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** | Hydrology and Irrigation Engineering |
| **Course Code** | CIE 305 |
| **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** |
| 3 | Design adequate water control structures, irrigation, water networks, sewerage systems. |

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

|  |  |
| --- | --- |
| **No.** | **Knowledge and understanding** |
| A5 | Recognize methodologies of solving hydrological problems, and data collection problems. |

1. **Intellectual Skills:**

|  |  |
| --- | --- |
| **No.** | **Intellectual Skills** |
| B2 | Think creatively and analytically to select the appropriate solutions for engineering problems and system design. |

1. **Professional Skills:**

|  |  |
| --- | --- |
| **No.** | **Professional Skills** |
| C1 | Apply knowledge of mathematics, science, design, and engineering practice to solve Hydrological and irrigational problems. |

1. **General Skills:**

|  |  |
| --- | --- |
| **No.** | **General Skills** |
| D1 | Collaborate effectively within multidisciplinary team. |

**4. Course Contents:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Topics** | **Lect.** | **Lab.** | **Exer.** |
| 1 | Ground Water | 2 | - | 2 |
| 2 | Plant relationship with soil and water | 2 | - | 2 |
| 3 | Salinity and its hazardous on plants and methods of measurements | 2 | - | 2 |
| 4 | Plant water demands | 2 | - | 2 |
| 5 | Methods of irrigation (Flooding, furrow, sprinkler and drip irrigation | 2 | - | 2 |
| 6 | Canals and drains net planning | 2 | - | 2 |
| 7 | Synoptic diagram and design of sections | 4 | - | 4 |
| 8 | Drainage methods (open and subsurface drainage) | 4 | - | 4 |
| 9 | Canals lining | 4 | - | 4 |
| 10 | Accumulated water diagram for a river | 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 | 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 levels of students. |

7**. Student evaluation:**

**7.1 Student evaluation method**:

|  |  |  |
| --- | --- | --- |
| **No.** | **Evaluation Method** | **ILO’s** |
| 1 | Mid Term Examination | A5, B2 |
| 3 | Semester work | C1, D1 |
| 4 | Final Term Examination | A5, B2 |

**7.2 Evaluation Schedule:**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Evaluation Method** | | **Weeks** |
| 1 | semester work | Exercises an assignments | , , |
| Quizzes |
| 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 | Han, D., (2010). "Concise Hydrology ". Download Free Textbook at BOOKBOON.COM. P. 145. |
| 2 | Raghunath, H.M., (2006). "Hydrology Principles Analysis Design". New Age International (P) Ltd., publishers. P. 463. |
| 3 | فاروق الفتياني و أخرين (2011). "شبكات الري والصرف – التخطيط والتصميم الهندسي". الطبعة الثانية، نور الإسلام للطباعة، الإسكندرية. |

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

|  |  |
| --- | --- |
| **No.** |  |
| 1 | Seminar |
| 2 | Lecture Classroom |
| 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 | Ground Water | 3 | A5 | B2 | C1 | - |
| 2 | Plant relationship with soil and water | 3 | A5 | B2 | C1 | D1 |
| 3 | Salinity and its hazardous on plants and methods of measurements | 3 | - | - | - | - |
| 4 | Plant water demands | 3 | - | - | C1 | D1 |
| 5 | Methods of irrigation (Flooding, furrow, sprinkler and drip irrigation | 3 | - | B2 | - | - |
| 6 | Canals and drains net planning | 3 | A5 | - | C1 | D1 |
| 7 | Synoptic diagram and design of sections | 3 | A5 | - | C1 | D1 |
| 8 | Drainage methods (open and subsurface drainage) | 3 | A5 | B2 | C1 | D1 |
| 9 | Canals lining | 3 | A5 | - | - | D1 |
| 10 | Accumulated water diagram for a river | 3 | A5 | B2 | - | - |

**Course Coordinator:** Ass. Prof. Dr./ Hamdy El-Ghandour

**Head of Department:**Ass. Prof. Dr./ khaled Fawzy

**Date of Approval:** January, 2017