

GANPAT UNIVERSITY									
FACULTY OF ENGINEERING & TECHNOLOGY									
Programme		Bachelor of Technology			Branch/Spec.		ALL		
Semester		I			Version		2.0.0.0		
Effective from Academic Year			2018-19		Effective from the batch Admitted in			July 2018	
Subject code		2ES101		Subject Name		Engineering Graphics			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT )		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	1	0	4	Theory	40	60	100
Hours	3	0	2	0	5	Practical	30	20	50
Pre-requisites:									
Learning Outcome:									
<b>After learning this course, student should be able to:</b>									
<ul style="list-style-type: none"> <li>• To know and understand the conventions and the method of engineering drawing.</li> <li>• Interpret engineering drawings using fundamental technical mathematics.</li> <li>• Construct basic and intermediate geometry.</li> <li>• To improve their visualization skills so that they can apply these skill in developing new products.</li> <li>• To improve their technical communication skill in the form of communicative drawings.</li> <li>• Comprehend the theory of projection.</li> </ul>									
Theory syllabus									
Unit	Content								Hrs
1	<b>Introduction:</b> Importance of Engineering Drawing, Engineering Drawing, Instruments and uses, B.I.S and I.S.O. Conventions for drawings, Use of plane scales and Representative Fraction								3
2	<b>Loci of Point:</b> Path of the points moving on simple arrangements and simple Mechanism, Slider Crank Mechanism, Four bar Chain Mechanism etc.								4
3	<b>Engineering Curves:</b> Classification of Engineering Curves, Construction of Conics curves, Cycloidal Curves, Involute and Spirals along with normal and tangent to each curve								8
4	<b>Projection of Points and Straight Lines:</b> Introduction to principal planes of projections, Notation System- Points in First, Second, Third and Fourth quadrants, Projections of line Parallel to Two and Perpendicular to one of the principal planes, Line parallel to one and inclined to two principal planes, Line inclined to all the three principal planes, True length of the line and its inclination with the reference planes.								5
5	<b>Projection of Planes:</b> Concept of different planes, Projections of planes with its inclination to one principal plane and with two principal planes. Concept of auxiliary plane method for projections of the plane.								4
6	<b>Projection of Solids and Sections of Solids:</b> Classifications of Solids, Projections of right and regular solids with their axis Parallel to Two and Perpendicular to one of the principal planes, axis parallel to one and inclined to two principal planes, axis inclined to all the three principal planes. Section of solids and the true shape of the section.								6

7	<b>Development of surfaces:</b> Methods of development of lateral surface of right solids, Parallel line development, Radial line development.	4
8	<b>Interpenetration of Solid:</b> Line of interaction, line/generator method and section plane method, intersection of two prisms, two cylinder, interaction of cone and cylinder.	3
9	<b>Orthographic Projections &amp; Sectional Orthographic Projections:</b> Principle of projection, Principal planes of projection, Projections from the pictorial view of the object on the principal planes for View from Front View from Top View from Side using first angle projection method and third angle projection method, Full Sectional View.	4
10	<b>Isometric Projections and Isometric View or Drawing:</b> Isometric Scale, Conversion of orthographic views into isometric projection, isometric view or drawing.	4
<b>Practical content</b>		
Draw Practice sheet. Draw a sheet on Engineering Curves. Draw a sheet on Orthographic Projection. Draw a sheet on Projection of Point and Line. Draw a sheet on Projection of Plane. Draw a sheet on Isometric projection. Draw a sheet on Free hand Sketch. Draw a sheet on Graph and charts.		
<b>Text Books</b>		
1	P. J. Shah "Engineering Graphics" S. Chand & Company Ltd., New Delhi, 2014.	
2	P. S. Gill "Engineering Drawing" S.K.Kataria & sons, Delhi, 13 <sup>th</sup> Edition 2016	
<b>Reference Books</b>		
1	Arunoday Kumar "Engineering Graphics – I and II", Tech – Max Publication, Pune, 3 <sup>rd</sup> Edition 2010.	
2	N. D. Bhatt "Elementary Engineering Drawing", Charotar Publishing House, Anand, 2013.	
3	R. K. Dhawan "Engineering Drawing", S.Chand & Company Ltd., New Delhi, 1997.	
4	K. Venugopal "Engineering Drawing and Graphics", New Age International Publication, 5 <sup>th</sup> Edition	
5	T. Jeyapoovan "Engineering Drawing & Graphics using Auto CAD 2000", Vikas Publishing House Pvt. Ltd., New Delhi, 5 <sup>th</sup> Edition 2011.	
6	D. A. Jolhe "Engineering Drawing with an Introduction to AutoCAD", Tata McGraw-Hill Publishing Co. Ltd., New Delhi, 2007.	
<b>ICT/MOOCs references</b>		
1	<a href="https://www.youtube.com/watch?v=n5Ba6OtDpTU">https://www.youtube.com/watch?v=n5Ba6OtDpTU</a> (Introduction of Engineering Graphics)	
2	<a href="https://www.youtube.com/watch?v=VjvAGUkK8Nw">https://www.youtube.com/watch?v=VjvAGUkK8Nw</a> (Loci of Point)	
3	<a href="https://www.youtube.com/watch?v=pr68iKcJy3g&amp;list=PL0onWcajDQkzkvJXJQbyNxZwyOC15-vn0">https://www.youtube.com/watch?v=pr68iKcJy3g&amp;list=PL0onWcajDQkzkvJXJQbyNxZwyOC15-vn0</a> (Engineering Carves)	
4	<a href="https://www.youtube.com/watch?v=L0bkxR11joI">https://www.youtube.com/watch?v=L0bkxR11joI</a> (Projection of Points and Straight line)	
5	<a href="https://www.youtube.com/watch?v=7-zq81tDwmM&amp;index=2&amp;list=PLIhUrsYr8yHx7TVB51jN3HZVyW3R6RiBg&amp;pbjreload=10">https://www.youtube.com/watch?v=7-zq81tDwmM&amp;index=2&amp;list=PLIhUrsYr8yHx7TVB51jN3HZVyW3R6RiBg&amp;pbjreload=10</a> (Projection of Planes)	
6	<a href="https://www.youtube.com/watch?v=9hD7q2CqAOA">https://www.youtube.com/watch?v=9hD7q2CqAOA</a> (Section of Solid)	
7	<a href="https://www.youtube.com/watch?v=zIblZ7dt3Dk">https://www.youtube.com/watch?v=zIblZ7dt3Dk</a> (Development of Surface)	
8	<a href="https://www.youtube.com/watch?v=9UMxr7BT8CE">https://www.youtube.com/watch?v=9UMxr7BT8CE</a> (Interpenetration of Solid)	
9	<a href="https://www.youtube.com/watch?v=f1Hdtf_iAwk">https://www.youtube.com/watch?v=f1Hdtf_iAwk</a> (Orthographic Projection Problem)	
10	<a href="https://www.youtube.com/watch?v=sSuyM60s7eA">https://www.youtube.com/watch?v=sSuyM60s7eA</a> (Isometric view)	