Ref No:

Academic Evaluation and Monitoring Cell

COURSE PLAN

Academic Year 2019 – 20

Program:	B E – MECHANICAL
Semester :	II
Course Code:	18EGDL25
Course Title:	ENGINEERING GRAPHICS
Credit / L-T-P:	3 / 2-0-2
Total Contact Hours:	60
Course Plan Author:	PARAMESHA M

#29, Hesaraghatta Main road, Chimney Hills, Chikkabanavara P.O.,
Bengaluru – 560090, Karnataka, INDIA
Phone / Fax :+91 80 23721477 -STD- 080 23721315
Web:www.skit.org.in
E-mail:skit1princi@gmail.com/principal@skit.org.in

Table of Contents

Note : Remove “Table of Content” before including in CP Book

Each Course Plan shall be printed and made into a book with cover pag Blooms Level in all sections match with A.2, only if you plan to teach / learn at higher levels

A. COURSE INFORMATION

1. Course Overview

Degree:	BE	Program:	ME
Year / Semester :	1/II	Academic Year:	2019-2020
Course Title:	Engineering Graphics	Course Code:	18EGDL25
Credit / L-T-P:	3/2-2-0	SEE Duration:	180 Minutes
Total Contact Hours:	60	SEE Marks:	60Marks
CIA Marks:	40	Assignment	1 / Module
Course Plan Author:	Paramesha M	Sign	Dt:
Checked By:	Chandraiah M T	Sign	Dt:

2. Course Content

Content / Syllabus of the course as prescribed by University or designed by institute. Identify 2 concepts per module as in G.

Module	Module Content	Teaching Hours	Module Concepts	Blooms Level
1	Introduction, Drawing Instruments and their uses, BIS conventions, Lettering, Dimensioning and free hand practicing. Computer screen, layout of the software, standard tool-bar/menus and description of most commonly used tool bars, navigational tools. Co-ordinate system .Reference planes. HP, VP, RPP & LPP. of 2D/3D environment. Selection of drawing size and scale. Commands and creation of Lines, Co-ordinate points, axes, ploy-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints viz. tangency, parallelism, inclination and perpendicularity	5	-Drawing basics	L2
2	Introduction, Definitions - Planes of projection, reference line and conventions employed, Projections of points in all the four Quadrants, Projections of straight lines (located in First quadrant/first angle only), True and apparent lengths, True and apparent inclinations to reference planes (No application problems).Orthographic Projections of Plane Surfaces. Projections of plane surfaces–triangle,square, rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only(No problems on punched plates and composite plates).	12	-Orthographic Projections	L3
3	Introduction, Definitions – Projections of right regular tetrahedron, hex-hedron (cube), prisms, pyramids, cylinders and cones in different positions (No problems on octahedron and combination solid	16	- Projections of solids	L3

4	Introduction, Section planes, Sections, Section views, Sectional views, Apparent shapes and True shapes of Sections of right regular prisms, pyramids, cylinders and cones resting with base on hp only. Development of their frustums and truncations	12	-Development of simple solids	L3
5	Introduction, Isometric scale, Isometric projection of simple plane figures, Isometric projection of tetrahedron, hexahedron (cube), right regular prisms, pyramids, cylinders, cones, spheres, cut spheres and combination of two solids, conversion of given isometric/pictorial views to orthographic views of simple objects	15	- Isometric projection	L3

3. Course Material

Books & other material as recommended by university (A, B) and additional resources used by course teacher (C).

1. Understanding: Concept simulation / video ; one per concept ; to understand the concepts ; 15 – 30 minutes
2. Design: Simulation and design tools used – software tools used ; Free / open source
3. Research: Recent developments on the concepts – publications in journals; conferences etc.

Module	Details	Chapters in Book	Available
A	**Text books (Title, Authors, Edition, Publisher, Year.)**		
1,2,3,4,5	Engineering Drawing-N.D Bhatt & V.M Panchal, 48th edition 2005-charotar Publishing House Engineering Graphics-K R Gopalakrishna, 32nd edition, 2005- Subash Publishers Computer Aided Engineering Drawing-Dr. M H Annaiah,Dr. C N Chandrappa and Dr. B Sudheer Premkumar, 5th edition, New age International Publishers	1,2,3,,4,5 1,2,3,4,5 1,2,3,4,5	In Lib,In Dept
B	**Reference books (Title, Authors, Edition, Publisher, Year.)**		
1,2,3,4,5	Computer Aided Engineering Drawing- s. Trymbaka murty- I K International Publishing House Pvt.Ltd Engineering Drawing- N S Parthasarathy & Vela Murali, Oxford University Press 2015	1,2,3,4,5 3,,4,5	In Lib
C	**Concept Videos or Simulation for Understanding**		
C1	https://www.engineeringgraphics		
C2	http://nptel.ac.in		
D	**Software Tools for Design**		
	Solidedge ST4		

4. Course Prerequisites

Refer to GL01. If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

Students must have learnt the following Courses / Topics with described Content . . .

SNo	Course Code	Course Name	Module / Topic / Description	Sem	Remarks	Blooms Level

Note: If prerequisites are not taught earlier, GAP in curriculum needs to be addressed. Include in Remarks and implement in B.5.

5. Content for Placement, Profession, HE and GATE

The content is not included in this course, but required to meet industry & profession requirements and help students for Placement, GATE, Higher Education, Entrepreneurship, etc. Identifying Area / Content requires experts consultation in the area.
Topics included are like, a. Advanced Topics, b. Recent Developments, c. Certificate Courses, d. Course Projects, e. New Software Tools, f. GATE Topics, g. NPTEL Videos, h. Swayam videos etc.

Modules	Topic / Description	Area	Remarks	Blooms Level
1	Auto Cadd	Higher Study	To design model	Apply L3

B. OBE PARAMETERS

1. Course Outcomes

Expected learning outcomes of the course, which will be mapped to POs. Identify a max of 2 Concepts per Module. Write 1 CO per Concept.

#	Cos students should be able to...	Teach. Hours	Concept	Instr Method	Assessment Method	Blooms' Level
18EGDL25	Understand the field of engineering drawing as per BIS conventions and Graphical Languages	5	Drawing basics Reference planes and board LCD Projector	Chalk and board LCD Projector	- sketch book	L2 Understand
18EGDL25	Create Engineering drawings on Orthographic Views	12	Orthographic Projections	Chalk and board LCD Projector	- sketch book & printout -CIE	L3 Apply
18EGDL25	Apply the knowledge of orthographic Projections of simple solids.	16	Projection of Solids	Chalk and board LCD Projector	- sketch book & printout -CIE	L3 Apply
18EGDL25	Apply the knowledge of Lateral surface of simple Solids.	12	Development of simple solids	Chalk and board LCD Projector	- sketch book & printout -CIE	L3 Apply
18EGDL25	Convert pictorial and isometric views of simple objects to orthographic views	15	Isometric projection	Chalk and board LCD	- sketch book & printout -CIE	L3 Apply

				Projector		

Note: Identify a max of 2 Concepts per Module. Write 1 CO per concept.

2. Course Applications

Write 1 or 2 applications per CO.
Students should be able to employ / apply the course learnings to . . .

