

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Physics Fundamentals		Module Delivery	
Module Type	Support or related learning activity		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar	
Module Code	CE109			
ECTS Credits	2			
SSWL (hr/sem)	33			
USSWL (hr/sem)	17			
SWL (hr/sem)	50			
Module Level	1	Semester of Delivery		1
Administering Department	CE	College	GE	
Module Leader	Prof. Emad Talib Hashim		e-mail	emad.talib@alnaji-uni.edu.iq
Module Leader's Acad. Title		Module Leader's Qualification	Ph.D.	
Module Tutor	Prof. Emad Talib Hashim		e-mail	emad.talib@alnaji-uni.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail	
Scientific Committee Approval Date		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 Objectives أهداف المادة الدراسية	1. To introduce the principles of thermal performance of construction materials and buildings. 2. To introduce the principles of acoustic properties of buildings. 3. The students will understand the hazards of buildings.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The students will have a better understanding of the following fundamentals: 1. Thermal performance of buildings which includes Heat transfer through materials, thermal insulation and its benefits, heat gain and heat loss estimation. 2. Principles of natural ventilation, ventilation measurements, design of natural ventilation, and air-conditioning systems for different types of buildings. 3. Acoustics, Classification of sound, Absorption coefficient and its determination, and Factors affecting acoustics of buildings and their remedies. 4. Methods of sound absorptions, Absorbing materials, Noise and its measurements, Sound insulation and its measurements, Impact of noise in multistoried buildings. 5. Hazards, Seismology and seismic waves, Earthquake ground motion, Basic concepts and estimation techniques, Site effects, Probabilistic and deterministic seismic hazard analysis, and Cyclone and flood hazards. 6. Fire hazards and fire protection, Fireproofing of materials, Fire safety regulations and firefighting equipment, Prevention and safety measures. Protection against fire to be caused by A.C. Systems.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A – Thermal Performance of Buildings</u> Thermal performance of buildings, Heat transfer through materials, Thermal insulation and its benefits, Heat gain and heat loss estimation, Factors affecting the thermal performance of buildings, Thermal measurements, Principles of natural ventilation, Ventilation measurements, Design for natural ventilation, Air conditioning systems for different types of buildings. [16 hours] <u>Part B – Acoustics</u> Acoustics, Classification of sound, Absorption coefficient and its determination, Factors affecting acoustics of buildings and their remedies, Methods of sound absorptions, Absorbing materials, Noise and its measurements, Sound insulation and its measurements, Impact of noise in multistoried buildings [16 hours] <u>Part C - Hazards</u> Hazards, Seismology and seismic waves, Earthquake ground motion, Basic concepts and estimation techniques, Site effects, Probabilistic and deterministic seismic hazard analysis, Cyclone and flood hazards, Fire hazards and fire protection, Fire-proofing of

	materials, Fire safety regulations and firefighting equipment, Prevention and safety measures. Protection against fire to be caused by A.C. Systems. [16 hours]
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Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The main strategy adopted in this module is to increase the students' courage to participate in sharing their thoughts, participate in exercises and at the same time expand the grasp on their critical thinking skills and solution finding. This will be achieved through classes, interactive tutorials and exposing the students to factual examples that they can relate to their study.

Student Workload (SWL) الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	5 , 9 and 14	LO #1- #6
	Assignments	1	10% (10)	4, 8, and 13	LO #1- #6
	Seminar.	1	10%(10)	12	All
	Report	1	10% (10)	14	LO #1- #6
Summative assessment	Midterm Exam	2hr	10% (10)	8	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	Thermal performance of buildings, Heat transfer through materials, Thermal insulation and its benefits
Week 2	Heat gain and heat loss estimation, Factors affecting the thermal performance of buildings
Week 3	Thermal measurements, Principles of natural ventilation, Ventilation measurements
Week 4	Design for natural ventilation, Air conditioning systems for different types of buildings
Week 5	Acoustics, Classification of sound, Absorption coefficient and its determination
Week 6	Factors affecting acoustics of buildings and their remedies, Methods of sound absorptions
Week 7	Absorbing materials, Noise and its measurements, Sound insulation and its measurements
Week 8	Impact of noise in multi-storied buildings
Week 9	Hazards, Seismology and seismic waves, Earthquake ground motion
Week 10	Basic concepts and estimation techniques, Site effects
Week 11	Probabilistic and deterministic seismic hazard analysis
Week 12	Cyclone and flood hazards
Week 13	Fire hazards and fire protection, Fire-proofing of materials, Fire safety regulations and firefighting equipment
Week 14	Prevention and safety measures. Protection against fire to be caused by A.C. Systems
Week 15	Final Exam

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	1. Budinski, K.G. & Budinski, M.K. "Engineering Materials Properties and Selection", Prentice Hall, 2009.	Yes
Recommended Texts	1. Alexander, D. "Natural disaster", Springer (1993). 2. Gaur R.K. and Gupta S.L., Engineering Physics. Dhanpat Rai publishers, 2012. 3. Reiter, L. "Earthquake hazard analysis – Issues and insights", Columbia University Press, 1991.	No
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				