Lovely Professional University, Punjab

Course Code	Course Title	Course Planner
MEC103	ENGINEERING GRAPHICS	20360::Dr. Manpreet Singh

Course Outcomes :Through this course students should be able to

CO1 :: Visualize the knowledge of basic geometries, geometric tools, shapes and procedures used in engineering drawing.

CO2 :: Represent detailed conceptual knowledge about the dimensioning, specifications and conventions.

CO3 :: Understand the concept of projection and acquire visualization skills, projection of points.

CO4 :: Understand the concept to draw the basic views related to projections of Lines.

CO5 :: Understand different concepts of sectioning and 3-D representations of objects.

CO6 :: Sketch the different concepts of isometric projections.

	TextBooks (T)		
Sr No	**Title**	**Author**	**Publisher Name**
T-1	ENGINEERING DRAWING WITH AN INTRODUCTION TO AUTOCAD	DHANANJAY A JOLHE	MCGRAW HILL EDUCATION

	Reference Books (R)		
Sr No	**Title**	**Author**	**Publisher Name**
R-1	ENGINEERING GRAPHICS BY AMAR PHATAK	AMAR PHATAK	DREAMTECH PRESS
R-2	ENGINEERING DRAWING	M.B.SHAH,BC RANA	PEARSON
R-3	ENGINEERING GRAPHICS	K C JOHN	PRENTICE HALL
R-4	ENGINEERING DRAWING	N.D. BHAT & M. PANCHAL	CHAROTAR PUBLISHING HOUSE PVT. LTD.
R-5	ENGINEERING DRAWING AND DESIGN	JENSEN, HELSEL AND SHORT	MCGRAW HILL EDUCATION

Relevant Websites (RW)		
Sr No	**(Web address) (only if relevant to the course)**	**Salient Features**
RW-1	http://www.design-technology.info/IndProd/drawings/	Half section, Isometric Projection

RW-2	web.acd.ccac.edu/~dference/edd101/pp-chapter%203.ppt	Lettering Techniques
RW-3	http://www.engineeringdrawing.org/	Orthographic projection,isometric projection

LTP week distribution: (LTP Weeks)	
Weeks before MTE	7
Weeks After MTE	7
Spill Over (Lecture)	4

Detailed Plan For Lectures

Week Number	Lecture Number	Broad Topic(Sub Topic)	Chapters/Sections of Text/reference books	Other Readings, Relevant Websites, Audio Visual Aids, software and Virtual Labs	Lecture Description	Learning Outcomes	Pedagogical Tool Demonstration/ Case Study / Images / animation / ppt etc. Planned	Live Examples
Week 1	Lecture 1	Introduction to Engineering Drawing(Principles of Engineering Graphics and their significance)	T-1	RW-2	Introduction to Engineering Drawing	Student will familiarize with engineering graphics concepts	Zero lecture ppts	Industrial Drawing
		Introduction to Engineering Drawing(Drawing instruments)	T-1	RW-2	Introduction to Engineering Drawing	Student will familiarize with engineering graphics concepts	Zero lecture ppts	Industrial Drawing
		Introduction to Engineering Drawing(Lettering in vertical Gothic letters using single stoke)	T-1	RW-2	Introduction to Engineering Drawing	Student will familiarize with engineering graphics concepts	Zero lecture ppts	Industrial Drawing
	Lecture 2	Introduction to Engineering Drawing(Principles of Engineering Graphics and their significance)	T-1	RW-2	Introduction to Engineering Drawing	Student will familiarize with engineering graphics concepts	Zero lecture ppts	Industrial Drawing
		Introduction to Engineering Drawing(Drawing instruments)	T-1	RW-2	Introduction to Engineering Drawing	Student will familiarize with engineering graphics concepts	Zero lecture ppts	Industrial Drawing
		Introduction to Engineering Drawing(Lettering in vertical Gothic letters using single stoke)	T-1	RW-2	Introduction to Engineering Drawing	Student will familiarize with engineering graphics concepts	Zero lecture ppts	Industrial Drawing

