****

**Course Specification**

**1. Basic Information:**

|  |  |
| --- | --- |
| **Department Offering the program** | **Mechanical Engineering Department** |
| **Department Offering the course** | **Mechanical Engineering Department** |
| **Program Title** | **General** |
| **Date of Specification Approval** |  |
| **Course Title** | **Engineering Drawing (A)** | **Code** | **M1061** |
| **Type** | **Compulsory** [x]  | **Elective** [ ]  |
| **Semester** | **First Semester** |
| **Teaching Hours** | **Lec.** | **Tut.** | **Lab.** | **Credit hours** |
| **0** | **3** | **0** | **1** |

**2. Professional Information:**

**2.1. Course description:**

**This course introduces students to technical drawing a means of professional engineering communication. It will cover: sketching, line drawing, conventional lettering and dimensioning, geometric constructions, theory of view derivation, orthographic projection of engineering bodies, pictorial projection, derivation of views from isometric drawings and vice versa, derivation of views from given views, sections and derivation of sections from given views, intersection of bodies and surfaces, development of surfaces, steel construction .**

**2.2. Course Objectives (CO):**

|  |  |
| --- | --- |
| **Program objective** | **Course objective** |
| PO2  | Behave professionally and adhere to engineering ethics and standards and work to develop the profession and community and promote sustainability principles. | CO1 | Emphasized the importance of drawing as a language for engineers and developed student’s skills in engineering drawing |
| PO3 | Work in and lead a heterogeneous team and display leadership qualities, business administration, and entrepreneurial skills. | CO2 | Working in stressful environment within constraints and manage tasks and resources efficiently. |

**2.3. Course Learning Outcomes (CLO’s):**

|  |  |
| --- | --- |
| **Program Learning Outcomes** | **Course Learning Outcomes** |
| PLO6 | Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements. | CLO1 | Illustrate the engineering drawing (drawing tools, tangency, projections, isometrics, sections, …) |
| CLO2 | Define the geometry of engineering objects. |
| PLO8 | Communicate effectively – graphically, verbally and in writing – with a range of audiences using contemporary tools. | CLO3 | Evaluate the drawing rules in engineering drawing |
| CLO4 | Solve problems in the sectioning of engineering objects. |

**2.4. Course Topics:**

|  |  |  |
| --- | --- | --- |
| **Course Topics** | **Week** | **Course LO’s Covered** |
| **CLO1** | **CLO2** | **CLO3** | **CLO4** |
| Introduction to Engineering Drawing and its importance | 1 | √ |  |  |  |
| Lettering and Lines | 2 | √ | √ |  |  |
| Geometric Constructions | 3-4 | √ | √ | √ |  |
| Isometric Projection | 5-6 | √ |  | √ | √ |
| Dimension Isometric Projection | 7 | √ | √ |  |  |
| Mid term | 8 |  |  |  |  |
| Orthographic Projection – from Isometric | 9-10 |  |  | √ | √ |
| Orthographic Projection – missing View | 11-13 | √ |  |  | √ |
| Revision | 14 |  | √ | √ | √ |
| Total |  | 6 | 4 | 4 | 4 |

**2.5 Teaching and Learning Methods**

|  |  |
| --- | --- |
| **Teaching and Learning Methods:** | **Course LO’s Covered** |
| **Methods** | **CLO1** | **CLO2** | **CLO3** | **CLO4** |
| 1. Lectures. | **√** | **√** | **√** |  |
| 2. Tutorials. |  | **√** | **√** | **√** |
| 3. Discussions. | **√** |  | **√** | **√** |
| **Teaching and Learning Methods for Students with Special Needs:** |
| **Methods** |
| 1. Discussion Session |
| 2. Extra Lectures |
| 3. Provide different levels of books and materials |

**2.6 Assessment Methods**

|  |  |
| --- | --- |
| **Assessment Methods:** | **Course LOs Covered** |
| **Methods** | **CLO1** | **CLO2** | **CLO3** | **CLO4** |
| **Formative Assessment Method** |
| Tutorial assessments | **√** |  | **√** | **√** |
| Home work |  |  | **√** | **√** |
| Mid-term exam | **√** | **√** |  | **√** |
| **Summative Assessment Method** |
| Final Exam | **√** | **√** | **√** |  |

**2.6.1. Assessment Schedule & Grades Distribution**

|  |  |  |
| --- | --- | --- |
| **Assessment Method** | **Week** | **Weighting of Asses.** |
| Tutorial assessments | An assessment every week | **30%** |
| Home work | Home work every week | **10%** |
| Mid-term exam | Week # 8 | **20%** |
| Final written exam  | Scheduled by the faculty council  | **40%** |
| **Total** | **100%** |

**2.7. List of Reference:** (max. five years ago)

|  |  |
| --- | --- |
| Course Notes: | Lecture Nots |
| Essential Books (Textbooks): | Reddy, K. V. 2010. Textbook of Engineering Drawing . B.S. Publ., Hyderabad. |
| Recommended Books: | French, T. E., Vierch, C. J., Engineering Drawing and Graphic Technology, McGraw-Hill, 11th ed. |
| Periodicals, Web Sites, … etc: | **www.mechanical drawing google.com** |

**2.88. Facilities required for Teaching and Learning**

|  |
| --- |
| **Different Facilities** |
| Lecture Hall |
| Tutorial activities |
| Data Show |
| White Board |
| Office meetings. |
| Discussion |

**3. Matrix:**

**3.1. Program Objectives VS Course Objectives**

|  |  |
| --- | --- |
| **Program Objectives** | **Course Objective** |
| CO1 | CO2 |
| PO1 | **√** |  |
| PO4 |  | **√** |

**3.2. Course Objectives VS Course Learning Outcomes**

|  |  |
| --- | --- |
| **Course Objectives** | **Course Learning Outcomes** |
| CLO1 | CLO2 | CLO3 | CLO4 |
| CO1 | **√** | **√** |  |  |
| CO2 |  |  | **√** | **√** |

**3.3. Program Learning Outcomes VS Course Learning Outcomes**

|  |  |
| --- | --- |
| **Program Learning Outcomes** | **Course Learning Outcomes** |
| CLO1 | CLO2 | CLO3 | CLO4 |
| PLO6 | **√** |  | **√** |  |
| PLO8 |  | **√** |  | **√** |

**3.4. Assessment Alignment Matrix**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PLO** | **PO** | **CLO** | **Teaching M.** | **Assessment M.** |
| PLO6 | PO2 | CLO1 | * Lectures
* Tutorials
* Discussion
 | * Tutorial assessments
* Homework
* Written final exam
 |
| CLO2 | * Lectures
* Tutorials
* Discussion
 | * Tutorial assessments
* Homework
* Written final exam
 |
| PLO8 | PO3 | CLO3 | * Lectures
* Tutorials
* Discussion
 | * Tutorial assessments
* Homework
* Written final exam
 |
| CLO4 | * Lectures
* Tutorials
* Discussion
 | * Tutorial assessments
* Homework
* Written final exam
 |

**Course Coordinator:**

**Head of Department: Date: / /**