.youtube.com/@KnowledgeAmplifier1</a>

## Course Description Form

<b>1. Course Name:</b>					
<b>English Language</b>					
<b>2. Course Code:</b>					
LOPC416					
<b>3. Semester / Year:</b>					
1 <sup>st</sup> semester / 2023-2024					
<b>4. Description Preparation Date:</b>					
24/4/2024					
<b>5. Available Attendance Forms:</b>					
On campus/ physical attendance					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
<b>2 H * 15 Week = 30 / 2 credits</b>					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: zahraa sabeeh qasim Email: <a href="mailto:zahraa.s.qasim@uotechnology.edu.iq">zahraa.s.qasim@uotechnology.edu.iq</a>					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		To enable the students comprehend the spoken form To develop students ability to use English in day-to-day life and real life situation To understand the written text and able to use skimming, scanning skills To write simple English to express ideas etc			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		1- Lecture Methods (lecture) 2- Dialogue modalities 3- Methods centered on the learner's activity (paper and oral tests)			
<b>10. Course Structure</b>					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learning and understanding	<b>Getting to know you</b>	1,2,3	1-4
2	2	Learning and understanding	<b>Whatever makes you happy</b>	1,2,3	1-4
3	2	Learning and understanding	<b>What's in the news</b>	1,2,3	1-4
4	2	Learning and understanding	<b>Eat, drink and be merry</b>	1,2,3	1-4
5	2	Learning and understanding	<b>Looking forward</b>	1,2,3	1-4
6	2	Learning and understanding	<b>The way I see it</b>	1,2,3	1-4
7	2	Learning and understanding	<b>Living history</b>	1,2,3	1-4
8	2	Learning and understanding	<b>Girls and boys</b>	1,2,3	1-4
9	2	Learning and understanding	<b>Time for a story</b>	1,2,3	1-4
10	2	Learning and understanding	<b>Our interactive world</b>	1,2,3	1-4

11	2	Learning and understanding	<b>Life's what it make you</b>	1,2,3	1-4
12	2	Learning and understanding	<b>Just wondering</b>	1,2,3	1-4
13	2	Learning and understanding	<b>Be happy</b>	1,2,3	1-4

### 11.Course Evaluation

Daily Duties  
 Monthly Reports  
 Mid Term Exam  
 Final Exam

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	The new Headway – pre intermediate by Jo And Liz
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## نموذج وصف المقرر

1. اسم المقرر						
اتصالات بصرية						
2. رمز المقرر						
LOPC411						
3. الفصل / السنة						
الفصل الدراسي الثاني / السنة الدراسية ٢٠٢٤						
4. تاريخ اعداد الوصف						
٢٠٢٤ / ٤ / ٢٠						
5. اشكال الحضور المتاحة						
حضور						
6. عدد الساعات الدراسية (الكلي) / عدد الوحدات (الكلي)						
4 ساعة اسبوعياً (٣٠ ساعة اسبوعياً) / 4 وحدة						
7. اسم مسؤول المقرر الدراسي						
الاسم: أ.د. عبدالله خضير عباس						
الايمل: Abdulla.k.abass@uotechnology.edu.iq						
8. اهداف المقرر						
<p>1. مقدمة على الاتصالات الضوئية وتطورها والاجيال التي تم العمل بها حتى الان.</p> <p>2. شرح مكونات منظومات الاتصالات الضوئية بصورة عامة</p> <p>3. شرح انواع وسط الانتقال في منظومات الاتصالات الضوئية مثل الليف الضوئي و الفضاء الحر.</p> <p>4. شرح المشاكل التي تواجه المصمم لمنظومات الاتصالات الضوئية مثل التوهين والتشتت.</p> <p>5. شرح طرق معالجة المشاكل التي تواجه المصمم لمنظومات الاتصالات الضوئية مثل المضخمات الضوئية ومعوذات التشتت.</p>						
9. استراتيجيات التعليم والتعلم						
<p>1. المعرفة والفهم</p> <p>2. تحليل منظومات الاتصالات الضوئية</p>						
10. بنية المقرر						
الأسبوع	الساعات	مخرجات المطلوبة	التعلم	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم
1	4	1		مقدمة عن الاتصالات الضوئية	محاضرات صفية	جميع الطرق المذكورة
2	4	2,3		الليف الضوئي وانواعه	محاضرات صفية	جميع الطرق المذكورة
3	4	3		الفضاء الحر وانتقال الضوء فيه	محاضرات صفية	جميع الطرق المذكورة
4	4	3		الخسائر التي تصاحب انتقال الضوء في الليف الضوئي	محاضرات صفية	جميع الطرق المذكورة
5	4	3		الخسائر التي تصاحب انتقال الضوء في الفضاء الحر	محاضرات صفية	جميع الطرق المذكورة

جميع الطرق المذكورة	محاضرات صفية	المضخمات الضوئية	3,4	4	6
جميع الطرق المذكورة	محاضرات صفية	التشتت وانواعه	2,3	4	7
جميع الطرق المذكورة	محاضرات صفية	معالجة التشتت	2,3	4	8
جميع الطرق المذكورة	محاضرات صفية	طرق تحسين سرعة ارسال البيانات WDM, SDM	2,3,4	4	9
جميع الطرق المذكورة	محاضرات صفية	المرسلات في الاتصالات الضوئية	1,2,3,4	4	10
جميع الطرق المذكورة	محاضرات صفية	انواع المرسلات LED, LD	1,2,3,4	4	11
جميع الطرق المذكورة	محاضرات صفية	المستقبلات في الاتصالات الضوئية	1,2,3,4	4	12
جميع الطرق المذكورة	محاضرات صفية	منظومات الاتصالات الضوئية انواعها	1,2,3,4,5	4	13
جميع الطرق المذكورة	محاضرات صفية	مراجعة	1,2,3,4,5	4	14
جميع الطرق المذكورة	محاضرات صفية	الامتحان النهائي	1,2,3,4,5	4	15
11. تقييم المقرر					
الاختبارات المفاجئة – الاختبار الفصلي – الاختبار النهائي – الحضور – المناقشات والمشاركات الصفية					
12. مصادر التعلم والتدريس					
John M. Senior, Optical Fiber Communications Principles and Practice, Third edition, 2009			الكتب المقررة المطلوبة (المنهجية ان وجدت)		
Hemani Kaushal, Free Space Optical Communication, 2017			المراجع الرئيسية (المصادر)		
N/A			الكتب والمراجع الساندة التي يوصى بها		
N/A			المراجع الالكترونية – مواقع الانترنت		