	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	PROBABILITY AND STATISTICS	**Module Delivery**	
Module Type	SUPLEMENT	**Theory** **Lecture** **Tutorial** **Seminar**	
Module Code	LOEC214		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	2	**Semester of Delivery**	4
Administering Department	Laser & Optoelectronics	**College**	LOE
Module Leader	Lec. Dr. Taif A. Faisal	**e-mail**	taif.a.faisal@uotechnology.edu.iq
Module Leader's Acad. Title	Lecturer	**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	• **Providing students with a general knowledge of probability theories and their scientific applications** • **Equipping students with the essential tools for statistical analyses.** **Fostering understanding through real-world statistical applications**
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1.
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	A- Knowledge and Understanding A1: Develop problem-solving techniques needed to accurate calculate probabilities. A2: Apply problem-solving techniques to solving real-world events A3: Apply selected probability distributions to solve proble A4: Present the analysis of derived statistics to all audiences B- Subject-specific skills B1: Using Software tools that help evaluate the student leve in day-to-day statistical use B2: Applying implementation of probability objects and criti thinking skills 1- Group participation. 2- Homework 3- Quizzes 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 a 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

Student Workload (SWL)
الحمل الدراسي للطالب

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	31	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	44	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

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

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Sample Space
Week 2	General Probability
Week 3	Permutation and Combination
Week 4	Conditional Probability
Week 5	Discrete Random Variables
Week 6	Probability Distribution Functions (PDF)
Week 7	Special Discrete Distribution Functions
Week 8	MID TERM EXAM
Week 9	Continuous Distribution Functions
Week 10	Special Continuous Distribution Functions
Week 11	Introduction to Statistics
Week 12	Understanding Statistical Plots Statistical Methods
Week 13	Parametric and Nonparametric Analysis
Week 14	SPSS Variable Analysis
Week 15	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
Required textbo (curricular books, if any	Hwei P. Hsu , "Theory and Problems of Probability, Random Variables, and Random Processes", McGraw Hill, 1997	
Main references (sourc	**Ronald E. Walpole "Probability and Statistics for Engineers and Scientists" 9th Edition, 2021, Pearson**	

Recommended books and references (scientific journals, reports…)	Murray R. Spiegel, " Probability and Statistics", 4th edition, McGraw Hill, 2013	
Electronic Referenc Websites	www.jmap.org	

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 Laser Engineering Branch	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	ELECTRONIC CIRCUITS II	**Module Delivery**	
Module Type	CORE	**Theory** **Lecture** **Lab** **Reports**	
Module Code	LOEC221		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	2	**Semester of Delivery**	4
Administering Department	Laser & Optoelectronics	**College**	LOE
Module Leader	Mohammed Fadil Abbas	**e-mail**	mohammed.f.abbas@uotechnology.edu.iq
Module Leader's Acad. Title	Professor	**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 Electronic circuits theory through the application of techniques. 2. To understand how the diode can rectify the voltage, current and then build the DC power supply. 3. This course deals with the basic concept of electronic amplifiers circuits using transistors. 4. This is the basic subject for all electronic circuits subject. 5. To understand principle of operational amplifier and how it is used to design various electronic circuits. 6. To explain the oscillation generation and active filters.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Design and analyze a multistage amplifier circuit. 2. Design and analyze a power transistor amplifier circuit. 3. Design and analyze operational amplifier circuits such as amplifiers, integrators, Comparators. 4. Design and analyze the active filters circuits using operational amplifiers. 5. Design and analyze the linear and nonlinear oscillator circuits using operational amplifiers and transistors.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: <u>Part A-Transistor amplifier applications</u> Multistage transistor amplifier, power transistor amplifier circuits (Class-A, Class-B, and Class-B Push-Pull). <u>Part B – Operational Amplifiers Circuits</u> <u>Operational Amplifiers Circuits</u>: Ideal operational amplifier (OpAmp), OpAmp circuits (inverting and noninverting amplifiers, Transimpedance amplifier, summer amplifier, integrator and comparator), active filters. <u>Part C – Oscillation and wave generation</u> Linear Oscillators, RC Phase-Shift Oscillator, LC Oscillators (Colpitts Oscillator and Hartley Oscillator), Square waveforms Generation, Triangle Waveform Generation.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is to encourage students to communicate effectively with a range of audiences by participating in the exercises. At the same time, refining and expanding their critical thinking skills are performed. 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. At end of course, the student is able to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	105	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	70	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	4	10% (10)	3, 6, 9, 12	LO #1, 2, 3, 6 and 7
	Assignments	4	10% (10)	2, 6, 11, 13	LO # 1-4, 6 and 8
	Lab.	1	15% (15)	Continuous	
	Report	1	5% (5)	13	One of LO #1-8
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-3
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Multi-Stage " Cascaded " Amplifiers
Week 2	Frequency response of Multi-Stage Amplifiers
Week 3	Power Transistor Amplifiers: Class-A and Class-B
Week 4	Power Transistor Amplifiers: Class-C
Week 5	Digital Circuits implementation
Week 6	Operational Amplifier and its characteristics
Week 7	Mid Term Exam
Week 8	Inverting and noninverting amplifiers; current-to-voltage convertors
Week 9	Summer and subtractor circuits; integrating and differentiating circuits and comparators
Week 10	Linear oscillators: RC oscillators
Week 11	Linear oscillators: LC oscillators
Week 12	Non-linear oscillators: Square and triangle Oscillators
Week 13	Active filters: LPF and HPF
Week 14	Active filters: BPF
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Multistage amplifiers
Week 2	Lab 2: Transistor power amplifiers: Class-A
Week 3	Lab 3: Transistor power amplifiers: Class-B
Week 4	Lab 4: Transistor power amplifiers: Class-C
Week 5	Lab 5: Digital circuits: NOT, OR, AND circuits
Week 6	Lab 6: Operational Amplifier: Part 1
Week 7	**Mid Term Exam**
Week 8	Lab 6: Operational Amplifier: Part 12