Week 2	Lecture 3	Introduction to Engineering Drawing(Dimensioning)	T-1 R-5		Introduction to the scales	How to use scale for plotting larger and smaller dimension	Using white board/ppts	Layout drawing used by engineers while constructing of new house
		Introduction to Engineering Drawing(Plane and Diagonal Scale)	T-1 R-5		Introduction to the scales	How to use scale for plotting larger and smaller dimension	Using white board/ppts	Layout drawing used by engineers while constructing of new house
	Lecture 4	Introduction to Engineering Drawing(Dimensioning)	T-1 R-5		Introduction to the scales	How to use scale for plotting larger and smaller dimension	Using white board/ppts	Layout drawing used by engineers while constructing of new house
		Introduction to Engineering Drawing(Plane and Diagonal Scale)	T-1 R-5		Introduction to the scales	How to use scale for plotting larger and smaller dimension	Using white board/ppts	Layout drawing used by engineers while constructing of new house
Week 3	Lecture 5	Introduction to Engineering Drawing(Different types of lines used in engineering drawing)	T-1		Knowledge about the different types of lines and norms of bureau of indian standards	Get familiar with types of lines used in engineering graphics as per BIS	Demonstrating with the help of PPT	Industrial Drawing & BIS standard file
		Introduction to Engineering Drawing(Basics of BIS norms)	T-1		Knowledge about the different types of lines and norms of bureau of indian standards	Get familiar with types of lines used in engineering graphics as per BIS	Demonstrating with the help of PPT	Industrial Drawing & BIS standard file
	Lecture 6				Online Assignment			
Week 4	Lecture 7	Projection of Points and Lines(Projection of Points)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line perpendicular to HP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA

Week 4	Lecture 7	Projection of Points and Lines(Projection of line perpendicular to VP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line parallel to HP and VP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line inclined to HP and parallel to VP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line inclined to VP and parallel to HP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Horizontal and Vertical traces of line)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
	Lecture 8	Projection of Points and Lines(Projection of Points)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line perpendicular to HP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line perpendicular to VP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line parallel to HP and VP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA

Week 4	Lecture 8	Projection of Points and Lines(Projection of line inclined to HP and parallel to VP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Projection of line inclined to VP and parallel to HP)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
		Projection of Points and Lines(Horizontal and Vertical traces of line)	T-1		Discuss about the basic concept of straight line and point in first angle and third angle	Learn about the basics of first angle and third angle projection method	Whiteboard, ppt	NA
Week 5	Lecture 9				Online Assignment			
	Lecture 10	Orthographic Projections (Method of obtaining Orthographic Projections in First angle and third angle projection.)	R-3	RW-3	Discuss about the principles of orthographic projections	Be able to understand the relevance of projection, type of projection, system of orthographic projection	Whiteboard, PPT and videos	NA
Week 6	Lecture 11	Orthographic Projections (Principles of orthographic projections)	T-1	RW-3	Discuss about the principles of orthographic projections	Be able to understand the relevance of projection, type of projection, system of orthographic projection	Whiteboard, PPT and video	NA
	Lecture 12	Orthographic Projections (Principles of orthographic projections)	T-1	RW-3	Discuss about the principles of orthographic projections	Be able to understand the relevance of projection, type of projection, system of orthographic projection	Whiteboard, PPT and video	NA
Week 7	Lecture 13				Online Assignment			
		SPILL OVER						
Week 7	Lecture 14				Spill Over			
		MID-TERM						

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Week 8	Lecture 15	Sectional views(Sectioning webs and ribs)	R-4	RW-1	Describe the concept of a sectional view, define what is meant by cutting plane, Preparing different kind of sections, how to deal with ribs, webs, holes, spokes	Be able to show all the complicated internal features of a machine part	With the help of animations.	
	Lecture 16	Sectional views(Sectioning webs and ribs)	R-4	RW-1	Describe the concept of a sectional view, define what is meant by cutting plane, Preparing different kind of sections, how to deal with ribs, webs, holes, spokes	Be able to show all the complicated internal features of a machine part	With the help of animations.	
Week 9	Lecture 17	Sectional views(Importance of sectioning)	T-1	RW-1	Describe the concept of a sectional view, define what is meant by cutting plane, Preparing different kind of sections, how to deal with ribs, webs, holes, spokes	Be able to show all the complicated internal features of a machine part	With the help of animations.	Industrial Drawing
		Sectional views(Types of section including full section, offset section and half section)	T-1	RW-1	Describe the concept of a sectional view, define what is meant by cutting plane, Preparing different kind of sections, how to deal with ribs, webs, holes, spokes	Be able to show all the complicated internal features of a machine part	With the help of animations.	Industrial Drawing
	Lecture 18	Sectional views(Importance of sectioning)	T-1	RW-1	Describe the concept of a sectional view, define what is meant by cutting plane, Preparing different kind of sections, how to deal with ribs, webs, holes, spokes	Be able to show all the complicated internal features of a machine part	With the help of animations.	Industrial Drawing
		Sectional views(Types of section including full section, offset section and half section)	T-1	RW-1	Describe the concept of a sectional view, define what is meant by cutting plane, Preparing different kind of sections, how to deal with ribs, webs, holes, spokes	Be able to show all the complicated internal features of a machine part	With the help of animations.	Industrial Drawing

Week 10	Lecture 19	Isometric Projections (Principles of Isometric Projections)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
		Isometric Projections (Isometric Scale)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
		Isometric Projections (Terminology)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
	Lecture 20	Isometric Projections (Principles of Isometric Projections)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
		Isometric Projections (Isometric Scale)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
		Isometric Projections (Terminology)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
	Lecture 21	Isometric Projections (Principles of Isometric Projections)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
		Isometric Projections (Isometric Scale)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.
		Isometric Projections (Terminology)	T-1 R-5	RW-1	Types and methods of axonometric projection, principles of isometric projection, isometric scale, Terminology	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	Isometric view of a building, hostel.

