	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	**MEDICAL PHYSICS**	**Module Delivery**	
Module Type	**SUPLEMENT**	**Theory** **Lecture** **Tutorial** **Seminar**	
Module Code	**LOEC123**		
ECTS Credits	**5**		
SWL (hr/sem)	**125**		
Module Level	1	**Semester of Delivery**	2
Administering Department	Laser & Optoelectronics	**College**	LOE
Module Leader	Mustafa Mahdi Mohsen	**e-mail**	mustafa.m.mohsen@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
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

Prerequisite module		**Semester**	

Co-requisites module		Semester	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. This course deals with the basic concept of Medical Physics. 2. Providing students with the basics of scientific knowledge in the physical principles on which many processes in the human body depend.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Make the students able to understand physical issues concerning the human body. 2. The ability to understand fluids and how pressures and forces affect them. 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. 4. Make the student able to know how vision occurs and the structure of the human eye. 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. 6. The student learns the basics of sound waves and their properties because of their great importance in medical applications. 7. The student understands the method of hearing and the structure of the human ear as well as ultrasound and its medical applications. 8. The student studies the mechanical properties of the human body, especially what is related to the skeletal system and bones. 9. The student is given basic information about radiation, radiation doses, nuclear decay and their effect on cells and the human body. 10. Understand the basics of X-rays and how they are generated due to their wide use in medical applications.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	*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.* *Discuss a phenomenon and its interpretation by watching a video.* *Each student must solve the problems at home and submit it as a report.* *Students are divided into groups or work teams to solve a problem that is identified by us.*

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	2, 4, 8, 10	LO #1, 2, 3, 6 and 7
	Assignments	2	10% (10)	2,12	LO #1, 2, 10
	Projects / Lab.	1	15% (15)	5	LO #1, 2, 3, 6 and 7
	Report	1	5% (5)	6,14	LO #1, 2, 10
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	**INTRODUCTION**
Week 2	**FLUID**
Week 3	**THE MOTION OF FLUIDS**
Week 4	**VISION AND EYES**
Week 5	**EYES IMAGE DETECTOR**
Week 6	**SOUND**
Week 7	**Midterm Exam**
Week 8	**HEARING AND ULTRASONIC WAVE**
Week 9	**ELASTIC PROPERTIES OF THE BODY**
Week 10	**BONE FRACTURES**
Week 11	**Radiation**
Week 12	**Radiation Dosimetry**

Week 13	**EFFECT OF RADIATION ON THE BODY**
Week 14	**NUCLEAR DECAY PROCESSES**
Week 15	**X-ray**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	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.
Week 2	The surface tension The aim: To calculate the surface tension of water by the capillary tube method
Week 3	Pressure and Blood Pressure The aim: Measurement of blood pressure
Week 4	Hooke's Law The aim: Confirm Hooke's law for coil springs under tension
Week 5	Bernoulli's experiment
Week 6	Archimedes' Principle The aim: Determining buoyant updraught as a function of immersion depth.
Week 7	Static and Dynamic Friction The aim: Measurement of friction forces

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	- 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
Recommended Texts	-Physics of the Human Body by Irving P. Herman - Introduction to Health Physics Fourth Edition by Herman Cember and Thomas E. Johnson	yes
Websites		

APPENDIX:

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

Note:

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

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

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	COMPUTER	**Module Delivery**	
Module Type	BASIC	**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	COMP108		
ECTS Credits	3		
SWL (hr/sem)	75		

Module Level	1	**Semester of Delivery**	1
Administering Department	Laser and Optoelectronics	**College**	LOE
Module Leader	Lec. Eman Yousif Nasir	**e-mail**	Eman.Y.Nasir@uobaghdad.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name		**e-mail**	
Review Committee Approval	30/05/2023	**Version Number**	1.0

