**Course Outline Format**

**COURSE CODE: ME 101**

**COURSE TITLE: ENGINEERING DRAWING & GRAPHICS**

|  |  |
| --- | --- |
| Program | **BS MECHANICAL ENGINEERING (SEN)** |
| Credit Hours | **04** |
| Duration | **ONE SEMESTER** |
| Prerequisites | **NIL** |
| Resource Person | **MUHAMMAD ASIM** |
| Counseling Timing | **TUESDAY 3:00 TO 5:00 PM****THURSDAY 3:00 TO 5:00 PM****FRIDAY 3:00 TO 5:00 PM** |
| Contact | **muhammad.asim@umt.edu.pk** |

**Chairman/Director Programme signature………………. Dean’s signature…………**

**Date………………………………….**

**Learning Objective**

“Engineering Drawing is not a subject to study but it is a Graphical Language that all engineers must know about to Read, Speak and Write it”.

This course is a part of engineering foundation. It is targeted to help student visualize the basics of engineering design. It is intended for improving students approach towards conceptual design. Orthographic projections, pictorial views and to have a concrete knowledge of drawing and understanding the concept of different mechanical parts.

**Learning Methodology**

Lectures, Interactive and participative sessions, evaluation on continuous basis

 **Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

**Marks Evaluation Marks in percentage**

Quizes 20%

Assignments 10%

Mid Term 25%

Attendance & Class Participation 5%

Final exam 40%

Total **100%**

**Recommended Text Books**

* Text Book of Engineering Drawing by K Venkata Reddy
* Elementary Engineering Drawing by N D Bhatt
* A First Year Engineering Drawing by A C Parkinson

**Reference Books**

* Engineering Drawing & Graphic Technology by T E French, C J Vierk & RJ Foster
* Engineering Drawing by A W Boundy

**Calendar of Course contents to be covered during semester**

|  |  |  |
| --- | --- | --- |
|  **week** |  **Activity** |  **Reference** |
| **1** | **Letters, Lines & Dimensioning*** Thickness of lInes
* Types of Lines
* Lettering
* Dimensioning
* Dimensioning styles
* Placing of Dimensioning
 |  |
| **2-3** | **Engineering Drawing & Graphics Basics*** Drawing
* Engineering Drawing
* Engineering Graphics
* Projections
* Projectors
* Orthographic Projections
* Projection & Principle of Projection
* Methods of Projection
* Planes of Projections
* Concept of Four quadrants
* First Angle Projection
* Third Angle Projection
 |  |
| **4-5** | **Projection of a Point*** Point
* Projection of a Point
* Point lying Above HP and in front of VP (1st Quadrant)
* Point lying Above HP and behind VP (2nd Quadrant)
* Point lying below HP and behind VP (3rd Quadrant)
* Point lying below HP and in front of VP (4th Quadrant)
* Point lying in HP and in front of VP
* Point lying in VP and above HP
* Point lying on Reference Line
* Numerical Problem and Assignments
 |  |
|  |
| **6-7** | **Projection of a Line*** Line
* Projection of a line
* PROJECTION OF STRAIGHT LINE PARALLEL TO BOTH THE PLANES
* PROJECTION OF LINE PERPENDICULAR TO H.P AND PARALLEL TO V.P
* PROJECTION OF LINE PERPENDICULAR TO V.P AND PARALLEL TO H.P
* PROJECTION OF LINE INCLINED TO V.P AND PARALLEL TO H.P
* PROJECTION OF LINE INCLINED TO H.P AND PARALLEL TO V.P
* PROJECTION OF LINE CONTAINED BY BOTH THE PLANES
* PROJECTION OF LINE CONTAINED IN THE V.P
* PROJECTION OF LINE INCLINED TO BOTH THE PLANES
* SUMMARY OF PROJECTION OF LINES
* Numerical Problems & Assignments
 |  |
| **8-9-10** | **Projection of a Solids*** Introduction
* Projection of Solids
* Section of Pentagons
* Section of Polyhedras
* Section of Prisms
* Section of Pyramids
* Section of cube
* Section of hexagons
* Frustum
* Truncated Solids
* Axis of a solid
* Apex of a solid
 |  |
| **11** | **Development of Surfaces*** Introduction
* Method of Development
* Development of Lateral surfaces of right solids
 |  |
| **12-13** | **Fits & Tolerances*** Definitions of fits & tolerances
* Allowances & clearances
* Size and designations
* Fits & its types
* Basic hole and shaft systems
* Specification and tolerances
* International Tolerance grades
 |  |

|  |  |  |
| --- | --- | --- |
| **14-15** | **Fastening & Types*** Screw threads and their types
* Screw Fastenings
* Riveted & welded joints
 |  |