Modules	Application Area Compiled from Module Applications.	CO	Level
1	To expose the Conventions Followed in Preparation of Engg Drawings.	CO1	L2
2	Its used for construction and fabrication purposes To determine its true length and true inclinations	CO2	L2
3	its helps streamline the manufacturing process	CO3	L2
4	Powerful communication media during the discussion of a new product design	CO4	L2
5	Convert pictorial and and isometric views of simple objects to orthographic views	CO5	L2

4. Mapping Justification

Mapping		Justification	Mapping Level
CO	**PO**	**-**	**-**
CO1	PO1	understand the basic knowledge of Engineering drawing and software	L2
CO1	PO5	Understand the tool like solid edge	L2
CO2	PO1	understand the basic knowledge of points lines and planes	L2
CO2	PO2	Analyzation is require to solve the problem in different position	L3
CO2	PO5	Understand the tool like solid edge	L2
CO3	PO1	understand the basic knowledge of different types of solid part	L2
CO3	PO2	analyzation is require to solve the problem in different stages	L3
CO3	PO5	Understand the tool like solid edge	L2
CO4	PO1	understand the basic knowledge of section of solids	L2
CO4	PO2	Analyzation is require to solve the problem in different stages	L3
CO4	PO5	Understand the tool like solid edge	L2
CO5	PO1	understand the knowledge of isometric view	L2
CO5	PO2	Analyzation is require to solve the combination of solids	L3
CO5	PO5	Understand the tool like solid edge	L2

Note: Write justification for each CO-PO mapping.

4. Articulation Matrix

(CO – PO MAPPING)

-	-	Course Outcomes	Program Outcomes														
Modules	#	COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	Level
1	18EGDL25	Understand the Knowledge of Engineering Geometry and solid edge soft ware	√	-	-	-	√	-	-	-	-	-	-	-	-	-	-	L2
2	18EGDL25	CreateEngineering	√	√	-	-	√	-	-	-	-	-	-	-	-	-	-	L3

		drawings on Orthographic Views. (points line Planes)																
3	18EGDL25	Use the Knowledge of orthographic Projections of simple solids.	√	√	-	-	√	-	-	-	-	-	-	-	-	-	-	L3
4	18EGDL25	Draw the development of Lateral surface of simple Solids.	√	√	-	-	√	-	-	-	-	-	-	-	-	-	-	L3
5	18EGDL25	Draw the isometric Projection of Simple plans and solids	√	√	-	-	√	-	-	-	-	-	-	-	-	-	-	L3

5. Curricular Gap and Content

Topics & contents not covered (from A.4), but essential for the course to address POs and PSOs.

SNo	Gap Topic	Actions Planned	Schedule Planned	Resources Person	PO Mapping
1	Auto Cadd	Presentation by training institute people	08/04/2020	Mr. Mohan Kumar CADD Centre	L3

Note: Write Gap topics from A.4 and add others also.

6. Content Beyond Syllabus

Modules	Gap Topic	Area	Actions Planned	Schedule Planned	Resources Person	PO Mapping
3	Auto Cadd	Placement, GATE, Higher Study,	Presentation by training institute people	05/05/2020	Mr. Mohan Kumar CADD Centre	L3

Note: Anything not covered above is included here.

C. COURSE ASSESSMENT

1. Course Coverage

Assessment of learning outcomes for Internal and end semester evaluation. Distinct assignment for each student. 1 Assignment per chapter per student. 1 seminar per test per student.

Module #	Title	Teaching Hours	No. of question in Exam						CO	Levels
			CIA-1	CIA-2	-	Asg	Extra Asg	SEE		
1	Introduction, Drawing Instruments and their uses	5	-	-	-	-	-	-	CO1	L2
2	introduction, Definitions - Planes of projection,	12	3	3	-	2	1	2	CO2	L3
3	introduction, Definitions – Projections of right regular tetrahedron, hexahedron (cube), prisms, pyramids, cylinders and cones in different positions	16	1	1	-	2	1	2	CO3	L3
4	introduction, Section planes, Sections, Section views, Sectional	12	2	2	-	2	1	2	CO4	L4

	views,									
5	Introduction, Isometric scale, Isometric projection of simple plane	15	1	1	-	2	1	2	CO5	L3
-	**Total**	**60**	**7**	**7**	**-**	**8**	**4**	**8**	**-**	**-**

2. Continuous Internal Assessment (CIA)

Assessment of learning outcomes for Internal exams. Blooms Level in last column shall match with A.2.

Evaluation	Weightage in Marks	CO	Levels
CIA Exam	20	CO2, CO3, CO4, CO5	L3
Sketch Book Assignement1	12	CO2, CO3	L3
Sketch Book Assignement1	12	CO4	L3
Sketch Book Assignement1	12	CO5	L3
Print Out 1	08	CO2, CO3	L3
Print Out 1	08	CO4	L3
Print Out 1	08	CO5	L3
Other Activities define – Slip test			
Final CIA Marks	**40**	**-**	**-**

Module - 1

Title:	Introduction to computer aided sketching	Appr Time:	5 Hrs
a	***Course Outcomes***	-	**Blooms**
-	The student should be able to:	-	**Level**
1	Understand the Engineering Visualization Principle , Projection theory and Applications.	CO1	L2
b	***Course Schedule***	-	-
Class No	**Module Content Covered**	**CO**	**Level**
1	Introduction, Drawing Instruments and their uses, BIS conventions	C01	L2
2	Lettering, Dimensioning and free hand practicing. Computer screen, layout of the software, standard tool-bar/menus and description of most commonly used tool bars	C01	L2
3	Co-ordinate system .Reference planes. HP, VP, RPP & LPP. of 2D/3D environmen	C01	L2
4	Co-ordinate points, axes, ploy-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints viz	C01	L2
5	parallelism, inclination and perpendicularity	C01	L2
c	**Application Areas**	**CO**	**Level**
1	To expose the Conventions Followed in Preparation of Enng Drawings.	CO1	L2