Week 9	Lab 7: RC- Oscillators
Week 10	Lab 8: LC - Oscillators
Week 11	Lab 9: Square waveform generator
Week 12	Lab 10: Triangle waveform generator
Week 13	Lab 11: Active Filters: LPF and HPF
Week 14	Lab 12: Active Filters: LBPF

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Electronic-Devices-and-Circuit-Theory-11th-Edition-Ebook	Yes
Recommended Texts	Microelectronic Circuits (6th edition) by Sedra and Smith	No
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	ENGLISH LANGUAGE	**Module Delivery**	
Module Type	BASIC	**Theory: Lectures** **Seminar**	
Module Code	ENLA207		
ECTS Credits	3		
SWL (hr/sem)	50		
Module Level	2	**Semester of Delivery**	1
Administering Department	Laser and Optoelectronics	**College**	LOE
Module Leader	DR. Shams Basil Ali	**e-mail**	Shams.B.Ali@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**	1.0

Relation with Other Modules
العلاقة مع المواد الدراسية الأخرى

Prerequisite module	Academic English II	**Semester**	1

Co-requisites module	None	**Semester**	None
Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
Module Aims أهداف المادة الدراسية	The objective of teaching English has two main aspects: 1. Language aspect: Words, sentences, pronunciation, spelling and grammar. 2. Literature aspect: Words, sentences, expressing ideas, feelings and experiences.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To develop the skill of speaking, reading, writing and listening 2. To enable the students for the use of grammar correctly, 3. To enable the students to analyze the element of language and establish the appropriate relationship among linguistic components 4. Improving students' oral communication and presentation skills. To enhance students' speech delivery and presentation skills		
Indicative Contents المحتويات الإرشادية	Part of speech Sentences structure Questions and negatives+ reading skill Possessive adjectives Present Simple+ writing skill can/could; was/were Past Simple 1+Past Simple 2+ writing skill Adjectives and adverbs+ vocabulary+ reading skill Question forms+ reading skill some/any; a/an 1+ listening Comparative; Superlatives+ reading skill Present Simple/Present Continuous+ writing skill Going to Past Simple/Present Perfect 1 Speaking skill + listening skill		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	1. Audio-lingual: The theory behind this method is that learning a language means acquiring habits. There is much practice of dialogues of every situation. New language is first heard and extensively drilled before being seen in its written form. 2. The Silent Way emphasizes learner autonomy. The teacher acts merely as a facilitator trying to encourage students to be more active in their learning. The main of this way of teaching is for the teacher to say very little, so students can take control of their learning. There's a big emphasis on pronunciation and a large chunk of the lesson focuses on it. This method of learning English follows a structural syllabus and grammar, vocabulary and pronunciation are constantly drilled and recycled for reinforcement. The teacher evaluates their students through careful observation, and it's even possible that they may never set a		

	formal test as learners are encouraged to correct their own language errors. 3. Online assessment as (assignments, open discussion, quizzes via Canvas).

