1. **Basic Information:**

|  |  |
| --- | --- |
| **Program Title** | Civil **Engineering** |
| **Department Offering the Program** | Civil **Engineering** |
| **Department Responsible for the Course** | **Basic science and Engineering** |
| **Course Title** | **Computer Programming** |
| **Course Code** | **ENG201** |
| **Year/Level** | **2nd level** |
| **Specialization** | **Major** |
| **Authorization Date of Course Specification** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Teaching hours** | **Lectures** | **Tutorial** | **Practical** |
| **2** | **0** | **2** |

1. **Course Aims:**

|  |  |
| --- | --- |
| **No.** | **Aims** |
| 2 | Design a system for components and process by applying computer programming basics |

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

|  |  |
| --- | --- |
| **No.** | **Knowledge and understanding** |
| **A5** | Recognize methodologies of solving engineering problems, data collection problems to identify program data specification and design flow chart. |

1. **Intellectual Skills:**

|  |  |
| --- | --- |
| **No.** | **Intellectual Skills** |
| B5 | Solve engineering problems, often on the basis of limited and possibly contradicting informationby applying some engineering algorithms on department specialization. |

1. **Professional Skills:**

|  |  |
| --- | --- |
| **No.** | **Professional Skills** |
| **C1** | Apply knowledge of mathematics, information technology, to solve engineering problems by using programming language. |

**D. General Skills:**

|  |  |
| --- | --- |
| **No.** | **General Skills** |
| D2 | Work in stressful environment and within constraints |
| D6 | Effectively manage tasks, time, and resources |

**4. Course Contents:**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Topics** | **Lectures** | **Practical** |
| 1 | Basic concepts of programming.   * problem analysis * Developing the programs charts * Structured programming | 2 | 2 |
| 2 | Introduction Java Applications   * Form of the Program * fundamentals of Java programming language and its syntax * Primitive data types, operators, variables * Joptionpane & scanner Classes. | 4 | 4 |
| 3 | Branching[Control Statements]: Part I   * If statement, If -Else, Nested IF, Switch | 2 | 2 |
| 4 | [Iterations] Control Statements: Part 2   * Repetition statements: for, while, do-while * Nested loop. * Continue, Break. | 4 | 4 |
| 5 | Concepts of object Oriented programming   * Classes, inheritance concept. | 2 | 2 |
| 6 | Methods   * Declare method * Message passing. * Method overloading | 2 | 2 |
| 7 | Arrays and Array list   * Create Array * Matrix * Array List | 4 | 4 |
| 8 | Introduction to java Applets. | 4 | 4 |
| 9 | Graphical user interface (GUI). | 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** |

**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 | **Web communication with students** | **Better communication with certain cases** |
| 3 | **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 | **Midterm examination** | A5**,** B5, C1 |
| 2 | **Semester work** | B5, C1 |
| 3 | **Final term examination** | A5**,** B5, C1, D2, D6 |

**7.2 Evaluation Schedule:**

|  |  |  |
| --- | --- | --- |
| **No.** | **Evaluation Method** | **Weeks** |
| 1 | **Midterm examination** | **08th** |
| 2 | **Semester work** | **14th** |
| 3 | **Final term examination** | **15th** |

**7.3 weighting of Evaluation:**

|  |  |  |
| --- | --- | --- |
| **No.** | **evaluation method** | **Weights** |
| 1 | **Mid-term examination** | **10%** |
| 2 | **final examination** | **60%** |
| 3 | **Practical examination** | **10%** |
| 4 | **Semester work** | **20%** |
|  | **total** | **100%** |

**8. List of References:**

|  |  |
| --- | --- |
| **No.** | **Reference List** |
| 1 | **Java for Engineering and scientists, Stephen J.chapma, 2012** |
| 2 | **How to program Java 9th edition, Paul Deitel, 2011** |

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

|  |  |  |
| --- | --- | --- |
| **No.** | **Facility** |  |
| 1 | **Lecture classroom** |  |
| 2 | **Presenter** |  |
| 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 | Basic concepts of programming. | 2 | A5 | -- | C1 | -- |
| 2 | Introduction Java Applications | 2 | A5 | -- | C1 | D2 |
| 3 | Branching[Control Statements]: Part I | 2 | A5 | B5 | C1 | D2, D6 |
| 4 | [Iterations] Control Statements: Part 2 | 2 | A5 | B5 | C1 | D2, D6 |
| 5 | Concepts of object Oriented programming | 2 | A5 | -- | C1 | D6 |
| 6 | Methods | 2 | A5 | B5 | C1 | D6 |
| 7 | Arrays and Array list | 2 | A5 | B5 | C1 | D6 |
| 8 | Introduction to java Applets. | 2 | A5 | -- | C1 | D2, D6 |
| 9 | Graphical user interface (GUI). | 2 | A5 | -- | C1 | D2, D6 |

**Course Coordinator: Dr. Yosry El-Helaly**

**Head of Department: Dr. Haythem Hussein Abdullah**

**Date of Approval: Jan 2017**