d	**Review Questions**	-	-
e	**Experiences**	-	-

Module – 2

Title:	Orthographic projections of points, lines and planes	Appr Time:	12 Hrs
a	***Course Outcomes***	-	**Blooms**
-	The student should be able to:	-	**Level**
1	Use the Knowledge of orthographic Projections of simple solids.	CO2	L3
b	***Course Schedule***	-	-
Class No	**Module Content Covered**	**CO**	**Level**
1	Projections of points in all the four quadrants Projections of straight lines	CO2	L2
2	Projections of points	CO2	L3
3	Projections of points	CO2	L3
4	Projections of straight lines	CO2	L3
5	Projections of straight lines	CO2	L3
6	Introduction on Orthographic Projections of Plane Surfaces	CO2	L3
7	Problem solved on triangular , square rectangular lamina	CO2	L3
8	Problem solved on pentagonal, hexagonal lamina	CO2	L3
9	Problems solved on circular lamina	CO2	L3
10	Problem solved on top and front view	CO2	L3
11	Problems solved on alpha & beta angle	CO2	L3
12	Problems solved on alpha & beta angle	CO2	L3
C	**Application Areas**	**CO**	**Level**
1	its helps streamline the manufacturing process	CO2	L3
d	**Review Questions**	-	-
1	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view	CO2	L3
2	Line AB is 75 mm long and it is 30 0 & 40 0 Inclined to Hp & Vp respectively. End A is 12mm above Hp and 10 mm in front of Vp. Draw projections. Line is in 1 st quadrant.	CO2	L3
3	A point is 35mm below HP, 15mm behind VP and 25mm behind / in front/ from RPP. Draw its projections and name the side view	CO2	L3
4	Line AB is 75 mm long .It's Fv and Tv measure 50 mm & 60 mm long respectively. End A is 10 mm above Hp and 15 mm in front of Vp. Draw projections of line AB if end B is in first quadrant. Find angle with Hp and Vp.	CO2	L3
5	Line AB 80 mm long, makes 30 0 angle with Hp and lies in an Aux. Vertical Plane 45 0 inclined to Vp. End A is 15 mm above Hp and VT is 10 mm below X-y line. Draw projections, fine angle with Vp and Ht.	CO2	L3
6	he projectors drawn from VT & end A of line AB are 40mm apart. End A is 15mm above Hp and 25 mm in front of Vp. VT of line is 20 mm below Hp. If line is 75mm long, draw it's projections, find inclinations with HP & Vp	CO2	L3
7	A line AB is 75 mm long. It's Fv & Tv make 45 0 and 60 0 inclinations with X-Y line resp End A is 15 mm above Hp and VT is 20 mm below Xy line. Line is	CO2	L3

	in first quadrant. Draw projections, find inclinations with Hp & Vp. Also locate HT.		
8	Projectors drawn from HT and VT of a line AB are 80 mm apart and those drawn from it's ends are 50 mm apart. End A is 10 mm above Hp, VT is 35 mm below Hp while it's HT is 45 mm in front of Vp. Draw projections, locate traces and find TL of line & inclinations with Hp and Vp.	CO2	L3
9	End A of a line AB is 25mm below Hp and 35mm behind Vp. Line is 300 inclined to Hp. There is a point P on AB contained by both HP & VP. Draw projections, find inclination with Vp and traces.	CO2	L3
10	Draw the projections of a line AB 100mm long inclined at 45 ^{0} to VP and 30 ^{0} to HP. One end of the line is 20 mm above the HP and in the VP. Also determine the apparent length and inclinations.	CO2	L3
11	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.	CO2	L3
12	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.	CO2	L3
13	Draw the projections of a line AB 100mm long inclined at 45 ^{0} to VP and 30 ^{0} to HP. One end of the line is 20 mm above the HP and in the VP. Also determine the apparent length and inclinations.	CO2	L3
14	A line AB measuring 70mm has its end A 15mm in front of VP and 20mm above HP and the other end B 60mm in front of VP and 50mm above HP. Draw the projections of the line and find the inclinations of the line with the both reference lines of projections.	CO2	L3
15	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.	CO2	L3
16	A pentagonal lamina of edges 25mm each resting on HP with one of its corners such that the edge opposite to this corner is 20mm above HP and makes an angle of 45 deg with VP. Draw the top and front view is the lamina in this position. Determine the inclination of the lamina with HP	CO2	L3
17	An equilateral triangular lamina of 25mm side lies with one of its edges on HP such that the surface of the lamina is inclined to HP at 60°. The edge on which it rests is inclined to VP at 60°. Draw the projections.	CO2	L3
18	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.	CO2	L3
19	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.	CO2	L3
20	Draw the projections of a line AB 100mm long inclined at 45 ^{0} to VP and 30 ^{0} to HP. One end of the line is 20 mm above the HP and in the VP. Also determine the apparent length and inclinations.		
21	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.		
22	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view.	CO2	L3
23	Draw the projections of a line AB 100mm long inclined at 45 ^{0} to VP and 30 ^{0} to HP. One end of the line is 20 mm above the HP and in the VP. Also determine the apparent length and inclinations.	CO2	L3
24	A line AB measuring 70mm has its end A 15mm in front of VP and 20mm above HP and the other end B 60mm in front of VP and 50mm above HP. Draw the projections of the line and find the inclinations of the line with the both reference lines of projections.	CO2	L3

e	**Experiences**	-	-

b. Assignment -1

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions							
Crs Code:	18EGDL25	Sem:	II	Marks:	5 / 10	Time:	90 – 120 minutes
Course:	Engineering graphics						
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.							

SNo	USN	Assignment Description	Marks	CO	Level
1		An equilateral triangular lamina of 25mm side lies with one of its edges on HP such that the surface of the lamina is inclined to HP at 60°. The edge on which it rests is inclined to VP at 60°. Draw the projections.	12	CO2	L3
2		An equilateral triangular lamina of 25mm side lies on one of its sides on HP. The lamina makes 45° with HP and one of its medians is inclined at 40° to VP. Draw its projections.	12	CO2	L3
3		A triangular lamina of 25mm sides rests on one of its corners on VP such that the median passing through the corner on which it rests is inclined at 30° to HP and 45° to VP. Draw the projections.	12	CO2	L3
4		A triangular plane figure of sides 25 mm is resting on HP with one of its corners, such that the surface of the lamina makes an angle of 60° with HP. If the side opposite to the corner on which the lamina rests makes an angle of 30° with VP, draw the top and front views in this position.	12	CO2	L3
5		A triangular plane lamina of sides 25mm is resting on HP with one of its corners touching it, such that the side opposite to the corner on which it rests is 15mm above HP and makes an angle of 30° with VP. Draw the top and front views in this position. Also determine the inclination of the lamina to the reference plane.	12	CO2	L3
6		A 30-60° set square of 60mm longest side is so kept such that the longest side is in HP, making an angle of 30° with VP. The set square itself is inclined at 45° to VP. Draw the projections of the set square.	12	CO2	L3
7		An isosceles triangular plate of negligible thickness has base 25mm long and altitude of 35mm is placed on HP such that in the front view is seen as an equilateral triangle of 25mm sides with the side that is parallel to VP is inclined at 45° to HP. Draw its top and front views. Also determine the inclination of the plate with the reference plane.	12	CO2	L3
8		A square lamina of 40mm side rests on one of its sides on HP. The lamina makes 30° to HP and the side on which it rests makes 45° to VP. Draw its projections.	12	CO2	L3
9		A square plate of 40mm sides rests on HP such that one of the diagonals is inclined at 30° to HP and 45° to VP. Draw its projections.	12	CO2	L3
10		A square lamina ABCD of 40mm side rests on corner A such that the diagonal AC appears to be at 45° to VP. The two sides AB and AD containing the A make equal inclinations with HP. The surface of the lamina makes 30° with HP. Draw its top and front views.	12	CO2	L3

