RKUNIVERSITY

SYLLABUS

Course Title	**Engineering Graphics**	
Course Code	ME118	
Course Credit	Lectures	:00
	Practical	:02
	Tutorial	:00
	Total	:02

Course Learning Outcomes

Objectives of this course are:

- **Recognize** the dimensions/units and annotate two dimensional engineering drawing. (Cognitive Remembering, level 1)
- **Sketch** orthographic projections into isometric projections and vice versa.(Cognitive Apply, level 3)
- **Apply** modern CAD software (Auto CAD) that uses solid modeling approach for 2D/3D drawing.(Cognitive Apply, level 3)

Detailed Syllabus

Section – I

Sr. No.	**Name of chapter & Details**	**Hours Allotted**
1	**Introduction to Engineering Graphics :** Drawing instruments and accessories, BIS - SP46, Types of lines and its applications, Dimensioning methods, Geometrical constructions, Use of plane scale.	**06**
2	**Orthographic Projections:** Principle of projection, Introduction of principal planes, Projections from the pictorial view of the object on the principal planes for View from Front, View from Top and View from Side using first angle projection method and third angle projection method, Full Sectional View.	**12**
3	**Isometric Projections and Isometric View or Drawing:** Isometric Scale, Isometric view or drawing and projection, Conversion of orthographic views into isometric projection.	**10**
	Total	**28**

Section-II: Auto CAD Lab

4	**Introduction to Auto CAD:** Introduction, Starting with AutoCAD, AutoCAD dialog boxes, Co-ordinate Systems, Drawing lines, Circle, Arcs, Rectangle, Ellipse,Polygons, Pline, Splines, Grid, Snap, Ortho, Isometric plane etc.	**08**
5	**Editing sketched objects:**	**06**

	Editing commands like: Move, Copy, Paste, Offset, Scale, Chamfer, Trim, Mirror, Fillet, Rotate, Break, Extend, Arrays, OSNAP, Exercises.	
6	**Basic dimensioning and Texting :** Dimensioning AutoCAD, Creating linear, Rotated, Angular aligned base line Dimensions, Modifying dimensions, Mtext, Dtext, Text style and Table.	**06**
7	Plotting the drawings in AutoCAD, Plotting drawing using the plot dialog box, Demonstration of 3-D modelling.	**08**
	Total	**28**

Instructional Method and Pedagogy:

- Both section are to be dealt in the laboratory only.
- Syllabus is designed for high tech branches like EC, CE, IT, EE etc. So the course content for the Engineering Graphics is just fundamentals only.
- At the beginning of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectureswillbeconductedwiththeaidofmulti-mediaprojector,blackboard, OHP etc.
- Attendance is compulsory in laboratory.
- Assignmentsbasedoncoursecontentwillbegiventothestudentsattheendof eachunit/topicandwillbeevaluatedatregularly.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Minimum four drawing sheets have to be submitted as term-work in laboratory based on course contents.
- Minimum one sheet in AutoCAD is to be prepared.

List of Assignments/Drawing Sheets

Assignment 1- To **draw**given geometrical figure and **identify** the types of lines used in it.
Assignment 2- To apply dimensioning method to a given geometry. (Align, Unidirectional, chain and parallel dimensioning methods)
Assignment 3- To **practice** the geometrical constructions:

1. Bisect the line
2. Bisectthe Angle
3. Bisect the Arc
4. Section lines in 30×30mm square.
5. To divide line of length 120mm into 9 equal parts.
6. Divide circle into 8 equal partsby using engineering compass.
7. Divide circle into 12 equal parts by using engineering compass.
8. Divide circle into 8 equal parts by using Set Square.
9. Divide circle into 12 equal parts by using Set Square.

Assignment 4- Practice of polygons by using universal method.
Assignment 5- Practice of polygons by using protector.
Assignment 6- To **identify**and **construct** scale for given statement.
Assignment 7-Practice ofOrthographic Projection.
Assignment 8- Practice of Sectional Orthographic Projection.
Assignment 9- Practice of Isometric Projection.

Assignment 10- Practice of Isometric View.

Sheet No 1 – **Prepare**drawing sheetofOrthographic Projection.
Sheet No 2 – **Prepare** drawing sheet ofIsometric Projections.
Sheet No 3–**Prepare** a part drawing sheet by using Computer Aided Drafting.
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Reference Books:

1. P.J.Shah,"*A Text Book of Engineering Graphics*", S.Chand& Company Ltd**.**
2. Sham Tickoo, "*AutoCAD 2009*", CENGAGE learning Indian Edition.
3. N. D. Bhatt,"*Engineering drawing*", Charottar publication.
4. Arunoday Kumar,"*Engineering Graphics*", Tech – Max Publication, Pune.
5. T. Jeyapoovan,"*Engineering Drawing & Graphics using Auto CAD 2000*", Vikas Publishing House Pvt. Ltd., New Delhi
6. P.S.Gill,"*A text book of Engineering Drawing*", S.K.Kataria& sons, Delhi.
7. D.A.Jolhe*,"Engineering Drawing with an Introduction to Auto CAD*", Tata McGraw-Hill Publishing Co. Ltd., New Delhi.
8. Ellen Finkelstein,"*A Bible on AutoCAD*", Wiley Publishing Inc.

Reading Materials, web materials with full citations:

- Power point presentation of engineering graphics and Auto cad.
- http://area.autodesk.com/tutorials
- www.mcadcentral.com
- http://www.cadalyst.com/

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