

Faculty of Engineering & Technology

Building Construction & Materials 2

Information :

Course Code : ARC 242

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Department of Architectural Engineering

Instructor Information :

| Title | Name | Office hours |
|--------------------|-------------------------------------|--------------|
| Lecturer | Hala Ali Nabil Mohamed Ali | 3 |
| Lecturer | Hala Ali Nabil Mohamed Ali | 3 |
| Assistant Lecturer | Aya Osama Ahmed Kamal Aly | 1 |
| Assistant Lecturer | BASMA MOHAMED NAGIB IBRAHIM KHALIFA | 2 |
| Assistant Lecturer | Aya Osama Ahmed Kamal Aly | 1 |
| Teaching Assistant | AYA TAREK IBRAHEM ABDELHADY AHMED | |
| Teaching Assistant | Kamal Abdeleziz Ali Selim | |
| Teaching Assistant | AYA TAREK IBRAHEM ABDELHADY AHMED | |

Area Of Study :

The aims of this course are to:

Build the students awareness regarding:

- o Stairs design rules and construction methods
- o Some Arabic site jargon terms.

Train the student to:

- o Draw some architectural details.
- o Propose solutions for some basic constructional needs such as connecting or retaining different levels, bridging wall openings, and adding doors and windows.

Description :

Conventional Construction Method; Skeleton system. Using Reinforced Concrete to construct structural elements. Staircases rules and design. Retaining walls; concrete and masonry. Arches & Lintels, Doors and Windows.

Course outcomes :

a. Knowledge and Understanding :

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| 1 - | a1. Define active and passive loads that act on retaining walls. |
| 2 - | a2. Define the structural theory that is applied in different retaining walls design. |
| 3 - | a3. List different types of wooden doors according to the manufacturing method. |
| 4 - | a4. Define the different structural concepts that are used to construct the RC stairs. |
| 5 - | a5. List different site jargon terms that are related to arch construction. |

b. Intellectual Skills: :

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| 1 - | b1. Select proper lintel type according to opening span, offering and limitations. |
| 2 - | b2. Apply structural rule of thumb to design (schematically) retaining walls. |
| 3 - | b3. Select proper retaining wall type according to retained height. |

c. Professional and Practical Skills: :

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|-----|---|
| 1 - | c1. Apply retaining walls _safely_ to retain levels differences. |
| 2 - | c2. Apply arches and different lintels _according to their constructional material_ to bridge wall openings. |
| 3 - | c3. Draw detailed engineering drawings to execute building elements such as arches, lintels, wooden doors, stairs, and retaining walls. |

d. General and Transferable Skills: :

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|-----|------------------------------------|
| 1 - | d1. Manage time to meet deadlines. |
| 2 - | d2. Refer to relevant literatures. |

Course Topic And Contents :

| Topic | No. of hours | Lecture | Tutorial / Practical |
|--|--------------|---------|----------------------|
| Introduction: main conventional construction systems | 4 | 2 | 2 |
| Retaining Walls: Massive & Cantilever RC walls | 8 | 4 | 4 |
| Lintels & Arches | 8 | 4 | 4 |
| Stairs: U-Shaped staircase design | 8 | 4 | 4 |
| Stairs: Circular stairs Design | 8 | 4 | 4 |
| Stairs: Stones and RC stairs: Construction | 12 | 6 | 6 |
| Doors and Windows | 12 | 6 | 6 |

Teaching And Learning Methodologies :

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| Class discussions. |
| Lectures. |
| Drawing exercises in the Design studios. |
| Research assignments and presentations. |
| Information collection from different sources. |
| Site visits and field trips. |

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 :

No Course Notes.

Recommended books :

- a) Ching, Francis D. K.; Building Construction Illustration, Wiley, 4th Ed.
- b) Mckay's, W. B. et al; Building Construction, v. I
- c) Ramsey, Sleeper; Architectural graphic standards, American Institute of Architects and Dennis J. Hall
- d) Mitchell, George A.; Building Construction. v. I

Periodicals :

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Web Sites :

www.sweetscatscatalogue.com