11		A top view of a square lamina of side 30 mm is a rectangle is a sides 30mm x 20mm with the longer side of the rectangle being parallel to both HP and VP. Draw the front views of the square lamina. What is the inclination of the surface of the lamina with HP and VP?	12	CO2	L3
12		A rectangular lamina of sides 20mm x 30mm rests on HP on one of its longer edges. The lamina is tilted about the edge on which it rests till its plane surface is inclined to HP at 45 °. The edge on which it rests is inclined at 30° to VP. Draw the projections of the lamina.	12	CO2	L3
13		A rectangular lamina of 35mm x 20mm rests on HP one of its shorter edges. The lamina is rotated about the edge on which it rests till it appears as a square in the top view. The edge on which the lamina rests being parallel to both HP and VP. Draw its projections and find its inclinations to HP and VP.	12	CO2	L3
14		A rectangular lamina of 35mm x 20mm rests on HP on one of its shorter edges. The lamina is rotated about the edge on which it rests till it appears as a square in the top view. The edge on which the lamina rests is inclined 30° to VP. Draw its projections and find its inclination to HP.	12	CO2	L3
15		A rectangular lamina of sides 20mm x 25mm has an edge in HP and adjoining in VP, is tilted such the front view appears as a rectangle of 20mm x 15mm. The edge, which is in VP, is 30mm from the right profile plane. (a) Draw the top view, front view and the left profile view in this position. (b) Find its inclinations with the corresponding principal planes.	12	CO2	L3
16		The front view of a rectangular lamina of sides 30mm x 20mm is square of 20mm sides. Draw the projections and determine the inclinations of the surface of the lamina with HP and VP.	12	CO2	L3
17		A mirror 30mm x 40mm is inclined to the wall such that its front view is a square of 30mm side. The longer sides of the mirror appear perpendicular to both HP and VP. Find the inclination of the mirror with the wall.	12	CO2	L3
18		A rectangle plate of negligible thickness of size 35 x 20mm has one of its shorter edges in VP with that edge inclined at 40° to HP. Draw the top view it its front view is a square of side 20mm.	12	CO2	L3
19		A pentagonal lamina of edges 25mm is resting on HP with one of its sides such that the surface makes an angle of 60 with HP. The edge on which it rests is inclined at 45° to VP. Draw its projections.	12	CO2	L3
20		A pentagonal lamina of edges 25mm is resting on HP with one of its corners such that the plane surface makes an angle of 60° with HP. The two of the edges containing the corner on which the lamina rests make equal inclinations with HP. When the edge opposite to this corner make an angle of 45° with VP and nearer to the observer, draw the top and front views of the plane lamina in this position.	12	CO2	L3
21		A pentagonal lamina of edges 25mm is resting on HP with one of its corners such that the corner is 20mm above HP and makes an angle of 45° with VP. Draw the top and front views of the lamina in this position. Determine the inclination of the lamina with HP.	12	CO2	L3

22		A pentagonal lamina of sides 25mm is resting on HP with one of its edges on HP with the corner opposite to that edge touching VP. This edge is parallel to VP and the corner, which touches VP, is at a height of 15mm above HP. Draw the projections of the lamina and determine the inclinations of the lamina with HP and VP and the distance at which the parallel edge lies from VP.	12	CO2	L3
23		A pentagonal lamina of edges 25mm is placed on one of its corners on HP such that the perpendicular bisector of the edge passing through the corner on which the lamina rests is inclined at 30° to HP and 45° VP. Draw the top and front views of the lamina.	12	CO2	L3
24		A pentagonal lamina of sides 25mm is having a side both on HP and VP. The corner opposite to the side o which it rests is 15mm above HP. Draw the top and front views of the lamina.	12	CO2	L3
25		A pentagonal lamina of sides 25mm is having a side both on HP and VP. The surface of the lamina is inclined at an angle of 60° with HP. Draw the top and front views of the lamina.	12	CO2	L3
26		A regular pentagonal lamina of 25mm side is resting on one of its corners on HP while the side opposite to this corner touches VP. If the lamina makes an angle of 60° with HP. Draw the projections of the lamina.	12	CO2	L3
27		A pentagonal lamina having edges 25mm is placed on one of its corners on HP such that the surface makes an angle of 30° with HP and perpendicular bisector of the edge passing through the corner on which the lamina rests appears to be inclined at 30° to VP. Draw the top and front views of the lamina.	12	CO2	L3
28		A regular pentagonal lamina of 25mm side is resting on one of its sides on HP while the corner opposite to this side touches VP. If the lamina makes an angle of 60° with HP, draw the projections of the lamina.	12	CO2	L3
29		A pentagonal lamina of edges 25mm is resting on VP with one of its sides such that the surface makes an angle of 60° with VP. The edge on which it rests is inclined at 45° to HP. Draw the projections.	12	CO2	L3
30		A pentagonal lamina having edges 25mm is placed on of its corners on VP such that the surface makes an angle 30° with VP and perpendicular bisector of the edge, passing through the corner on which the lamina rests appears to be inclined at 30° to HP. Draw the top and front views of the lamina.	12	CO2	L3
31		A pentagonal lamina having edges 25mm is placed on of its corners on VP such that the surface makes an angle 30° with VP and perpendicular bisector of the edge, passing through the corner on which the lamina rests is inclined at 45° to HP. Draw the top and front views of the lamina.	12	CO2	L3
32		A hexagonal lamina of 30mm sides rests on HP with one of its corners touching VP and surface inclined at 45° to it. One of its edges is inclined to HP at 30°. Draw the front and top views of the lamina in its final position.	12	CO2	L3
33		Draw the top and front views of a hexagonal lamina of 30mm sides having two of its edges parallel to both vertical and horizontal planes and one of its edges is 10mm from each of the planes of projection. The surface of the lamina is inclined at an	12	CO2	L3

		angle of 60° to the HP.			
34		A regular hexagon of sides 30mm is lying in such a way that one of its sides touches both the reference planes. If the lamina makes 60° with HP, draw the projections of the lamina.	12	CO2	L3
35		A regular hexagon of sides 30mm is lying in such a way that one of its sides touches both the reference planes. If the side opposite to the side on which it rests is 45mm above HP, draw the projections of the lamina.	12	CO2	L3
36		A regular hexagonal lamina of sides 25mm is lying in such a way that one of its sides on HP while the side opposite on which it rests is on VP. If the lamina makes 60° to HP. Draw the projections of the lamina.	12	CO2	L3
37		A regular hexagonal lamina of sides 25mm is lying in such a way that one of corners pm HP while the corner opposite to the corner on which it rest is on VP. If the lamina makes 60° to HP, Draw the projections of the lamina.	12	CO2	L3
38		A hexagonal lamina of sides 30mm is resting on one of its corners in VP and its surface inclined at an angle of 30° with VP. The diagonal passing through that corner which is in VP is inclined at 45° to HP. Draw the projections of the lamina.	12	CO2	L3
39		A hexagonal lamina of sides 30mm is resting on one of its corners in VP and its surface inclined at an angle of 30° with VP. The diagonal passing through that corner which is in VP appears to be inclined at 45° to HP. Draw the projections of the lamina.	12	CO2	L3
40		A hexagonal lamina of sides 25mm rests on one of its sides on HP. The lamina makes 45° to HP and the side on which it rests makes 30° to VP. Draw its projections.	12	CO2	L3
41		A hexagonal lamina of sides 25mm rests on one of its corners on HP. The lamina makes 45° to HP and the diagonal passing through the corner on which it rests is inclined at 30° to VP. Draw its projections.	12	CO2	L3
42		A hexagonal lamina of sides 25mm rests on one of its corners on HP. The lamina makes 45° to HP and the diagonal passing through the corner on which it rests appears to be inclined at 30° to VP. Draw its projections.	12	CO2	L3
43		A hexagonal lamina of sides 25mm rests on one of its sides on VP. The lamina makes 45° to VP and the side on which it rests makes 45° to HP. Draw its projections.	12	CO2	L3
44		A hexagonal lamina of sides 25mm rests on one of its sides on VP. The side opposite to the side on which it rests is 30mm infront of VP and the side on which it rests makes 45° to HP. Draw its projections. Also determine the inclination of the lamina with the reference plane.	12	CO2	L3
45		A hexagonal lamina of sides 25mm rests on one of its corners on HP. The corner opposite to the corner on which it rests is 35mm above HP and the diagonal passing through the corner on which it rests is inclined at 30° to VP. Draw its projections. Find the inclination of the surface with HP.	12	CO2	L3
46		An equilateral triangular lamina of 25mm side lies with one of its edges on HP such that the surface of the lamina is inclined to HP at 60°. The edge on which it rests is inclined to VP at 60°. Draw the projections.	12	CO2	L3