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	43	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	3	20% (10)	3, 7, 14	1-4
	Assignments	2	20% (10)	3,5,8,11,13, 14	1-2
	Projects / Lab.	0	0%		
	Report	0	0%		
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	all
	Final Exam	2 hr	50% (50)	16	all
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Part of speech
Week 2	Sentences structure
Week 3	Questions and negatives+ reading skill
Week 4	Possessive adjectives
Week 5	Present Simple+ writing skill
Week 6	can/could; was/were
Week 7	**Mid-term exam**

Week 8	Past Simple 1+Past Simple 2+ writing skill
Week 9	Adjectives and adverbs+ vocabulary+ reading skill
Week 10	Question forms+ reading skill
Week 11	some/any; a/an 1+ listening
Week 12	Comparative; Superlatives+ reading skill
Week 13	Present Simple/Present Continuous+ writing skill
Week 14	Going to + Past Simple/Present Perfect 1
Week 15	Preparing for the exam
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	None
Week 2	None
Week 3	None
Week 4	None
Week 5	None
Week 6	None
Week 7	None

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	New headway plus/ John and Liz Soars - Elementary	Yes
Recommended Texts	Fundamentals of English grammar, Betty Schrampfer Azar, Edition: 3rd full edition with answer keys	No
Website	https://learnenglish.britishcouncil.org/general-english/word-on-the-street/oxford/oxford-university Oxford guide to English grammer by John Eastwood	

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	ELECTROMAGNETIC FIELDS	**Module Delivery**	
Module Type	CORE	**Theoretical Lectures**	
Module Code	LOEC223		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	2	**Semester of Delivery**	4
Administering Department	Laser & Optoelectronics	**College**	LOE
Module Leader	Assit. Prof. Ahmed Wael	**e-mail**	Ahmed.w.abdulwahhab@uotechnology.edu.iq
Module Leader's Acad. Title	Asst. Prof.	**Module Leader's Qualification**	M.Sc.
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	Math I, Math II, Physics of Electricity and Magnetism	**Semester**	1 and 2
Co-requisites module	Quantum Mechanics, Optical Wave Propagation	**Semester**	5 and 6

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	1. Give Students an Introduction to and deep study of the physical and Mathematical concepts of electricity and magnetism and any other related aspects. 2. Build strong physical, quantitively, and analytical abilities for students to deal with static electric and magnetic theorems and conditions. 3. Prepare students to understand and apply Maxwell's equations to solve wave propagations in various media
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Use of vectors algebra, divergence, curl, gradient and Stock's theorems to solve static electric and magnetic field problems. 2. Apply the knowledge and mathematics of static electric and magnetic field laws to explain and solve related problems of force, potential, current, capacitance, and inductance (DC and AC components). 3. Able to apply Gauss's and Ampere's laws, to determine the electric and magnetic fields values and their behaviors in different media. 4. Able to apply Faraday's law of induction to find the relation between the electric field and electromotive force. 5. Use of Maxwell's equation to raise the principles of wave propagation
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Apply the fundamental, analytical, and mathematical methods of vectors algebra. The conceptual methods of total charges and net charges, electrostatic force and field, electrostatic field lines, Gauss's law, current and potential, and electrostatic divergence and curl theorems. Further, the module will continue with an introduction to sources of magnetic field, magnetic force, Lorentz and Biot – Savart laws, the solenoids and coils, Ampere's, stocks, and Faraday's laws, and the boundary conditions. Finally, the module ends with clarification of Maxwell's era and the importance of his mathematical models used in statics description for forces unification concepts.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Computer based visualization learning strategy help to improve student's creativity to specify fields shape and concepts. Increasing student's ability to realize the concept of how electromagnetic phenomena could be dealt with in everyday life application by increasing Inquiry – based teaching strategy. This established by raising conceptual questions that motivate students to think critically during class session.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	60	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	90	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
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% (5)	5, 10	LO #1 – 5
	Assignments	5	10% (2)	2, 4, 8, 12	LO #1 – 5
	Projects / Lab.	N/A			
	Report	N/A			
Summative assessment	**Midterm Exam**	1 hr	20% (20)	7	LO # 1-7
	Final Exam	3 hr	60% (60)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Revision to vector analysis and Advanced Calculus
Week 2	The electric field
Week 3	Divergence and Curl of electrostatic field

