BARGAON INSTITUTE OF TECHNOLOGY

LESSON PLAN FOR ACADEMIC SESSION

DISCIPLINE:	All Branches	**SEMESTER:**	1st / 2nd Semester
SUBJECT:	ENGINEERING GRAPHICS	**COURSE CODE:**	PR 6
NO. OF PERIODS:	02 / Week (32 Weeks)	**TOTAL PERIODS:**	64 Hours
PROGRESSIVE ASSMT:	50 Marks	**END EXAM MARKS:**	50 Marks (2 Hrs Duration)
NAME OF FACULTY:	_____	**ACADEMIC PERIOD:**	FROM _____ TO _____

COURSE OUTCOMES (COS)

1. **CO-1:** Understand the importance of Engineering Drawing.
2. **CO-2:** Demonstrate the use of different drawing instruments.
3. **CO-3:** Make free hand lettering and numbering and practice dimensioning of drawing.
4. **CO-4:** Practice projections of straight lines, planes, and solids.
5. **CO-5:** Take up different orthographic and isometric projections.
6. **CO-6:** Prepare 2D engineering drawing using AutoCAD software.

DETAILED WEEKLY LESSON PLAN

SL NO	WEEK	CLASS DATE	CLASSES / DAY	TOPICS PLANNED TO BE COVERED	FACULTY SIGN
UNIT 1: INTRODUCTION & DEMONSTRATION					
01	01		1	Importance of Engineering Drawing & Overview of Drawing Instruments.	
			1	Identify various sizes of drawing boards and drawing sheets as per BIS.	
02	02		1	List types of pencils, drawing instruments, and scales (Representative Fraction - RF).	
			1	Demonstrate lying of drawing sheet, margin, standard layout and title block as per BIS.	
UNIT 2: TYPES OF LINES, LETTERING & DIMENSIONING					
03	03		1	Folding principle of drawings (blueprints, printouts, etc.).	
			1	Demonstrate and explain the use of various types of lines in engineering drawings.	
04	04		1	Demonstrate the principle of single stroke, gothic lettering & numerals as per BIS.	
			1	Practical practice session on free-hand lettering and numbering.	
05	05		1	Introduction to Dimensioning, Unit of Dimensioning, and General Rules for Dimensioning.	
			1	Systems of dimensioning: Aligned system and Unidirectional system with examples.	
UNIT 3: SCALES					
06	06		1	Significance of scales in drawing; Classification of scales (Full size, Reduced, Enlarged).	
			1	Concept of Representative Fraction (RF) and calculations for scale construction.	
07	07		1	Define, construct and draw Plain Scale for measuring up to two units/ decimals.	
			1	Numerical problems and practice sheet drawing on Plain Scales.	

SL NO	WEEK	CLASS DATE	CLASSES / DAY	TOPICS PLANNED TO BE COVERED	FACULTY SIGN
08	08		1	Define, construct and draw Diagonal Scale for measuring three consecutive units.	
			1	Numerical problems and practice sheet drawing on Diagonal Scales.	
UNIT 4: ORTHOGRAPHIC PROJECTIONS					
09	09		1	Introduction to projections: Orthographic, Perspective, Isometric, and Oblique concepts.	
			1	Principles of Orthographic projection; Reference planes (HP, VP, PP).	
10	10		1	First angle and Third angle projection methods and their standard BIS symbols.	
			1	Comparison between First Angle and Third Angle projection methods.	
11	11		1	Projections of Straight Lines parallel to one plane and inclined to another.	
			1	Projections of Planes (Triangular, Square, Rectangular, Pentagonal, Hexagonal, Circular).	
12	12		1	Projections of regular Solids: Prism and Pyramid with axis vertical / horizontal.	
			1	Projections of regular Solids: Cone and Cylinder with axis vertical / horizontal.	
13	13		1	Conversion of pictorial view into Orthographic Views - Objects with plain surfaces.	
			1	Conversion of pictorial view into Orthographic Views - Objects with slanting surfaces.	
14	14		1	Conversion of pictorial view into Orthographic Views - Objects containing slots and ribs.	
			1	Conversion of pictorial view into Orthographic Views - Cylindrical surfaces & holes.	
UNIT 5: ISOMETRIC PROJECTIONS					
15	15		1	Introduction to Isometric Projection, Isometric Axes, Lines, and Planes.	
			1	Construction of Isometric Scale and difference between Isometric View & Projection.	
16	16		1	Draw Isometric View & Projection of Prism and Pyramid (Axis Horizontal & Vertical).	
			1	Draw Isometric View & Projection of Cone and Cylinder (Axis Horizontal & Vertical).	
17	17		1	Isometric drawing practice for combined geometric shapes and simple machine parts.	
			1	Progressive Assessment & Drawing Sheet Evaluation for Manual Drafting Units (1-5).	
UNIT 6: PRACTICES ON AUTOCAD					
18	18		1	Introduction to AutoCAD: Components of AutoCAD window (Title bar, Menu bar, Toolbars).	
			1	Understanding Object properties toolbar, Draw toolbar, Modify toolbar, Cursor crosshair.	
19	19		1	Understanding Command window, Status bar, Drawing area, and UCS icon.	
			1	File features: New file, Saving, Opening existing drawing file, Creating templates, Quit.	
20	20		1	Setting up new drawing: Units, Limits, Grid, Snap settings, Ortho, and OSnap.	
			1	Basic drafting workflow: Undoing and Redoing actions, Coordinate entry systems.	
21	21		1	AutoCAD Draw Commands: Line, Circle, Arc, Polygon, Ellipse, Rectangle.	

