1. **Basic Information:**

|  |  |
| --- | --- |
| **Program Title** | **All programs** |
| **Department Offering the Program** | **Basic Science and Engineering** |
| **Department Responsible for the Course** | **Basic Science and Engineering** |
| **Course Title** | **Engineering Drawing and Projection** |
| **Course Code** | **ENG103** |
| **Year/Level** | **1st level – first term** |
| **Specialization** | **Major** |
| **Authorization Date of Course Specification** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Teaching hours** | **Lectures** | **Tutorial** | **Practical** |
| 1 | - | 4 |

1. **Course Aims:**

|  |  |
| --- | --- |
| **No.** | **Aims** |
| 01 | Apply knowledge, techniques and skills of engineering drawing, engineering operations. |

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

|  |  |
| --- | --- |
| **No.** | **Knowledge and understanding** |
| A1 | Define the concepts and theories of mathematics, science necessary for engineering system analysis. |
| A3 | List the engineering materials related to the characteristics in engineering analysis. |

1. **Intellectual Skills:**

|  |  |
| --- | --- |
| **No.** | **Intellectual Skills** |
| B1 | Select appropriate mathematical and computer based methods for system modeling and analysis. |

1. **Professional Skills:**

|  |  |
| --- | --- |
| **No.** | **Professional Skills** |
| C2 | Apply engineering knowledge and understanding to improve design, products and services |

1. **General Skills:**

|  |  |
| --- | --- |
| **No.** | **General Skills** |
| D2 | Work in stressful environment and within contraints |
| D5 | Motivate individuals. |

**4. Course Contents:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Topics** | **Lectures** | **Tutorial** | **Practical** |
| 1 | Techniques and skills of engineering drawing – engineering operations – orthogonal projection – secondary orthogonal – solid bodies – intersections (cutters for solid bodies – intersections of surfaces) - personals – projections of simple bodies – rules of writing dimensions – drawing of perspectives – deduction of missing projections – drawing of engineering sections. | 11 | - | 44 |
| 2 | Introduction to AutoCAD Fundamentals of engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting fundamentals including orthographic projection, and isometric pictorials, part dimensioning in 2 dimensional drawings.  . | 3 | - | 12 |
| Total | | 14 |  | 56 |

**5. Teaching and learning methods:**

|  |  |
| --- | --- |
| **No.** | **Teaching Methods** |
| 1 | Lectures |
| 2 | Practical |
| 3 | Tutorial |
| 4 | Assignments |
| 5 | Essay |
| 6 | Group Discussion and presentation |

**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 | Midterm exam | A1,B1 |
| 2 | Semester work | C2, D2 , D5 |
| 3 | Final exam | A1, A3 B1,C2 |

**7.2 Evaluation Schedule:**

|  |  |  |
| --- | --- | --- |
| **No.** | **Evaluation Method** | **Weeks** |
| 1 | Weekly Assignments | (week 3 to week 13) |
| 2 | Weekly Practical Report | (Week 2 to week 10) |
| 3 | Mid Term exam | (Week 8) |
| 4 | Contemporary quiz Exams | (week 2) |
| 5 | Final term exam | (week 15) |

**7.3 weighting of Evaluation:**

|  |  |  |
| --- | --- | --- |
| **No.** | **evaluation method** | **Weights** |
| 1 | Mid-term examination | 10% |
| 3 | Practical examination | 10% |
| 4 | Semester work | 20% |
| 5 | Final-term examination | 60% |
| TOTAL | | 100% |

**8. List of References:**

|  |  |
| --- | --- |
| **No.** | **Reference List** |
| 1 | Bertoline, Gary R. Introduction to Graphics Communications for Engineers (4th Ed.). New York, NY. 2009 |
| 2 | “Technical Drawing with Engineering Graphics” by Frederick E Giesecke and Ivan L Hill |
| 3 | “Engineering Drawing” by N.S. Parthasarathy, Vela Murali |
| 4 | “Engineering Drawing and Graphics” by K. Venugopal |

**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 | Techniques and skills of engineering drawing – engineering operations – orthogonal projection – secondary orthogonal – solid bodies – intersections (cutters for solid bodies – intersections of surfaces) - personals – projections of simple bodies – rules of writing dimensions – drawing of perspectives – deduction of missing projections – drawing of engineering sections. | 1 | A1, A3 | B1 | C2 | D2, D5 |
| 3 | Introduction to AutoCAD Fundamentals of engineering drafting by way of computer aided drawing (CAD) software. Basic features and capabilities of CAD software and drafting fundamentals including orthographic projection, and isometric pictorials, part dimensioning in 2 dimensional drawings. | 1 | A1,A3 | B1 | C2 | D2, D5 |

**Course Coordinator: Prof. Dr. Mohamed Saad Elkady**

**Head of Department: Prof. Dr. Mohamed Saad Elkady**

**Date of Approval:**