Module – 3

Title:	Projection of solids	Appr Time:	16 Hrs
a	***Course Outcomes***	-	**Blooms**
-	The student should be able to:	-	**Level**
1	Draw the development of Lateral surface of simple Solids.	CO3	L3
b	***Course Schedule***		
Class No	**Module Content Covered**	**CO**	**Level**
1	Introduction, Definitions course objectives and outcomes.	CO3	L3
2	Projections of right regular tetrahedron	CO3	L3
3	Projections of right regular tetrahedron	CO3	L3
4	Projections of right regular hexahedron	CO3	L3
5	Projections of right regular prisms	CO3	L3
6	Projections of right regular prisms	CO3	L3
7	Projections of right regular prisms	CO3	L3
8	Projections of right regular pyramids	CO3	L3
9	Projections of right regular cylinders	CO3	L3
10	Projections of right regular cylinders	CO3	L3
11	Projections of right regular cones	CO3	L3
12	Projections of right regular cones	CO3	L3
13	Problem solved on triangular face	CO3	L3
14	Problem solved on triangular face	CO3	L3
15	Problem solved on slant edge	CO3	L3
16	Problem solved on slant edge	CO3	L3
c	**Application Areas**	**CO**	**Level**
1	Powerful communication media during the discussion of a new product design	CO3	L3
d	**Review Questions**	-	-
1	A square prism 35mm sides of base and 60mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30^{o}. Draw the projections of the prism when the axis is inclined to HP at 45^{o}.	CO3	L3
2	A square prism 35 mm sides of base and 60mm axis length rests on HP one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40^{o} and appears to be inclined to VP at 45^{o}	CO3	L3
3	A square prism 35mm sides of base and 60mm axis length rests on HP on	CO3	L3

	one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40^o and to VP at 30^o		
4	A hexagonal prism 25mm sides of base and 50mm axis length rests on HP on one of its edges. Draw the projections of the prism when the axis is inclined to HP at 45^o and appears to be inclined to VP 40^o	CO3	L3
5	A square pyramid 35mm sides of base and 65 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30. Draw the projections of the prism when the axis is inclined to HP at 45^o	CO3	L3
6	A pentagonal pyramid 25mm sides of base and 60 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30^o. Draw the projections of the prism when the axis is inclined to HP at 40 ^{o}	CO3	L3
7	A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45	CO3	L3
8	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45 ^{o}.	CO3	L3
9	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45^o.	CO3	L3
10	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45^o	CO3	L3
e	**Experiences**	-	-

b. Assignment – 2

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions							
Crs Code:	18EGDL25	Sem:	II	Marks:	5 / 10	Time:	90 – 120 minutes
Course:	Engineering Graphics						
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.							

SNo	USN	Assignment Description	Marks	CO	Level
1		A square prism 35mm sides of base and 60mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30^o. Draw the projections of the prism when the axis is inclined to HP at 45^o.	12	CO3	L3
2		A square prism 35 mm sides of base and 60mm axis length rests on HP one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40^o and appears to be inclined to VP at 45^o	12	CO3	L3

3		A square prism 35mm sides of base and 60mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40^o and to VP at 30^o	12	CO3	L3
4		A hexagonal prism 25mm sides of base and 50mm axis length rests on HP on one of its edges. Draw the projections of the prism when the axis is inclined to HP at 45^o and appears to be inclined to VP 40^o	12	CO3	L3
5		A square pyramid 35mm sides of base and 65 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30. Draw the projections of the prism when the axis is inclined to HP at 45^o	12	CO3	L3
6		A pentagonal pyramid 25mm sides of base and 60 mm axis length rests on HP on one of its edges of the base which is inclined to VP at 30^o. Draw the projections of the prism when the axis is inclined to HP at 40 ^{o}	12	CO3	L3
7		A square pyramid 35mm sides of base and 60mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45	12	CO3	L3
8		A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45 ^{o}.	12	CO3	L3
9		A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45^o.	12	CO3	L3
10		A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the axis is inclined to VP at 45^o	12	CO3	L3

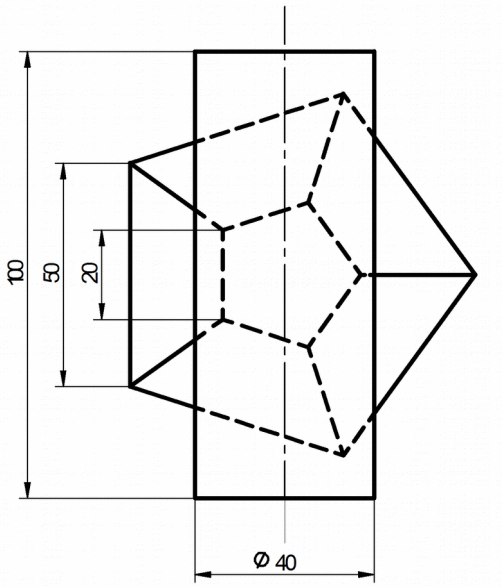
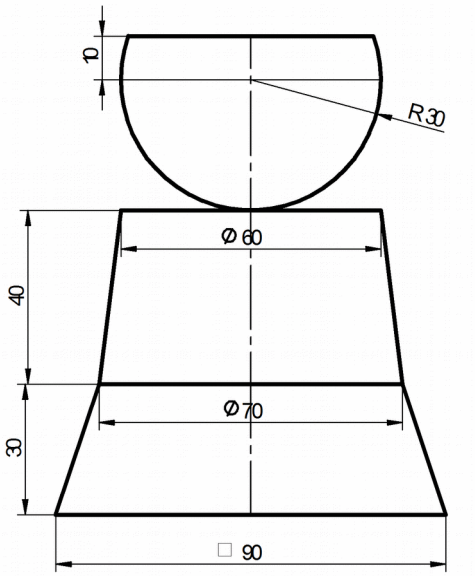
Module – 4

Title:	Development of lateral surface of solids	Appr Time:	15 Hrs
a	***Course Outcomes***	-	**Blooms**
-	The student should be able to:	-	**Level**
1	Draw the development of Lateral surface of simple Solids.	CO4	L3
b	***Course Schedule***		
Class No	**Module Content Covered**	**CO**	**Level**
1	Introduction to Section planes	CO4	L3
2	Sections, Section views, Apparent shapes .	CO4	L3
3	Sections, Section views, Apparent shapes .	CO4	L3
4	True shapes of Sections of right regular prisms resting with base on hp	CO4	L3
5	True shapes of Sections of right regular prisms resting with base on hp	CO4	L3