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			1	Practical lab execution of entities using line, circle, arc, and rectangle commands.	
22	22		1	AutoCAD Edit & Modify Commands: Move, Copy, Rotate, Scale, Stretch, Trim, Extend.	
			1	AutoCAD Edit & Modify Commands: Offset, Mirror, Fillet, Chamfer, Array, Explode.	
23	23		1	AutoCAD Dimension Commands: Linear, Aligned, Angular, Radius, Diameter, Center Mark.	
			1	Dimension Style Manager (DIMSTYLE): Setting text height, arrow size, primary units.	
24	24		1	CAD Lab Practice: 2D drafting of simple geometric figures with dimensioning.	
			1	CAD Lab Practice: Drafting Orthographic views of mechanical objects in AutoCAD.	
25	25		1	CAD Lab Practice: Drawing isometric figures using Isometric Snap mode in AutoCAD.	
			1	Layer Management: Creating layers, assigning colors, linetypes, and lineweight.	
26	26		1	Text commands (Single line text & Multiline text), Title block creation in AutoCAD.	
			1	Page setup and Plotting configurations for AutoCAD drawing printouts.	
27	27		1	AutoCAD Practice Printout Session 1: Generating standard A4/A3 drawing layouts.	
			1	AutoCAD Practice Printout Session 2: Exporting drawings to PDF/Hardcopy for submission.	
28	28		1	Comprehensive Review: Manual Drawing - Lines, Lettering, Scales & Projections.	
			1	Comprehensive Review: Orthographic & Isometric projections problem solving.	
29	29		1	Comprehensive Review: AutoCAD 2D Commands, Editing, and Dimensioning.	
			1	Internal Practical Assessment / Lab Sheet Evaluation - Set 1.	
30	30		1	Internal Practical Assessment / Lab Sheet Evaluation - Set 2.	
			1	Doubt clearing session: Drawing sheets and AutoCAD lab exercises.	
31	31		1	Previous Year Question Paper Analysis & End Exam drawing patterns - Part 1.	
			1	Previous Year Question Paper Analysis & End Exam drawing patterns - Part 2.	
32	32		1	Final Sheet Verification, Progressive Assessment (50 Marks) Compilation.	
			1	Final Academic Review, Guidance on Examination Strategy & Course Wrap-up.	

REFERENCES & TEXTBOOKS

1. A Text Book of Engineering Drawing by Dr. R.K. Dhawan.
2. A Text Book of Engineering Graphics & Auto CAD by K. Venugopal.
3. A Text book of Engineering Drawing by N.D. Bhatt.
4. Engineering Drawing by P.S. Gill.
5. Introduction to Auto CAD - 2012 by George Omura, Wiley India Publisher.

N.B.: Print out should be a part of progressive assessment in AutoCAD Practice drafting only.

Signature of Faculty

Principal