1. **Basic Information:**

|  |  |
| --- | --- |
| **Program Title** | Civil Engineering Department |
| **Department Offering the Program** | Civil Engineering Department |
| **Department Responsible for the Course** | Civil Engineering Department |
| **Course Title** | Principles of building construction |
| **Course Code** | CIE 303 |
| **Year/Level** | level 3 |
| **Specialization** | Major |
| **Authorization Date of Course Specification** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Teaching hours** | **Lectures** | **Tutorial** | **Practical** |
| 2 hours | 2 hour/week | **-** |

1. **Course Aims:**

|  |  |
| --- | --- |
| **No.** | **Aims** |
| 5 | Ability to analyze the impacts of engineering solutions on society & environment to select appropriate building materials from the perspective of strength, durability, suitability of use to location, temperature on buildings. |

1. **Intended Learning Outcomes (ILO’S):**
2. **Knowledge and understanding:**

|  |  |
| --- | --- |
| **No.** | **Knowledge and understanding** |
| A13 | Explain the different engineering principles in constructions and structures in addition to foundations, water projects, and sanitary engineering. |

1. **Intellectual Skills:**

|  |  |
| --- | --- |
| **No.** | **Intellectual Skills** |
| B14 | Create suitable construction techniques. |

1. **Professional Skills:**

|  |  |
| --- | --- |
| **No.** | **Professional Skills** |
| C2 | Use both of engineering knowledge and understanding to improve constructions and services. |

1. **General Skills:**

|  |  |
| --- | --- |
| **No.** | **General Skills** |
| D6 | Effectively manage tasks, time, and resources |

**4. Course Contents:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Topics** | **Lect.** | **Lab.** | **Exer.** |
| 1 | Study of construction science and its development | 2 | - | 2 |
| 2 | Construction technology of different types of projects | 2 | - | 2 |
| 3 | Construction Equipments | 2 | - | 2 |
| 4 | Construction schedules and programming | 2 | - | 2 |
| 5 | Effect of environment on method of construction | 2 | - | 2 |
| 6 | Contracting requirements and construction program | 2 | - | 2 |
| 7 | Safety issues during different stages of construction | 2 | - | 2 |
| 8 | Examples of construction of different types of projects (buildings, roads, RCC dams, marine works, underground structures, etc) | 4 | - | 4 |
| 9 | Building materials technology (steel , concrete , wood and natural stones) | 2 | - | 2 |
| 10 | Developing new materials (Fiber reinforced polymers, high strength concrete and ultra high strength concrete) | 4 | - | 4 |
| 11 | Applications of fiber reinforced polymers for replacing steel reinforcements and repair works | 4 | - | 4 |
| total | | 28 | - | 28 |

**5. Teaching and learning methods:**

|  |  |
| --- | --- |
| **No.** | **Teaching Methods** |
| 1 | Lectures |
| 2 | Discussion sessions |
| 3 | Information collection from different sources |
| 4 | Research assignment |
| 5 | Case studies |

**6. Teaching and learning methods for disable students:**

|  |  |  |
| --- | --- | --- |
| **No.** | **Teaching Methods** | **Reason** |
| 1 | Presentation of the course in digital material | Better access any time |
| 2 | Asking small groups to do assignments; each composed of low, medium, and high performance students. | Knowledge and skills transfer among different level of students. |

7**. Student evaluation:**

**7.1 Student evaluation method**:

|  |  |  |
| --- | --- | --- |
| **No.** | **Evaluation Method** | **ILO’s** |
| 1 | Mid Term Examination | A13, B14 |
| 2 | Semester work | C2, D6 |
| 3 | Final Term Examination | A13, B14 |

**7.2 Evaluation Schedule:**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Evaluation Method** | | **Weeks** |
| 1 | semester work | exercises an assignments | , , |
| quizes |
| reports |
| 2 | Mid Term examination | |  |
| 3 | Final term examination | |  |

**7.3 weighting of Evaluation:**

|  |  |  |
| --- | --- | --- |
| **No.** | **evaluation method** | **Weights** |
| 1 | Mid-term examination | 20% |
| 2 | Semester work | 20% |
| 3 | Final-term examination | 60% |
| TOTAL | | 100% |

**8. List of References:**

|  |  |
| --- | --- |
| **No.** | **Reference List** |
| 1 | **Course notes:** Are delivered during the lecture, including handout materials such as solved problems, design charts, tables,…etc. |
| 2 | **Essential books (text books / design codes):**   * Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001. * Design Aids and Examples in Accordance with the Egyptian Code for Design and Construction of Reinforced Concrete Structures 203-2001. |
| 3 | **Recommended books:**   * Chu-Kia Wang and Charles G. Salmon, "Reinforced Concrete Design," 4th Edition, Harper and Row Publishers, New York, 1985. * MacGregor J., "Reinforced Concrete: Mechanics and Design," Printice Hall, New Jersey, 1988. * Abdul-Rahman, Ali, “Fundamentals of Reinforced Concrete,” Faculty of Engineering, Cairo University. * Hilal, M., Theory and Design of Reinforced Concrete Tanks. |

**9. Facilities required for teaching and learning:**

|  |  |
| --- | --- |
| **No.** | **Facility** |
| 1 | Lecture classroom |
| 2 | seminar |
| 3 | White board |
| 4 | Data Show system |

**10. Matrix of knowledge and skills of the course:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **Topic** | **Aims** | **Knowledge and understanding** | **Intellectual Skills** | **Professional Skills** | **General Skills** |
| 1 | Study of construction science and its development | 5 | A13 | B14 | C2 | - |
| 2 | Construction technology of different types of projects | 5 | A13 | B14 | C2 | D6 |
| 3 | Construction Equipments | 5 |  | B14 | C2 | D6 |
| 4 | Construction schedules and programming | 5 | A13 | - | - | D6 |
| 5 | Effect of environment on method of construction | 5 | - | B14 | - | D6 |
| 6 | Contracting requirements and construction program | 5 | A13 | B14 | C2 | D6 |
| 7 | Safety issues during different stages of construction | 5 | A13 | B14 | C2 | - |
| 8 | Examples of construction of different types of projects (buildings, roads, RCC dams, marine works, underground structures, etc) | 5 | A13 | B14 | C2 | D6 |
| 9 | Building materials technology (steel , concrete , wood and natural stones) | 5 | A13 | B14 | C2 | D6 |
| 10 | Developing new materials (Fiber reinforced polymers, high strength concrete and ultra high strength concrete) | 5 | A13 | B14 | C2 | D6 |
| 11 | Applications of fiber reinforced polymers for replacing steel reinforcements and repair works | 5 | - | B14 | C2 | D6 |

**Course Coordinator :** dr / Ayman Helal

**Head of Department:** Ass.Prof. dr / khaled fawzy

**Date of Approval:**  jan 2017