Week 4	Electric potentials, Works, Energy, and Conductors
Week 5	Laplace's equations
Week 6	The method of images
Week 7	Separation of variables and multipole expansion
Week 8	Mid – term exam
Week 9	Electric filed in matter: Polarization, electric filed displacement, and Linear dielectric
Week 10	Static Magnetism: Lorentz and Biot – Savart Law
Week 11	Electric filed in matter: Polarization and electric filed displacement
Week 12	Magnetic Field in Matter: Magnetization, Magnetized Objects, and Auxiliary Field
Week 13	Electrodynamics: EMF, Electromagnetic Induction, and Maxwell's equations
Week 14	Conservation of Law
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Introduction to Electrodynamics, David J. Griffiths, 4th edition	No
Recommended Texts	Introduction to Electrodynamics, David J. Griffiths, 4th edition Copyright Year: 2020, dissidents.	No
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	ARABIC LANGUAGE			**Module Delivery**	
Module Type	BASIC			**Theory Lecture** **Seminar**	
Module Code	ARLA104				
ECTS Credits	2				
SWL (hr/sem)	50				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Laser & Optoelectronics		**College**	LOE	
Module Leader	Dr. Faiz .W. Yakoob		**e-mail**	Fais.w.yakoob@uotechnology.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	None		**e-mail**	None	
Peer Reviewer Name	None		**e-mail**	None	
Review Committee Approval	19/01/2025		**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. غرس الاعتزاز باللغة العربية في نفوس الطلبة والاعجاب بجواهرها وبيان أسرار لغتهم ألام وفائدتها. 2. اكساب الطلبة مجموعة من المفاهيم النحوية وتيسيرها لسلامة كتابتهم ونطقهم من زلل الخطاء. 3. تدريب الطلبة على الاساليب الصحيحة في صياغة الجملة على وفق القواعد المنطقية والخالية من الاخطاء الاملائية وغيرها. 4. بيان نواحي الجمال في الأدب العربي وابراز مواطن الاصالة والقوة في النصوص الادبية وتذوقها باختلاف العصور التي مر بها. 5. تشجيع المواهب الادبية والقدرات اللغوية عند الطلبة والكشف عن كامنها وتنميتها. 6. اطلاع الطلبة على اساليب بلاغة الكلام وقوة الصياغة من حيث الوضوح ودقة التعبير وجمال التصوير. 7. تزويد الطلبة بثروة لغوية اصيلة من خلال الامثلة والشواهد والنصوص . 8. تمكين الطلبة من التعبير عن الافكار وتسلسلها بدقة عبر الحصيلة اللغوية والتفريق بين المفردات للوصول الى المعنى المطلوب . 9. تدريب الطلبة على حسن الاداء في مواجهة الجمهور واستعمال قوة الكلمة وحجتها . 10. تدريب الطلبة على التعبير بأنواعه في حياتهم اليومية من كتابة الطلبات والتقارير والمحاضرات والملخصات وغيرها .
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	في نهاية الفصل الدراسي يتوقع من الطالب ان يكون قادراً على ان : 1. يذكر عدداً من جواهر لغتهم الام وتتبع خصائصها الرئيسة. 2. ينتج نصوصا مكتوبة وملفوظة بنحو سليم خال من الخطأ. 3. يتذوق مكامن الجمال في النصوص العربية الاصيلة. 4. يظهر الاداء اللغوي الكامن من طريق التواصل الفعال . 5. يعطي اقتباسات لغوية رصينة حجج بلاغية . 6. يسلسل الافكار في التعبير عن المعنى المراد توضيحه. 7. يحسن مواجهة الجمهور بحسن الالقاء والتقبل . 8. يمارس الكتابة الوظيفية بحسب النماذج والمهارات المحددة .
Indicative Contents المحتويات الإرشادية	1. الاطلاع على عدد من قواعد اللغة العربية النحوية والاملائية. 2. التطرق الى مجموعة من نصوص الادب العربي (شعراً ونثراً). 3. التعرف على اساليب البلاغة العربية (علم المعاني- علم البديع – علم البيان). 4. التثقيف بظواهر اللغة العربية ومحاسنها. 5. التزويد بمهارات التعبير الشفوي والكتابي بفرعيه : الابداعي والوظيفي .