6	True shapes of Sections of right regular prisms resting with base on hp	CO4	L3
7	True shapes of Sections of right regular pyramids resting with base on hp	CO4	L3
8	True shapes of Sections of right regular pyramids resting with base on hp	CO4	L3
9	True shapes of Sections of right regular cylinders resting with base on hp	CO4	L3
10	True shapes of Sections of right regular cones resting with base on hp	CO4	L3
11	Development of their frustums and truncations	CO4	L3
12	Development of their frustums and truncations	CO4	L3
13	Introduction to Section planes	CO4	L3
14	Sections, Section views, Apparent shapes .	CO4	L3
15	Sections, Section views, Apparent shapes .	CO4	L3
c	**Application Areas**	**CO**	**Level**
1	its helps to measure the true length and inclination of the drawing	CO4	L3
d	**Review Questions**	-	-
1	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40° and to VP at 30°.	CO4	L3
2	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40° and to VP at 30°.	CO4	L3
2	A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45°.	CO4	L3
3	A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis is inclined to VP at 45°.	CO4	L3
4	A cone of base dia 40mm and axis length 50mm is resting on HP on a point on the circumference of its base such that its apex is at 40mm above the HP and its top view of the axis is inclined at 60° to VP. Draw the top and front views of the solid. Also, determine the inclinations of the axis when the base is nearer to the observer.	CO4	L3
6	A rectangular prism of base size 25mm X 40 mm and axis length 65 mm is resting on H P on its base with the longer side of base inclined at 30° to VP. It is cut by a plane inclined at 40° to HP and perpendicular to VP and passes through the extreme left corner of base. Draw the development of the lateral surface of the remaining portion of the the prism.	CO4	L3
7	A vertical cylinder of base diameter 45mm and axis length 60mm is cut by a plane perpendicular to VP and inclined at 50° to HP is passing through the center point of the top face. Draw the development of the Lateral surface of the cylinder.	CO4	L3
8	A square pyramid of 25mm base edge and 50mm height rests with its base on HP with all of its base edges equally inclined to VP. It is cut by a plane perpendicular to VP and inclined to HP at 60° passing throught the extreme right corner of base. Draw the development of the lateral surface of the Pyramid.	CO4	L3
e	**Experiences**	-	-

Module – 5

Title:	Isometric projections	Appr Time:	15 Hrs
a	***Course Outcomes***	-	**Blooms**
-	The student should be able to:	-	**Level**
1	Draw the isometric Projection of Simple plans and solids	CO5	L3
b	***Course Schedule***		
Class No	**Module Content Covered**	**CO**	**Level**
1	Introduction to Subject, course objectives and outcomes	CO5	L3
2	Isometric scale	CO5	L3
3	Isometric projection of simple plane	CO5	L3
4	Isometric projection of simple plane figures	CO5	L3
5	Isometric projection of simple plane figures	CO5	L3
6	Isometric projection of tetrahedron	CO5	L3
7	Isometric projection of tetrahedron	CO5	L3
8	Isometric projection of hexahedron	CO5	L3
9	Isometric projection of hexahedron	CO5	L3
10	right regular prisms	CO5	L3
11	Isometric projection of pyramids	CO5	L3
12	Isometric projection of cylinders	CO5	L3
13	Isometric projection of cones	CO5	L3
14	cut spheres and combination of two solids,	CO5	L3
15	conversion of given isometric/pictorial views to orthographic views of simple objects	CO5	L3
c	**Application Areas**	**CO**	**Level**
1	Convert pictorial and isometric views of simple objects to orthographic views	CO5	L3
d	**Review Questions**	-	-
1	A rectangular prism of base size 25mm X 40 mm and axis length 65 mm is resting on H P on its base with the longer side of base inclined at 30° to VP. It is cut by a plane inclined at 40° to HP and perpendicular to VP and passes through the extreme left corner of base. Draw the development of the lateral surface of the remaining portion of the the prism.	CO5	L3
2	A sphere of diameter 50 mm rests centrally o top of a cube of sides 50 mm. Draw the isometric projections of the combination of solids.	CO5	L3
2	A hemisphere of 40 mm diameter is supported co-axially on ht vertex of a cone of base dia. 60 mm and axis length 50mm. The flat circular face of the hemisphere is facing upside. Draw the isometric projections of the combination of solids.	CO5	L3
3	Draw the isometric projection of a rectangular prism of 60 x 80 x 20 mm thick surrounding a tetrahedron of sides 45mm such that the axes of the solids are collinear and at least one of the edges of both the solids is parallel to VP.	CO5	L3
4	Following figure shows the top view of a cylinder which is centrally mounted on a frustum of a pentagonal pyramid of 60mm Height. Draw the isometric projections of the combination of solids.	CO5	L3

			
5	Following figure shows the front view of combination of solids consisting of a cut sphere and frustums of a cone and a square pyramid. Draw the isometric projections of the combination of solids. 	CO5	L3
6	The frustum of a square pyramid of base side 40mm, top face side 20mm and height 60mm rest on the center of the square block of side 60mm and height 20mm. The edges of the pyramid are parallel to the top edges of the square block. Draw the isometric projections of the combination of solids	CO5	L3
7	A rectangular pyramid of base 40mm x 25mm and height 50mm is placed centrally on a rectangular slab sides 100mm x 60mm and thickness 20mm. Draw the isometric projections of the combination.	CO5	L3
8	A frustum of cone base diameter 50mm, top diameter 25mm and height 50mm is placed centrally on the top face of a cylinder diameter 60mm and height 60mm. Draw the isometric projections of the combination.	CO5	L3
9	A hemisphere diameter 50mm is resting on its curved surface centrally on the top face of frustum of a rectangular pyramid base 80mm x 60mm and top 60mm x 40mm, height 55mm. Draw the isometric projections of the combination.	CO5	L3
10	A hemisphere diameter 70mm is placed on the ground on its curved surface.	CO5	L3

	A cone base diameter 70mm and height 70mm is placed centrally on it. Draw the isometric projections of the combination.		
e	**Experiences**	-	-

b. Assignment – 3

Note: A distinct assignment to be assigned to each student.

Model Assignment Questions							
Crs Code:	18EGDL25	Sem:	II	Marks:	5 / 10	Time:	90 – 120 minutes
Course:	Engineering Graphics						
Note: Each student to answer 2-3 assignments. Each assignment carries equal mark.							