Relation With Other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	

Co-requisites module	None	Semester	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Learning Windows 10 Pro, Copy, Cut, Paste and delete 2. Learning how to program physics, chemical, and mathematics lows in Visual Basic 3. Learning input and output methods, menu bar, toolbar, and images 4. Drawing methods
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Windows 10 Pro 2. Integrated Development Environment of Visual Basic 3. Objects, Properties, Methods, and Events 4. Input and Output methods 5. Menu bar , ToolBar, and images 6. Drawing Methods
Indicative Contents المحتويات الإرشادية	1. Learning The main icons of the desktop, start menu, and desktop, changing display and time. Copy, Cut, Paste and delete. 2. Learning Integrated Development Environment of Visual Basic. 3. Understanding Objects, Properties, Methods, and Events 4. 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. 5. Writing programs by using menu bar and tool bar, display pictures by using images. 6. Writing programs by using CheckBox and OptionButton and learn the difference between them, and use both of them within picturebox. 7. Learning drawing methods by using tools or by using methods.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1. Analyze the problem and put the procedure to solve then writing the program together and select the suitable method to solve the problem 2. Give the students another problem to be solved alone

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل		**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل		**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل			

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	5% (5)		
	Assignments	4	10% (10)		
	Projects / Lab.	3	5% (5)		
	Report	3	5% (5)		
Summative assessment	**Midterm Exam**	1 hr	25% (25)		
	Final Exam	1hr and half	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	**windows 10 Pro**
Week 2	**Visual Basic part1**
Week 3	**Visual Basic part2**
Week 4	**Constant, and variable**
Week 5	**Math function**
Week 6	**Mid Exam**
Week 7	**IO methods**
Week8	**IO methods applications**

Week9	**Menu and image**
Week10	**Menu and image applications**
Week11	**CheckBox, OptionButton, PictureBox**
Week12	**CheckBox, OptionButton, PictureBox applications**
Week13	**Drawing**
Week14	**Drawing applications**
Week15	**Final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	تعليم لغة فيجوال بيسك للمبتدئين والمتوسطين	No
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME
مخطط الدرجات

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

Note:

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

	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	ELECTRICAL CIRCUITS II		**Module Delivery**	
Module Type	CORE		**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	LOEC126			
ECTS Credits	4			
SWL (hr/sem)	150			
Module Level	1	**Semester of Delivery**	2	
Administering Department	Laser & Optoelectronics	**College**	LOE	
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**	1.0	

Relation With Other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. This course deals with the basic concept of electrical circuits. 3. This is the basic subject for all electrical. 4. To understand Kirchhoff's current and voltage Laws problems. 5. To perform mesh and Nodal analysis. 6. To understand the sinusoidal waveforms and phasors. 7. To analyze the electrical circuits under ac currents. 8. To study the rms and average power. 9. To study the resonance and filters circuits.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Recognize how electricity works in electrical circuits. 2. List the various terms associated with electrical circuits. 3. Summarize what is meant by a basic electric circuit. 4. Describe electrical power, charge, and current. 5. Define Ohm's law. 6. Identify the basic circuit elements and their applications. 7. Discuss the operations of sinusoid and phasors in an electric circuit. 8. Discuss the various properties of resistors, capacitors, and inductors. 9. Explain the two Kirchoff's laws used in circuit analysis. 10. Identify the capacitor and inductor phasor relationship with respect to voltage and current.
Indicative Contents المحتويات الإرشادية	
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	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.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	64	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	86	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	3	15(15%)		
	Assignments	1	5(5%)		
	Projects / Lab.	1	15(15%)		
	Report	5	5(5%)		
Summative assessment	**Midterm Exam**	1hr	10% (10)		
	Final Exam	3hr	50% (50)		
Total assessment			100% (100 Marks)		

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

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

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

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

	- Introductory Circuit Analysis, Robert L Boylestad, Twelfth Edition, 2014.	
Recommended Texts	Introductory AC circuit theory by K. mann and G. I. Russel.	
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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	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