Week 11	Lecture 22	Isometric Projections (Isometric view of step, inclined, oblique, cylindrical blocks)	T-1	RW-1	Methods of drawing isometric projection,construction of plane figures, isometric projection of solids	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	
		Isometric Projections (Isometric Dimensioning)	T-1	RW-1	Methods of drawing isometric projection,construction of plane figures, isometric projection of solids	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	
Week 12	Lecture 23	Isometric Projections (Isometric view of step, inclined, oblique, cylindrical blocks)	T-1	RW-1	Methods of drawing isometric projection,construction of plane figures, isometric projection of solids	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	
		Isometric Projections (Isometric Dimensioning)	T-1	RW-1	Methods of drawing isometric projection,construction of plane figures, isometric projection of solids	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	
	Lecture 24	Isometric Projections (Isometric view of step, inclined, oblique, cylindrical blocks)	T-1	RW-1	Methods of drawing isometric projection,construction of plane figures, isometric projection of solids	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	
		Isometric Projections (Isometric Dimensioning)	T-1	RW-1	Methods of drawing isometric projection,construction of plane figures, isometric projection of solids	Be able to convert two dimensional drawing into three dimensional	Whiteboard, PPT and Video	
Week 13	Lecture 25	Development of Surfaces (Methods of development)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	

Week 13	Lecture 25	Development of Surfaces (Parallel line development of cylinder and prism)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
		Development of Surfaces (Radial line development of cone and pyramid)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
	Lecture 26	Development of Surfaces (Methods of development)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
		Development of Surfaces (Parallel line development of cylinder and prism)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
		Development of Surfaces (Radial line development of cone and pyramid)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
	Lecture 27	Development of Surfaces (Methods of development)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
		Development of Surfaces (Parallel line development of cylinder and prism)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
		Development of Surfaces (Radial line development of cone and pyramid)	T-1 R-1 R-2		Discuss the basic concept about development	Learn how to develop the prism and cylinder using parallel line development	Demo Kit, Whiteboard, PPT and video	
		SPILL OVER						
Week 14	Lecture 28				Spill Over			
Week 15	Lecture 29				Spill Over			
	Lecture 30				Spill Over			

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Plan for Tutorial: (Please do not use these time slots for syllabus coverage)

Tutorial No.	Lecture Topic	Type of pedagogical tool(s) planned (case analysis,problem solving test,role play,business game etc)
Tutorial1	Lettering and dimensioning	Problem Solving
Tutorial2	Lettering and dimensioning	Problem Solving
Tutorial3	Different types of lines	Problem Solving
Tutorial4	Plain scale	Problem Solving
Tutorial5	Diagonal scale	Problem Solving
Tutorial6	Teaching Practice 1	Problem Solving
Tutorial7	Projection of Points	Problem Solving
Tutorial8	Projection of lines	Problem Solving
Tutorial9	Teaching Practice 2	Problem Solving
Tutorial10	Orthographic Projections	Problem Solving
Tutorial11	Orthographic Projections	Problem Solving
Tutorial12	Orthographic Projections	Problem Solving
Tutorial13	Orthographic Projections	Problem Solving
Tutorial14	Teaching Practice 3	Problem Solving
After Mid-Term		
Tutorial15	Full section view	Problem Solving
Tutorial16	Half section view	Problem Solving
Tutorial17	Offset section view	Problem Solving
Tutorial18	Teaching Practice 4	Problem Solving
Tutorial19	Isometric Projections of polygons and circle	Problem Solving
Tutorial20	Isometric Projections of statement question	Problem Solving
Tutorial21	Teaching Practice 5	Problem Solving
Tutorial22	Isometric Projections of step, inclined, oblique, cylindrical blocks	Problem Solving
Tutorial23	Isometric Projections of step, inclined, oblique, cylindrical blocks	Problem Solving
Tutorial24	Teaching Practice 6	Problem Solving
Tutorial25	Development of Prism	Problem Solving
Tutorial26	Development of Prism	Problem Solving

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Tutorial27	Development of Pyramids	Problem Solving
Tutorial28	Teaching Practice 7	Problem Solving