

**Faculty of Engineering & Technology**  
**Strength and Technology of Materials 1**

**Information :**

**Course Code :** SCM 213      **Level :** Undergraduate      **Course Hours :** 3.00- Hours

**Department :** Department of Structural Engineering & Construction Management

**Instructor Information :**

Title	Name	Office hours
Professor	Mohamed Abdel Moaty Khalaf Mohamed	16
Assistant Lecturer	Youssef Ahmed Elsayed Kamaleldin Ahmed Awad	4
Teaching Assistant	Mohamed Ahmed Reda Abas Ahmed	

**Area Of Study :**

1. Identify the basic properties of Building Materials (Physical - Chemical - Mechanical) properties.
2. Recognize the Standard Specifications & Use the Codes of Practice.  
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3. Analyze the behavior of metals under static Tension, Compression, Bending, Shear & Torsion.
4. Identify the different building units from Natural Stones, Masonry, Timber, Lime & Gypsum

**Description :**

Engineering materials, Standardization, Standard specifications, Codes, Total quality concept, Technical inspection and quality control, Principles of materials science, Concrete technology: constituent materials for reinforced concrete (aggregates, cement, mixing water, admixtures, steel reinforcement), Concrete manufacturing, Mechanics of engineering materials: loads, stresses, strains, elastic constants, failure criteria, Mechanical properties, Testing machines, Strain gages, Calibration, Strength and behavior of materials under static loading (tension, compression, bending, shear, torsion, hardness), Miscellaneous conventional and Non-conventional construction materials and products.

**Course outcomes :**

**a. Knowledge and Understanding: :**

1 -	a1- List the main items of basic properties of building materials
2 -	a2- Describe the main concept of loads & safety factors in codes
3 -	a3- Define the main terms of building using stones
4 -	a4- Describe the main concept of building using timber
5 -	a5- Explain the principals of building using timber lime & gypsum

**b. Intellectual Skills: :**

1 -	b1- Calculate the values of basic properties of building materials
2 -	b2- Assess issues of loads & safety factors in codes

3 -	b3- Calculate the values of behavior of metals under static loads
4 -	b4- Analyze the system of building using stones
5 -	b5- Analyze the system of building using masonry
6 -	b6- Assess issues of building using timber lime & gypsum

**c. Professional and Practical Skills: :**

1 -	c1- Proceed test steps of the behavior of metals under static loads
2 -	c2- Prepare technical reports for building using stones
3 -	c3- Prepare technical reports for building using masonry

**d. General and Transferable Skills: :**

1 -	d1- Cooperate and communicate effectively
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**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Basic Properties of Building Materials (Physical-Chemical - Mechanical)	5	3	2
loads & safety factors in codes	10	6	4
behavior of metals under static loads	15	9	6
building using stones	10	6	4
building using masonry	10	6	4
building using timber	10	6	4
building using timber lime & gypsum	10	6	4
Revision	5	3	2

**Teaching And Learning Methodologies :**

Interactive Lec.
Discussion
Problem solving
Lab Exper.
Project
Report / Present

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
1st Mid Term Exam	15.00		
2nd Mid Term Exam	15.00		
Final exam	40.00		
lap exper	10.00		
quizzes and assignments	10.00		
report/present	10.00		

**Course Notes :**

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**Recommended books :**

- "Materials for Civil and Construction Engineering", John P. Prentice Hall, 2005

**Periodicals :**

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**Web Sites :**

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