FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

## Faculty of Engineering & Technology

## Advanced technology of Construction Materials

**Information :**

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|---|---|---|---|---|---|
| **Course Code :** | SCM 414 | **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 | 13 |
| Professor | Mohamed Abdel Moaty Khalaf Mohamed | 13 |
| Assistant Lecturer | Youssef Ahmed Elsayed Kamaleldin Ahmed Awad | 4 |
| Assistant Lecturer | Youssef Ahmed Elsayed Kamaleldin Ahmed Awad | 4 |
| Assistant Lecturer | Reham Milad Kamel Samaan | 3 |

**Area Of Study :**

Upon successful completion of this course, the student should be able to:
- Understand the basic concepts and main principles
- Calculate the values of the essential terms

Regarding advanced construction materials fibers & polymers properties fabrication techniques stiffness & strength characteristics flexural strengthening of RC with ACM shear strengthening of RC with ACM axial strengthening of RC with ACM

**Description :**

The main concern and focus of this course will be about the Advanced concrete technology, Advanced technology of finishing and insulating materials, Adapted technology of alternative building materials for low-cost construction, New developments and innovative uses of construction materials, Miscellaneous non-conventional construction materials and products : refractories, polymers and plastics, injection materials and joint sealants, composite, optical fibers, carbon fibers, Material-related failures of structures, Maintenance and repair techniques of materials in structures.

**Course outcomes :**

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| **a.Knowledge and Understanding: :** | |
| 1 - | a1- Define the main terms of advanced construction materials |
| 2 - | a2- List the main items of fibers & polymers properties |
| 3 - | a3- List the main items of fabrication techniques |
| **b.Intellectual Skills: :** | |
| 1 - | b1- Calculate the values of fibers & polymers properties |
| 2 - | b2- Solve problems regarding stiffness & strength characteristics |
| 3 - | b3- Calculate the values of flexural strengthening of RC with ACM |
| 4 - | b4- Calculate the values of shear strengthening of RC with ACM |
| 5 - | b5- Calculate the values of axial strengthening of RC with ACM |

| c.Professional and Practical Skills: : | |
|---|---|
| 1 - | c1- Prepare technical reports for fabrication techniques |
| 2 - | c2- Demonstrate presentation regarding flexural strengthening of RC with ACM |
| 3 - | c3- Demonstrate presentation regarding shear strengthening of RC with ACM |
| 4 - | c4- Demonstrate presentation regarding axial strengthening of RC with ACM |
| **d.General and Transferable Skills: :** | |
| 1 - | d1- Cooperate and communicate effectively |

**Course Topic And Contents :**

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|---|---|---|
| advanced construction materials | 10 | 6 | 4 |
| fibers & polymers properties | 10 | 6 | 4 |
| fabrication techniques | 10 | 6 | 4 |
| stiffness & strength characteristics | 10 | 6 | 4 |
| flexural strengthening of RC with ACM | 10 | 6 | 4 |
| shear strengthening of RC with ACM | 10 | 6 | 4 |
| axial strengthening of RC with ACM | 10 | 6 | 4 |
| Revision | 5 | 3 | 2 |

**Teaching And Learning Methodologies :**

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|---|
| Interactive Lec. |
| Discussion |
| Problem Solving |
| Report / Present |

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|---|---|---|---|
| Final Exam | 40.00 | | |
| Mid- Exam I, II | 30.00 | | |
| Quizzes / Assig | 15.00 | | |
| Report / Present | 15.00 | | |

**Course Notes :**

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**Recommended books :**

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**Periodicals :**

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**Web Sites :**

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