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** | Reinforced Concrete (1) |
| **Course Code** | CIE 306 |
| **Year/Level** | Level 3 |
| **Specialization** | Major |
| **Authorization Date of Course Specification** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Teaching hours** | **Lectures** | **Tutorial** | **Practical** |
| 3 hours | 2 hour/week | **-** |

|  |  |
| --- | --- |
| **No.** | **Aims** |
| 3 | Design different structures systems and getting concrete dimensions by using first principles analysis and getting reinforced requirements for different elements taking into account the different application. |

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

|  |  |
| --- | --- |
| **No.** | **Knowledge and understanding** |
| A4 | Study the principles of system design elements and design with basic information and concept of mathematics. |

1. **Intellectual Skills:**

|  |  |
| --- | --- |
| **No.** | **Intellectual Skills** |
| B2 | Thinkanalytically to select the appropriate solutions for Reinforced concrete problems. |
| B5 | Solveengineering problems, often on the basis of limited and possibly contradicting information. |

1. **Professional Skills:**

|  |  |
| --- | --- |
| **No.** | **Professional Skills** |
| C3 | Create and/or re-design a process, component or system, and carry out specialized engineering designs |

1. **General Skills:**

|  |  |
| --- | --- |
| **No.** | **General Skills** |
| D2 | Work in stressful environment and within constraints. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Topics** | **Lect.** | **Lab.** | **Exer.** |
| 1 | Introduction, materials, properties | 3 | - | 2 |
| 2 | Design methods and requirements. | 3 | - | 4 |
| 3 | Load distribution | 6 | - | 4 |
| 4 | Maximum and minimum internal forces. | 3 | - | 2 |
| 5 | Working stress design methods (Flexural analysis and design, shear & torsion analysis and design, ecc. Loading analysis and design) | 9 | - | 6 |
| 6 | Limit state design method (Flexural analysis and design, shear & torsion analysis and design, ecc. Loading analysis and design) | 6 | - | 4 |
| 7 | Beam structures and introduction to design of solid slabs One and two way slabs | 6 | - | 4 |
| 8 | columns | 6 | - | 2 |
| total | | 42 |  | 28 |

1. **Course Contents:**

**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 | A4, B2 |
| 3 | Semester work | B5, C3, D2 |
| 4 | Final Term Examination | A4, B2, B5 |

**7.2 Evaluation Schedule:**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Evaluation Method** | | **Weeks** |
| 1 | semester work | exercises an assignments | , , |
| quizez |
| 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 | Introduction, materials, properties | 3 | A4 | B2 | -- | D2 |
| 2 | Design methods and requirements. | 3 | A4 | B5 | C3 | D2 |
| 3 | Load distribution | 3 |  | B2 | - | - |
| 4 | Maximum and minimum internal forces. | 3 | A4 | B5 | - | D2 |
| 5 | Working stress design methods (Flexural analysis and design, shear & torsion analysis and design, ecc. Loading analysis and design) | 3 | A4 | B2, B5 | C3 | D2 |
| 6 | Limit state design method (Flexural analysis and design, shear & torsion analysis and design, ecc. Loading analysis and design) | 3 | A4 | B5 | C3 | - |
| 7 | Beam structures and introduction to design of solid slabs One and two way slabs | 3 | A4 | B2 | C3 | - |
| 8 | columns | 3 | A4 | B5 | C3 | - |

**Course Coordinator:** ASS.Prof. dr / khaled fawzy

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

**Date of Approval:**  jan 2017