SNo	USN	Assignment Description	Marks	CO	Level
1		The frustum of a square pyramid of base side 40mm, top face side 20mm and height 60mm rest on the center of the square block of side 60mm and height 20mm. The edges of the pyramid are parallel to the top edges of the square block. Draw the isometric projections of the combination of solids	30	CO5	L3
2		Draw the isometric projection of a rectangular prism of 60 x 80 x 20 mm thick surrounding a tetrahedron of sides 45mm such that the axes of the solids are collinear and at least one of the edges of both the solids is parallel to VP.	30	CO5	L3
3		A sphere of diameter 50 mm rests centrally o top of a cube of sides 50 mm. Draw the isometric projections of the combination of solids.	30	CO5	L3
4		The frustum of a square pyramid of base side 40mm, top face side 20mm and height 60mm rest on the center of the square block of side 60mm and height 20mm. The edges of the pyramid are parallel to the top edges of the square block. Draw the isometric projections of the combination of solids	30	CO5	L3
5		A rectangular pyramid of base 40mm x 25mm and height 50mm is placed centrally on a rectangular slab sides 100mm x 60mm and thickness 20mm. Draw the isometric projections of the combination.	30	CO5	L3
6		A frustum of cone base diameter 50mm, top diameter 25mm and height 50mm is placed centrally on the top face of a cylinder diameter 60mm and height 60mm. Draw the isometric projections of the combination.	30	CO5	L3
7		A hemisphere diameter 50mm is resting on its curved surface centrally on the top face of frustum of a rectangular pyramid base 80mm x 60mm and top 60mm x 40mm, height 55mm. Draw the isometric projections of the combination.	30	CO5	L3
8		A sphere of diameter 50 mm rests centrally o top of a cube of sides 50 mm. Draw the isometric projections of the combination of solids.	30	CO5	L3
9		A hemisphere of 40 mm diameter is supported co-axially on ht vertex of a cone of base dia. 60 mm and axis length 50mm. The flat circular face of the hemisphere is facing upside. Draw the isometric projections of the combination of solids.	30	CO5	L3
10		Draw the isometric projection of a rectangular prism of 60 x 80 x 20 mm thick surrounding a tetrahedron of sides 45mm such that	30	CO5	L3

		the axes of the solids are collinear and at least one of the edges of both the solids is parallel to VP.			

E. CIA Exam

Course:		Engineering Graphics						Month / Year		May /2020	
Crs Code:		18EGDL25	Sem:	II	Marks:	100		Time:		180 minutes	
-	**Note**	**Note: Answer any 3 questions, each carry equal marks.**							**Marks**	**CO**	**Level**
1	a	A point is lying on HP, 20mm behind VP and 25 mm behind/in front/from RPP. Draw the projections and name the side view							15	CO3	L3
	b	Draw the projections of a line AB 100mm long inclined at 45 ^{0} to VP and 30 ^{0} to HP. One end of the line is 20 mm above the HP and in the VP. Also determine the apparent length and inclinations							15	CO3	L3
		OR									
1	a	A regular hexagonal lamina of sides 30mm is lying in such a way that one of its sides touches both the reference planes. If the lamina makes 60° with HP. Draw the projections of the lamina.							30	CO4	L3
2	a	A pentagonal prism 25mm sides of base & 50mm axis length is suspended freely from a corner of its base. Draw the projections of the prism when the axis appears to be inclined to VP at 45^0							40	CO4	L3
3	a	A frustum of a pentagonal pyramid, smaller base sides 16mm and bigger top face sides 32mm and height 40mm is resting on the HP on its smaller base, with one of its base side parallel to the VP. Draw the projections of the frustum and develop the lateral surface of it.							30	CO4	L3
		OR									
3	b	A triangular pyramid base side 40mm and height 50mm is placed centrally on a slab side 80mm and 20mm thick. Draw the isometric projections of the combinations							30	C04	L3

F. EXAM PREPARATION

1. University Model Question Paper

Course:	Engineering Graphics					Month / Year	May /2020	
Crs Code:	18EGDL25	Sem:	II	Marks:	100	Time:	180 minutes	
-	**Note**	**Note: Answer any 3 questions, each carry equal marks.**				**Marks**	**CO**	**Level**
1	a	line AB is 75 mm long. It's FV & TV make 45 0 and 60 0 inclinations with X-Y line resp End A is 15 mm above Hp and VT is 20 mm below XY line. Line is in first quadrant. Draw projections, find inclinations with Hp & VP. Also locate HT.				15	CO3	L3
1	b	A rectangular lamina of sides 20mm x 25mm has an edge in HP and adjoining in VP, is tilted such the front view appears as a rectangle of 20mm x 15mm. The edge, which is in VP, is 30mm from the right profile plane. (a) Draw the top view, front view and the left profile view in this position. (b) Find its inclinations with the corresponding principal planes.				15	CO3	L3
		OR						
1	a	A regular hexagonal lamina of sides 30mm is lying in such a way that one of its sides touches both the reference planes. If the lamina makes 60° with HP. Draw the projections of the lamina.				30	CO4	L3
2	a	A pentagonal prism 25mm sides of base & 50mm axis length is suspended freely from a corner of its base. Draw the projections of the prism when the axis appears to be inclined to VP at 45^0				40	CO4	L3
3	a	A frustum of a pentagonal pyramid, smaller base sides 16mm and bigger top face sides 32mm and height 40mm is resting on the HP on its smaller base, with one of its base side parallel to the VP. Draw the projections of the frustum and develop the lateral surface of it.				30	CO4	L3
		OR						
3	b	A triangular pyramid base side 40mm and height 50mm is placed centrally on a slab side 80mm and 20mm thick. Draw the isometric projections of the combinations				30	C04	L3

2. SEE Important Questions

Course:	Engineering Graphics					Month / Year	May /2020	
Crs Code:	18EGDL25	Sem:	II	Marks:	100	Time:	180 minutes	
	Note	**Answer any 3 questions, each carry equal marks.**				-	-	
Module	Qno.	Important Question				**Marks**	**CO**	**Year**
1	a	Draw all the three views of point P lying 60mm below HP 70mm in front of VP and 40mm from the RPP. Also state the quadrant in which it lies				10	CO2	2014
	a	A point A is 40mm in front of VP and is situated in the fourth quadrant its shortest distance from the intersection of XY and X Y is 45 mm , Draw its projections. Also find its distance from HP.				10	CO2	2016
	a	A point is 35mm below HP, 15mm behind VP and 25mm behind / in front/ from RPP. Draw its projections and name the side view					CO2	

1	b	line AB is 75 mm long. It's FV & TV make 45 0 and 60 0 inclinations with X-Y line resp End A is 15 mm above Hp and VT is 20 mm below XY line. Line is in first quadrant. Draw projections, find inclinations with Hp & VP. Also locate HT.	15	CO2	2013
	b	Line AB 100 mm long is 30 0 and 45 0 inclined to Hp & VP respectively. End A is 10 mm above Hp and it's VT is 20 mm below Hp Draw projections of the line and it's HT.	15	CO2	2017
	b	The top view of a 75 mm long line AB measures 65mm, while the front view is 50mm .Its one end Ais in the HP and 12mm in front of the VP. Draw the projections of AB and determine its inclinations with the HP and the VP	30	CO2	2016
1		A top view of a square lamina of side 30 mm is a rectangle is a sides 30mm x 20mm with the longer side of the rectangle being parallel to both HP and VP. Draw the front views of the square lamina. What is the inclination of the surface of the lamina with HP and VP?	30	CO2	2014
		A rectangular lamina of sides 20mm x 30mm rests on HP on one of its longer edges. The lamina is tilted about the edge on which it rests till its plane surface is inclined to HP at 45 °. The edge on which it rests is inclined at 30° to VP. Draw the projections of the lamina.	30	CO2	2014
		A rectangular lamina of 35mm x 20mm rests on HP on one of its shorter edges. The lamina is rotated about the edge on which it rests till it appears as a square in the top view. The edge on which the lamina rests is inclined 30° to VP. Draw its projections and find its inclination to HP.	30	CO2	2015
		A rectangular lamina of sides 20mm x 25mm has an edge in HP and adjoining in VP, is tilted such the front view appears as a rectangle of 20mm x 15mm. The edge, which is in VP, is 30mm from the right profile plane. (a) Draw the top view, front view and the left profile view in this position. (b) Find its inclinations with the corresponding principal planes.	30	CO2	2016
2		A hexagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the pyramid when the axis of the pyramid is inclined to HP at 40° and to VP at 30°.	30	CO3	2015
		A square pyramid 35mm sides of base and 60mm axis length is suspended freely from a corner of its base. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45°	30	CO3	2016
		A hexagonal pyramid 25mm sides of base and 50mm axis length is suspended freely from a corner of its base. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45°.	30	CO3	2015
		A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant edges. Draw the projections of the pyramid when the	30	CO3	2017

