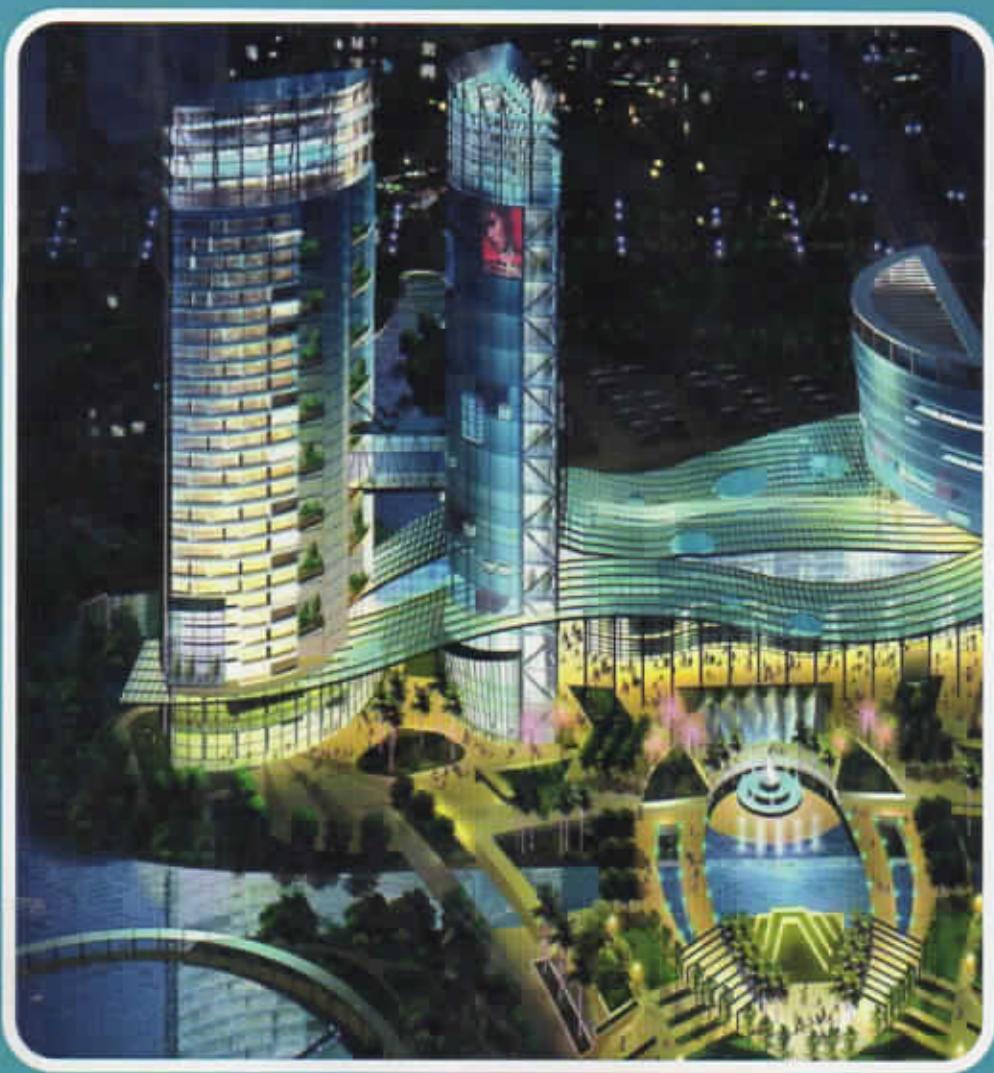


# Basics of Drawing and Graphics

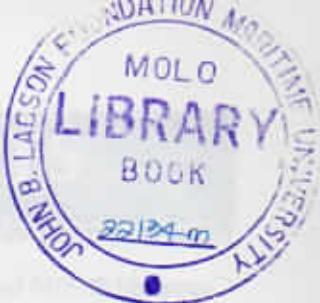


Printable Workbook included in the DVD



3G eLEARNING

FEB 24  
2011  
7



# BASICS OF DRAWING AND GRAPHICS



3G eLEARNING

# TABLE OF CONTENTS

1.	<b>Plane Curves and Free Hand Sketching</b>	3.2	Soil Cylinder .....	75	
1.1	Basic Geometrical Constructions .....	4	3.2.1 Cone.....	77	
1.2	Curves used in Engineering Practices .....	9			
1.2.1	Conics Section.....	9			
1.2.2	Cycloid.....	20			
1.3	Scales .....	25			
1.3.1	Representing Scales .....	25	4.1	Section of Solids .....	84
1.3.2	Types of Scales and their constructions.....	26	4.1.1	Types of sectional views of solids.....	84
1.4	Visualization Principles .....	30	4.2	Development of surfaces .....	85
1.4.1	The Design of Visualizations .....	32	4.2.1	Importance of Development.....	85
2.	<b>Projection of Points, Lines and Plane Surfaces</b>	4.2.2	Methods of Development.....	85	
2.1	Orthographic Projection .....	44	4.3	Definition of a Development .....	94
2.1.1	Multiview Orthographic Projection .....	47	4.3.1	Relation of the Surfaces in a Pattern .....	95
2.1.2	First-Angle Projection.....	48	4.3.2	General Classification .....	96
2.1.3	Third-Angle Projection.....	49	4.3.3	Solids that may be Accurately Developed.....	97
2.2	Projection of Points .....	51	4.3.4	Solids Developed on Radial Lines.....	98
2.2.1	General Procedure to Draw Projection of Points.....	53	4.3.5	How the Division of solids is Accomplished.....	99
2.3	Projection of Straight Lines .....	53	4.3.6	Importance of certain Views.....	99
2.4	Projection of Plane Surfaces.....	56	4.3.7	The Stretch-out.....	100
2.4.1	Types of Planes.....	56	4.3.8	Position of the Development.....	101
3.	<b>Projection of Solids</b>	4.3.9	Development of the Cube .....	101	
3.1	Projections of Solids in Simple Positions .....	64	4.3.10	General Rules for Obtaining Parallel Developments .....	102
3.1.1	Prisms .....	65	4.3.11	Drawing Plate, Title: Developments .....	103
3.1.2	Pyramids .....	71	4.3.12	To develop the curved surface of a cylinder.....	103
				<b>Prisms, Pyramids, Cylinders, and Cones.....</b>	104
			4.4.1	Prisms .....	104