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	Ministry of Higher Education and Scientific Research - Iraq 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	LOEC121			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	1		**Semester of Delivery**	2
Administering Department	Laser & Optoelectronics		**College**	LOE
Module Leader	Dr. Ali Abdulkhaleq Alwahib		**e-mail**	ali.a.alwahib@uotechnology.edu.iq
Module Leader's Acad. Title	Asst. Prof.		**Module Leader's Qualification**	PhD
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	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	• Explain the concept of graphic communication, their type, and their role in sanitary construction. • Familiarize with different drawing equipment, technical standards, and procedures for construction of geometric figures. • Equipped with the skill that enables them to convert pictorial (3-D) drawings to orthographic (2-D) drawings and vice versa. • Explain the principle and application of sectioning. • Well familiar with the purpose, procedures, materials, and conventional symbols utilized to make sketch maps.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	LO1 communicate effectively in a modern technical environment; LO2 construct and present quality engineering drawings in a well-drafted manner. LO3 present correct lettering, figures, and dimensions to a defined style and standard LO4 produce detailed Civil Engineering drawings using AutoCAD
Indicative Contents 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
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	

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

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Graphic Communication+ Drawing Equipment
Week 2	Lettering and Lines +Lettering and Lines
Week 3	Geometric Construction + Engineering drawing process
Week 4	Projection + Projection
Week 5	Section + Projection of a point, Lines, and planes
Week 6	Dimension and mapping
Week 7	Mid-term Exam
Week 8	AutoCAD Introduction
Week 9	Commands orthographic Drawing
Week 10	Commands Dimensioning Drawing
Week 11	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
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings

	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

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

	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	LOEC125		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	**Semester of Delivery**	2
Administering Department	Laser & Optoelectronics	**College**	LOE
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**	1.0

Relation With Other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	None	**Semester**	

Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. This course deals with the basic concept of Mechanical Engineering. 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. 3. Providing theoretical knowledge and linking between the principles of static science and Dynamics, and the ability to analyze and solve engineering mechanics problems. 4. Clarifying and discussing the main theoretical principles and improving teamwork ability. 5. Using different methods to solve the same problem. 6. Ensure accuracy in solving problems without any approximation. 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
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	*1. Make the students able to recognize different force systems, moments, and couples.* *2. The ability to draw Free Body Diagram and label the reactions on it.* *3. Make the students able to apply equilibrium equations in statics.* *4. Make the students able to find the center of any shape from its area or volume.* *5. The ability to understand Newton's law in motion and recognize different kinds of particle motions.* *6. Identify the equations of linear and nonlinear motion and the relationship between displacement, velocity and acceleration and represent them graphically.* *7. Recognize the movement of the hypotheses and solve the problems related to them.*
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	*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.* *Discuss a phenomenon and its interpretation by watching a video.* *Each student must solve the problems at home and submit it as a report.* *Students are divided into groups or work teams to solve a problem that is identified by us.*

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	87	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.8
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	4,10	LO #1, 2 & 5,6
	Assignments	2	10% (10)	2,12	LO # 3,4 & 6
	Projects	1	10% (10)	5	LO # 3,4
	Report	2	10% (10)	6,14	LO # 1-4 & 5-7
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-4
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Statics 1.1 Definitions and units 1.2 Force systems 1.3 Resultant
Week 2	Moments and couples
Week 3	Equilibrium
Week 4	Centroid and moment of inertia
Week 5	Friction
Week 6	Tutorial
Week 7	Mid Term Exam
Week 8	Dynamics Newton's laws of motion
Week 9	9.1 linear motion 9.2 Rectilinear motion
Week 10	The relationship between displacement, velocity, and acceleration (derivative method)

Week 11	The relationship between displacement, velocity, and acceleration (integral method)
Week 12	Graphical representation of displacement, velocity, and acceleration
Week 13	Projectile
Week 14	Tutorial
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

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

APPENDIX:

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

Note:

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