		axis is inclined to VP at 45°.			
		A pentagonal pyramid 25mm sides of base and 50mm axis length rests on HP on one of its slant triangular faces. Draw the projections of the pyramid when the axis appears to be inclined to VP at 45°.	30	CO3	2017
		A cone of 50mm base diameter and 60mm axis length rests on HP on one of its generators. Draw the projections when the axis is inclined to VP at 30°.	30	CO3	2014
3		A square pyramid base 40 mm side and axis 65 mm ling has its base on HP and all the edges of the base are equally inclined to V P. It is cut to with an inclined section plane so as the truncated surface at 45° to its axis, bisection it. Draw the development of the truncated pyramid.	30	CO3	2015
		A cube of sides 40mm is resting on HP with its base on HP such that one of its vertical faces is inclined at 30° to the VP. It I cut by a section plane perpendicular to VP, inclined to HP at an angle 45° and passes through the midpoint of the axis. Draw the development of the lower lateral surface of the cube.	30	CO3	2015
		A rectangular prism of base size 25mm X 40 mm and axis length 65 mm is resting on H P on its base with the longer side of base inclined at 30° to VP. It is cut by a plane inclined at 40° to HP and perpendicular to VP and passes through the extreme left corner of base. Draw the development of the lateral surface of the remaining portion of the the prism.	30	CO3	2016
4		A cube of side 40mm is resting centrally on hexagonal prism base side 40mm and height 50mm, such that one of the base sides of the cube is parallel to one of the sides of the top face of the prism. Draw the isometric projections of the combination of solids.	30	CO3	2015
		An equilateral triangular prism base side 30mm and length 70mm is resting on its rectangular face on top of a square slab side 70mm and 25mm thick. Draw the isometric projections of the combination of solids	30	CO2	2015
		A cone of base diameter 50mm and height 50mm is placed centrally on an equilateral triangular prism of side 100mm and 20mm thick. Draw the isometric projections of the combination of solids.	30	CO2	2016
		square prism side 40mm and height 70mm has a full depth co-axial square hole side 20mm, such that edges of both the squares are parallel. Draw the isometric projection of the hollow prism.	30	CO2	2016
		Two rectangular plates are placed one above the other co-axially with dimensions (lxbxh) 100mmx60mmx20mm and 100mmx40mmx20mm such that longer edges are parallel. Draw the isometric projections of the combination of solids.	30	CO2	2017
		A triangular pyramid base side 40mm and height 50mm is placed centrally on a square slab side 80mm and 20mm thick. Draw the isometric projections of the combination of solids.	30	CO3	2014

G. Content to Course Outcomes

1. TLPA Parameters

Table 1: TLPA – Example Course

Module-#	Course Content or Syllabus (Split module content into 2 parts which have similar concepts)	Content Teaching Hours	Blooms' Learning Levels for Content	Final Blooms' Level	Identified Action Verbs for Learning	Instruction Methods for Learning	Assessment Methods to Measure Learning
A	*B*	*C*	*D*	*E*	*F*	*G*	*H*
1	Drawing Instruments and their uses, BIS conventions, Lettering, Dimensioning and free hand practicing. Computer screen, layout of the software, Reference planes. HP, VP, RPP & LPP. of 2D/3D environment. Commands and creation of Lines, Co-ordinate points, axes, ploy-lines, square, rectangle, polygons, splines, circles, ellipse, text, move, copy, off-set, mirror, rotate, trim, extend, break, chamfer, fillet, curves, constraints viz.	5	- L1 - L2	L2	Understand	Chalk and board LCD Projector	-sketch book
2	Definitions - Planes of projection, reference line and conventions employed, Projections of points in all the four Quadrants, Projections of straight lines True and apparent lengths. Orthographic Projections of Plane Surfaces. Projections of plane surfaces–triangle,square, rectangle, rhombus, pentagon, hexagon and circle, planes in different positions by change of position method only	12	- L2 - L3	L3	Compute	Chalk and board LCD Projector	- sketch book & printout -CIE
3	Definitions – Projections of right regular tetrahedron, hex-hedron (cube), prisms, pyramids, cylinders and cones in different positions (No problems on octahedron and combination solid	16	- L2 - L3	L3	Compute	Chalk and board LCD Projector	- sketch book & printout -CIE
4	Section planes, Sections, Section views, Sectional views, Apparent shapes and True shapes of Sections of right regular prisms, pyramids, cylinders and cones resting with base on hp only. Development of their frustums and truncations	12	- L2 - L3	L3	Compute	Chalk and board LCD Projector	- sketch book & printout -CIE
5	Isometric projection of simple plane figures, Isometric projection of tetrahedron, hexahedron (cube), right regular prisms, pyramids, cylinders, cones, spheres, cut spheres and combination of two solids, conversion of given isometric/pictorial views to orthographic views of simple objects	15	- L2 - L3	L3	Compute	Chalk and board LCD Projector	- sketch book & printout -CIE

2. Concepts and Outcomes:

Table 2: Concept to Outcome – Example Course

Module-#	Learning or Outcome from study of the Content or Syllabus	Identified Concepts from Content	Final Concept	Concept Justification (What all Learning Happened from the study of Content / Syllabus. A short word for learning or outcome)	CO Components (1.Action Verb, 2.Knowledge, 3.Condition / Methodology, 4.Benchmark)	Course Outcome **Student Should be able to ...**
A	*I*	*J*	*K*	*L*	*M*	*N*
1	-BIS conversions	Dimensioning -reference planes	Graphical language	Understand basic concepts of engineering drawing	-Understand -graphical language	Understand the field of engineering drawing as per BIS conventions and Graphical Languages
2	-projection points, lines,planes	Orthographic projections	Orthographic views	Comprehend the projections of points, line and plane surface	-Understand -projections of points line planes	Create Engineering drawings on Orthographic Views
3	-projection of solids -	orthographic views	Orthographic projection of solid parts	Comprehend the projections of solid part	-Understand -simple solids	Apply the knowledge of orthographic Projections of simple solids.
4	- development of lateral surfaces	development of solid part	Development lateral surface of solid part	Comprehend the development of solid part	-Understand -development of simple solids	Apply the knowledge of Lateral surface of simple Solids.
5	-isometric projections	conversion of orthographic views	Conversion of pictorial view to orthographic view	Comprehend the pictorial view to orthographic views	-Understand -isometric view	Convert pictorial and isometric views of simple objects to orthographic views