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.
SCM 213: Strength & Technology of Materials (1) Page 2 of 6
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 -	Identify the basic properties of building engineering materials
2 -	Explain types of loadings & concept of safety factors
b.Intellectual Skills: :	
1 -	Illustrate Physical, Chemical & Mechanical properties of Building Materials
2 -	Interpret the Standard Specifications & Codes of Practice of Building Materials
3 -	Evaluate the most appropriate building materials.
c.Professional and Practical Skills: :	
1 -	Distinguish different building units

2 -	Analyze theoretically &experimentally the behavior of metals under different types of loading.
d.General and Transferable Skills: :	
1 -	Share ideas and communicate with others.
2 -	Prepare technical reports related to course topics.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Basic Properties of Building Materials (Physical-Chemical - Mechanical)	5	3	2
Standard Specifications & Codes of Practice	5	3	2
Types of Loadings & Concept of safety factors	5	3	2
Behavior of metals under static Tension	5	3	2
Behavior of metals under static Compression	5	3	2
Behavior of metals under static Bending	5	3	2
Behavior of metals under static Shear & Torsion	5	3	2
Building units from Natural Stones (Properties - Applications - Testing)	10	6	4
Building units from Masonry Units (Properties - Applications - Testing)	10	6	4
Building units from Timber (Properties - Applications - Testing)	10	6	4
Building units from Lime & Gypsum	10	6	4

Teaching And Learning Methodologies :

Lectures
Tutorials
Self-study (Search for data)

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
1st Mid Term Exam	12.50		
2nd Mid Term Exam	12.50		
Assignments	20.00		
Final exam	40.00		
Participation	10.00		
Reports	5.00		

Course Notes :

-

Recommended books :

Materials for Civil and Construction Engineers, Michael Mamlouk and John P. Zaniewski, Prentice Hall, Second Ed., ISBN: 0-13-147714-5
Egyptian code of practice, Egyptian and ASTM standards
Materials for Civil and Construction Engineering, John P. Prentice Hall.

Periodicals :

-

Web Sites :

-