

**Faculty of Engineering & Technology**

**Building Construction & Materials 1**

**Information :**

**Course Code :** ARC 241

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Architectural Engineering

**Instructor Information :**

Title	Name	Office hours
Lecturer	Nader Ibrahim Ismael Ibrahim	2
Lecturer	Dina Eid Saed Khater	1
Assistant Lecturer	Amany Medhat Hussien Khalil Mohamed	1
Teaching Assistant	AYA TAREK IBRAHEM ABDELHADY AHMED	3
Teaching Assistant	Kamal Abdeleziz Ali Selim	2

**Area Of Study :**

The aims of this course are to:

- • Build the students awareness regarding:
  - o The main conventional construction systems (load bearing walls and R.C. skeleton system)
  - o The main threats the building may experience and how to protect it.
  - o The main structural rule of thumbs used to size the structural components.
  - o Some Arabic site jargon terms.
- Train the student to:
  - o Draw some architectural details.
  - o Propose solutions for some basic constructional problems.

**Description :**

General introduction, Drawing techniques, Abbreviation symbols, Dimensioning, Technical presentation, Understanding types of structures, Wall bearing & skeleton types. Traditional Construction Method; Load bearing walls. Using brick to build load bearing elements: foundation design, walls, jack arch floors, vaults and domes. Introduction to RC skeleton system.

**Course outcomes :**

**a.Knowledge and Understanding: :**

1 -	a1. List different types of shallow foundations.
2 -	a2. Explain the loads transferring method and effect in flat and curved surfaces.
3 -	a3. List some types of: water proofing and heat insulation materials.
4 -	a4. List different brick types according to their function and manufacturing components.
5 -	a5. List some of different brick bonding methods.

6 -	a6. Choose the proper site jargon that suits the scientific term.
<b>b. Intellectual Skills :</b>	
1 -	b1. Differentiate between structural and non-structural building components.
2 -	b2. Select proper structural system accordingly with building needs, offering and limitations.
3 -	Propose building problems causes.
<b>c. Professional and Practical Skills :</b>	
1 -	c1. Construct different building structural elements in the load bearing and/or skeleton system: foundations, walls, jack arch floors, vaults, and domes.
2 -	c2. Protect different building elements against some of the surrounding threats such as: storm water, ground water, and the thermal effect of the sun rays.
3 -	c3. Use freehand sketches and engineering drafting to draw building construction details.
4 -	c4. Build physical abstracted models to illustrate some constructional problems solutions.
<b>d. General and Transferable Skills :</b>	
1 -	d1. Do simple Search for information.
2 -	d2. Manage time to meet deadlines.
3 -	d3. Refer to relevant literatures.

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	4	2	2
Terms & Structure Systems; traditional & conventional	4	2	2
English & Flemish Bonds	4	2	2
Foundations and Ground Floor.	8	4	4
Basement Floor and English court	8	4	4
Intermediate Floor: (Jack Arch)	4	2	2
Final Roof : (R.C. Slap)	4	2	2
Final Roof: Domes on Pendentives & on Squenches	8	4	4
Final Roof: Vaults	4	2	2
Skeleton System	12	6	6

**Teaching And Learning Methodologies :**

Lectures
Physical Maquette
Report
Class Work

**Course Assessment :**

Methods of assessment	Relative weight %	Week No	Assess What
Assignments/Studio work	40.00		

final exam	40.00		
In Class Quizzes	10.00		
Participation	10.00		

**Course Notes :**

Students Lecture Notes

**Recommended books :**

- a) Ching, Francis D. K.; Building Construction Illustration, 4th Ed.
- b) McKay's, W. B. et ell; Building Construction, v. I
- c) Ramsey, Sleeper; Architectural graphic standards.
- d) Mitchell, George A.; Building Construction. v. I

**Periodicals :**

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**Web Sites :**

[www.sweetscatscatalogue.com](http://www.sweetscatscatalogue.com)