Learning and Teaching Strategies

استراتيجيات التعلم والتعليم	
Strategies	1. الطريقة التكاملية في تقديم الدرس 2. طريقة النص في تقديم الدرس 3. طريقة الرحلات المعرفية (Web Quest) (الكترونية) في تقديم الدرس

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.1
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	1 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	أصول اللغة العربية وأقسام الكلام
Week 2	انتشار اللغة العربية
Week 3	الجملة العربية
Week 4	المبتدأ والخبر- الشاعر حسان بن ثابت
Week 5	البلاغة والتعبير الابداعي
Week 6	فن الخطابة

Week 7	التفريق بين الضاد والظاء
Week 8	اختبار منتصف الفصل
Week 9	كان واخواتها وان واخواتها
Week 10	الفرق بين التاء المربوطة والهاء المربوطة
Week 11	قواعد العدد والمعدود
Week 12	مهارات تصميم المخاطبات الرسمية
Week 13	رسم الهمزة
Week 14	علامات الترقيم في اللغة العربية
Week 15	مهارات الكتابة الوظيفية
Week 16	الاختبار النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	كتاب العربية العامة.	مركز التعليم المستمر
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 Department of Laser & Optoelectronic Eng.	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	HEAT TRANSFER	**Module Delivery**	
Module Type	SUPLEMENT	**Theory** **Lecture** **Tutorial** **Seminar**	
Module Code	LOEC225		
ECTS Credits	3		
SWL (hr/sem)	75		
Module Level	2	**Semester of Delivery**	4
Administering Department	Laser & Optoelectronics	**College**	LOE
Module Leader	Dr. Kareem Hussein Jawad	**e-mail**	Kareem.h.jawad@uotechnollogy .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. Aims of the course are to graduates a qualified engineers who they have theoretical experience in heat transfer in Laser and optoelectronics field. 2- This unit of study aims to provide theoretical knowledge and principles of heat transfer and the ability to analysis and solve heat problem 3- Illustration and discussion the Main Theoretical Principles of conduction, convection and radiation heat transfer it include steady and unsteady conduction with basic empirical equation in convection and radiation heat transfer. Also sun radiation is illustrated together with shape factor.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Enabling student to get the knowledge and understanding of the theoretical principles of heat transfer. 2. Understanding of Ideological philosophy of heat transfer and their applications. 3. Understanding the knowledge of using and solving heat equation for different laser application 4. At the end of the course the student should be able demonstrate knowledge and understanding of the concepts, theory and application of heat transfer problems. 5. An ability to analyze the heat problems in Laser &optoelectronics field. 6. An ability to identify, formulates, and solves heat transfer problem. 7. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.		
Indicative Contents المحتويات الإرشادية	1. An ability to apply knowledge of heat transfer in engineering field comparing then conclusion. 2. Investigation in engineering problems and find effective solutions for heat transfer problem in Laser field. 3. Ability to analysis and decision making for heat transfer problem. 4. Arranging and classifying. 5. Ability to solving problems, survey, work collectively, leadership groups.		
Learning and Teaching Strategies استراتيجيات التعلم والتعليم			
Strategies	This Course Specification provides the main features of the Theory of heat transfer for the students of 2nd year laser Engineering. Learning outcomes which gained by this course will help a typical student to achieve and demonstrate the learning opportunities that are provided during the course study and to comply with the Laser and optoelectronics engineering program specification.		

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	31	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	44	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	75		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	-	-	-	-
	Report	-	-	-	-
Summative assessment	**Midterm Exam**	1 hr	20%	7	LO # 1-7
	Final Exam	3hr	60%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	1-1 Some Characteristics of Fluids 1-2 Dimensions, Dimensional Homogeneity, and Units 1-3 Measures of Fluid Mass and Weight 1-3-1 Density 1-3-2 Specific Weight 1-4 Ideal Gas Law 1-5 Viscosity 1-6 Vapor Pressure 1-7 Surface Tension
Week 2	2-1 Pressure at a Point 2-2 Basic Equation for Pressure Field 2-3 Pressure Variation in a Fluid at Rest 2-4 Standard Atmosphere 2.5 Measurement of Pressure

