

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				
Module Title	Construction materials		Module Delivery	
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar	
Module Code	COMA 104			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	UGI	Semester of Delivery	one	
Administering Department		College	Civil Engineering	
Module Leader	Shatha Sadiq Hasan		e-mail	40045@uotechnology. Edu.iq
Module Leader's Acad. Title	Assistant Professor		Module Leader's Qualification	Ph.D.
Module Tutor			e-mail	
Peer Reviewer Name			e-mail	
Scientific Committee Approval Date	01/06/2023	Version Number	1.0	

Relation with other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		Semester	
Co-requisites module		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 understand Mechanical properties of materials .</li> <li>2. This course deals with the Types of forces, Types of stresses, Types of strains</li> <li>3. To understand basic definitions such as stress, deformation, strain</li> <li>4. To perform some tests such as (tensile strength hardness, impact) test</li> <li>5. To understand Types of materials. (Identify the metal, ceramic ,polymers, glass materials)</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. List the various terms associated with properties of materials .</li> <li>2. Summarize what is meant by modulus of elasticity, Poisson's ratio.</li> <li>3. Describe stress-strain curve .</li> <li>4. Define Hook's law.</li> <li>5. Identify the ceramic materials such as (Bricks),( Classification, manufacture, properties of brick, durability, standard tests and specifications, other types of brick).</li> <li>6. Discuss the measuring engineering and true tensile and stress and types of stress- strain curve.</li> <li>7. Discuss the various properties ,Classification, composition, uses, and standard tests of metals.</li> <li>8. Explain the Temperature stresses and strain.</li> <li>9. Identify the types of building materials such as the metal, ceramic ,polymers, glass materials.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <p><u>Part A - Mechanical properties of materials</u> Types of forces, Describe basic definition of stress, strain and deformation , hooke's law, general expression for strain, modulus of elasticity, Poisson's ratio. [22 hrs]</p> <p>Temperature stresses and strain. [6 hrs]</p> <p>Properties of materials (impact, hardness, creep and fatigue strength). [3 hrs]</p> <p>tensile test (measuring tensile and the main factors that affect the tensile strength). [20hrs]</p> <p>Revision problem classes [6 hrs]</p>

	<p><u>Part B - Types of materials</u></p> <p>Fundamentals</p> <p>Types of materials. (Identify the metal, ceramic ,polymers, glass materials. [2 hrs]</p> <p>ceramic materials (Bricks),( Classification, manufacture, properties of brick, durability, standard tests and specifications, other types of brick). [2 hrs]</p> <p>composition, properties, standard test. Of wood [2 hrs]</p>
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### Learning and Teaching Strategies

#### استراتيجيات التعلم والتعليم

<b>Strategies</b>	<p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.</p>
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### Student Workload (SWL)

#### 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	37	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.5
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	100		

### Module Evaluation

#### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	5% (5)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	5% (5)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report			13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2 hr	15% (30)	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	Mechanical properties of materials (Types of forces, Describe basic definition of stress, deformation)
Week 2	Mechanical properties of materials (Describe basic definition of strain)
Week 3	Mechanical properties of materials (Hooke's law, general expression for strain)
Week 4	Examples on stress, strain, modulus of elasticity, Poisson's ratio
Week 5	General expression for strain
Week 6	Temperature stresses and strain
Week 7	Tests of materials (impact, hardness, creep and fatigue strength)
Week 8	Tests of materials, tensile test (measuring tensile and the main factors that affect the tensile strength)
Week 9	Stress- strain curve , measuring engineering and true tensile and stress , types of stress- strain curve
Week 10	Examples on stress- strain curve
Week 11	Mid-term Exam
Week 12	Types of materials. (Identify the metal, ceramic ,polymers, glass materials)
Week 13	Ceramic materials (Bricks),( Classification, manufacture, properties of brick, durability, standard tests and specifications, other types of brick)
Week 14	Metal (Classification, composition, properties, uses, standard tests and specifications of metals)
Week 15	Wood (composition, properties, standard tests )
Week 16	Preparatory week before the final Exam

## Delivery Plan (Weekly Lab. Syllabus)

### المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Introduction
Week 2	Lab 2: Tests of clay bricks(absorption , effloresces)
Week 3	Lab 3: Tests of clay bricks(compressive strength)
Week 4	Lab 4: Tensile test of steel
Week 5	Lab 5: Tests of bonding materials
Week 6	Lab 6: Tests of wood
Week 7	Lab 7: Final exam of Lab

## Learning and Teaching Resources

### مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	Building Materials, S.K. Dugg, 2003	No
Recommended Texts	Materials for Construction and civil Engineering,M.Clara Goncalves. Fernanda Margarido Editors, Springer	No
Websites	<a href="https://link.springer.com/book/10.1007/978-3-319-08236-3">https://link.springer.com/book/10.1007/978-3-319-08236-3</a>	

## 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.