4.4.2	Pyramid .....	106	6.3.5	To Find Centre of a Given Arc.....	164
4.4.3	Cylinders.....	109	6.3.6	Construct Equilateral Diles.....	164
4.4.4	Sections of cones.....	110	6.3.7	Construct a Square .....	165
<b>5.</b>	<b>Isometric and Perspective Projections</b>		6.3.8	Construct a Pentagon.....	165
5.1	Isometric Projection.....	117	6.3.9	Data required for Construction of Scale.....	166
5.2	Isometric Scale.....	123	<b>6.4</b>	<b>Geometrical Construction .....</b>	<b>167</b>
5.2.1	Steps to Draw the Isometric Projection .....	128	<b>7.</b>	<b>Auxiliary Views</b>	
5.3	Drawing of Isometric Projection.....	128	7.1	Concepts of Auxiliary View.....	175
5.4	Combination of Two Solids.....	134	7.1.1	Primary Auxiliary Views .....	176
5.5	Perspective Projections5 .....	135	7.1.2	Frontal Auxiliary Views (fold line Method).....	177
5.5.1	Perspective Projection Terminology .....	136	7.1.3	Horizontal Auxiliary Views (Fold Line Method).....	179
5.5.2	Perspective Projection Classifications.....	136	7.1.4	Profit Auxiliary Views (Fold Line Methods).....	179
5.5.3	Perspective Projection Variables Selection .....	137	7.1.5	Secondary Auxiliary Views Using Folds Line.....	180
<b>6.</b>	<b>Engineering Curves</b>		7.1.6	Adjacent Views .....	181
6.1	Standards of Engineering drawings	141	<b>7.2</b>	<b>Auxiliary Views Using the Reference Plane Methods .....</b>	<b>181</b>
6.1.1	Paper Sizes and Folding .....	142	7.2.1	Drawing an Auxiliary View .....	182
6.1.2	Lines and Lettering .....	144	7.2.2	Secondary Auxiliary Views .....	183
6.1.3	Title Blocks and Parts Lists.....	147	<b>7.3</b>	<b>Auxiliary Views Conventions .....</b>	<b>185</b>
6.2	Preparing Engineering Drawings....	149	7.3.1	Partial Auxiliary Views.....	186
6.2.1	Sketches.....	150	<b>7.4</b>	<b>Broken and Half Auxiliary Views....</b>	<b>186</b>
6.2.2	Hand Drafts.....	150	7.4.1	Auxiliary Views of Curved Features .....	187
6.2.3	Detail (Working) Drawings .....	151	7.4.2	Auxiliary Sections .....	187
6.3	Scales.....	151	7.4.3	Auxiliary Views and Dimensions.....	188
6.3.1	Types of Scales.....	152	<b>7.5</b>	<b>CAD Generated Auxiliary Views .....</b>	<b>188</b>
6.3.2	Geometrical Construction.....	155			
6.3.3	Centre of Gravity .....	161			
6.3.4	To Trisect an Angle .....	163			