Week 3	3-1 The Velocity Field 3-2 Eulerian and Lagrangian Flow Descriptions 3-3 One-, Two-, and Three-Dimensional Flows 3-4 Steady and Unsteady 3-5 Newton's Second Law—The Linear Momentum and Moment of Momentum Equations 3-6 Derivation of the Linear Momentum Equation 3-7 Application of the Linear Momentum 3-8 Equation Derivation of the Energy Equation 3-9 Application of the Energy Equation
Week 4	4-1 Conduction, convection and radiation heat Transfer 4-2 Thermal Conductivity 4-3 Dimensions and Units
Week 5	5-1 Steady-State Conduction— One Dimension 5-2 Introduction 5-3 The Plane-Wall 5-4 Radial Systems
Week 6	Tutorial
Week 7	Mid-term Exam
Week 8	8-1 the Overall Heat-Transfer Coefficient 8-2 Heat-Source Systems 8-3 Cylinder with Heat Sources 8-4 Conduction-Convection Systems 8-5 Fins
Week 9	9-1 Unsteady-State Conduction 9-2 Introduction 9-3 Lumped-Heat-Capacity System 9-4 Transient Heat Flow in a Semi-Infinite Solid 9-5 Convection Boundary Conditions 9-6 Multidimensional Systems
Week 10	10-1Principles of Convection 10-2 Introduction 10-3 Viscous Flow and In viscid Flow
Week 11	11-1 The Thermal Boundary Layer 11-2 Turbulent and laminar Flow in a Tube 11-3 Empirical and Practical Relations for free and Forced-Convection Heat Transfer
Week 12	12-1 Radiation Heat Transfer 12-2Introduction 12-3 Physical Mechanism and Radiation Properties
Week 13	13-1 Radiation Shape Factor and Relations between Shape Factors 13-2 Heat Exchange between Non- blackbodies 13-3 Gas Radiation and Radiation Exchange with Specular Surfaces 13-4 Solar Radiation and The Radiation Heat-Transfer Coefficient

	13-5 Application of heat transfer to laser system and laser application
Week 14	Tutorial
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1- Fundamentals of Fluid Mechanics 7th ed. By Munson, Okiishi, Huebsch, Rothmayer 2-Heat transfer 10th ed. by Holman. 3-Books and Literatures in heat transfer.	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 Technology Department of Laser & Optoelectronic Eng.	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	LASER PHYSICS			**Module Delivery**	
Module Type	CORE			**Theory** **Lecture** **Lab** **Tutorial** **Practical** **Seminar**	
Module Code	LOEC222				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level	2		**Semester of Delivery**	4	
Administering Department	Laser & Optoelectronics		**College**	LOE	
Module Leader	Dr. Aseel Abdulamer Shakaty		**e-mail**	aseel.a.alsharify@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	The course aims to develop a working knowledge and conceptual understanding of important topics in contemporary laser physics at a quantitative level. A key objective is to enable the student to undertake quantitative problem-solving relating to the design, performance and applications of lasers through thereby acquiring an ability to put such knowledge into practice by way of numerical calculations.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To introduce students with the electromagnetic radiation. 2. To familiarize the students with the laser fundamentals. 3. To introduce students with the 3 & 4 level system equations. 4. To make students familiar with the laser system. 5. To familiarize the students with the laser gain. 6. Prefacing to fluorescence phenomena. 7. Describe the basic parts of Q- Switch. 8. Identify the Gaussian laser beam. 9. Discuss the principle work in photoelectric device. 10. Discuss the various properties of mode- locking. 11. Explain the continuous and lines spectra.		
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	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	-	-	-	-
	Report	-	-	-	-
Summative assessment	**Midterm Exam**	1 hr	20%	7	LO # 1-7
	Final Exam	3hr	60%	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	1-1 Electromagnetic Radiation and its properties 1-2 Laser fundamentals and definitions
Week 2	2-1 Laser properties 2-2 Thermal equilibrium 2-3 Rate equations, Einstein relations and pop. Inversion
Week 3	3-1 3 & 4 levels system 3-2 Laser system 3-3 The Resonators
Week 4	4-1 Laser gain 4-2 Fluorescence line shape & fluorescence line width 4-3 Laser Broadening
Week 5	5-1 Loop gain 5-2 Saturation gain in cw laser Gain and output power of cw laser.

	5-3 Continues wave laser & Pulsed laser
Week 6	Tutorial
Week 7	Mid-term Exam
Week 8	8-1 Gaussian laser beam& beam divergence 8-5 Relight range
Week 9	9-1 Fresnel number 9-2 Beam focusing 9-3 Characterization of laser pulses
Week 10	10-1 Excitation of the laser with pulsed energy 10-2 Different types of pulses
Week 11	11-1 Special mechanisms for crating short pulses 11-2 Control of the duration of laser
Week 12	12-1 Q-Switch 12-2 Quality factor 12-3 Different method for Q-Switch
Week 13	13-1 Mode- locking 13-2 Control light transfer mode
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	1. Laser Electronics , THIRD EDITION JOSEPH T. VERDEYEN 2. Laser Fundamentals, SECOND EDITION WILLIAM T. SILFVAST	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.