GOVERNMENT POLYTECHNIC CHINYALISAUR- AY 2022-23

LESSON PLAN FOR ENGINEERING GRAPHICS-I (FIRST SEMESTER)

LECTURES- 8 PERIODS/WEEK, SEMESTER PERIOD-: **14/09/2022 TO 24/11/2022 (TOTAL WEEKS-12)**

TEACHING FACULTY – **AJAY PRAKASH, WORKSHOP INSTRUCTOR**, **TIMING : 10:00 – 11:40AM (2 PERIODS PER DAY), MONDAY TO THRUSDAY**.

NO. OF DAYS PER WEEK /CLASS ALLOTTED: 4; COURSE CODE**:- 991006**

Note: 1- Each period will be 50 minutes. 2- Each session will be of 16weeks. 3- Effective teaching will be at least 12.5 week + Industrial Visit

UNIT NAME/NO.OF PERIODS	MONTH/WEEK	AIM	OBJECTIVE	ACADEMIC ACTIVITIES	POINTS TO BE COVERED IN THAT UNIT
UNIT-1 **INTRODUCTION** (06 PERIODS)	**SEPTEMBER/WEEK-2nd** WEDNESDAY-14 THRUSDAY - 15 **SEPTEMBER/WEEK-3rd** MONDAY-19	1.1 Graphics instruments and their uses. 1.2 Sizes and layout of standard graphic sheets and boards. 1.3 Different types of lines in engineering graphics as per BIS specifications. 1.4 Free hand lettering. (alphabet and numerals) lower case and upper case, single stroke vertical and inclined.	The student shall be able to learn- 1- The important tools for engineering graphics. 2-Whats is the actual size of sheet and board. 3- Various types of lines. 4- How to write letters and numbers in engineering graphics.	1- Usage of all drawing instruments like mini drafter, compass, protector etc. 2- Drawing practice. 3- Unit test.	(14-09-2022)- Drawing tools usage and their practice. Types of lines and their usage. (15-09-2022)- Types of lettering, Single stroke vertical letters (Alphabet and Numbers).Upper case and lower case. (19-09-2022)- Single stroke inclined letters(Upper and lower case)

UNIT – 2 **DIMENSIONING** (06 PERIODS)	**SEPTEMBER/WEEK-3rd** TUESDAY-20 WEDNESDAY-21 THRUSDAY-22	2.1 Necessity of dimensioning. 2.2 Types of dimensioning (chain, parallel and progressive dimensioning) size and location dimensioning. 2.3 Methods of placing dimensioning (Aligned and unidirectional system). 2.4 Dimensioning of overall sizes, circles, thread holes, chamfered surfaces, angles.	The student shall be able to learn- 1- Importance of dimensioning. 2- How many types of dimensioning. 3- Methods of dimensioning.	1- Drawing practice on sheet. 2- Unit test.	(20-09-2022)- Principles of dimensioning, Size dimension and Location dimension. (21-09-2022)- Aligned System, Unidirectional System. (22-09-2022)- Chain or Continuous method and Progressive method, Parallel method and Combined method.
UNIT – 3 **GEOMETRICAL CONSTRUCTIONS** (12 PERIODS)	**SEPTEMBER/WEEK- 4th** MONDAY-26 TUESDAY-27 WEDNESDAY-28 THRUSDAY-29 **OCTOBER/WEEK- 1st** MONDAY-03 TUESDAY-04	3.1 Simple geometrical Constructions. 3.2 Constructions of regular polygons (triangle, square, pentagon, hexagon) and circle. 3.3 Ellipses (concentric circle method and Intersecting Arcs method ,Directrix and focus method). 3.4 Parabola (rectangle and tangent method, Directrix and focus method). 3.5 Hyperbola (Directrix and focus method, Transverse axis and focus method). 3.6 Cycloids, Epicycloids, Hypocycloids, involutes of regular polygons and circles. 3.7 Helix: (conical, parallel, Spiral).	The student shall be able to learn- 1- How to draw triangle, square, pentagon, hexagon and circle. 2- How to draw Ellipse using concentric circle method and Intersecting arc method and Direction and focus method. 3- How to draw Parabola using rectangle and tangent method, Directrix and focus method. 4- How to draw Hyperbola using directrix and focus method, transverse axis and focus method. 5- How to draw Cycloids Epicycloids, Hypocycloids, involutes	1- Drawing practice. 2- Unit test-1 3- Reading reference books in library. 4- Unit test-2	(26-09-2022)-Simple geometrical constructions. (27-09-2022)- Ellipse (Concentric Circle method and Intersecting Arcs method) (28-09-2022)- Ellipse (Directrix and focus method). Parabola (Rectangle and tangent method). (29-09-2022)- Parabola (Directrix and focus method). Hyperbola (Directrix and focus method) (03-10-2022)- Hyperbola (Transverse axis and focus method) and Cycloids.

			of regular polygons and circles. 6- How to draw Helix: (conical, parallel, Spiral).		(04-10-2022)- Epicycloids Hypocycloids, involutes of regular polygons and circles. And Helix: (conical, parallel, Spiral).
UNIT – 4 **SCALE** (12 PERIODS)	**OCTOBER/WEEK- 1st** WEDNESDAY-05 THRUSDAY-06 **OCTOBER/WEEK-2nd** MONDAY-10 TUESDAY-11 WEDNESDAY-12 THRUSDAY-13	4.1 Scale – their need and importance. 4.2 Definition of representative fraction (R.F), find RF of given scale. 4.3 Construction of plain and diagonal scales.	The student shall be able to learn- 1- Necessity of scale. 2- What is reducing scale, increasing scale, full size scale? 3- What is length of scale? 4- How to draw a simple scale. 5- How to draw a diagonal scale.	1- Drawing practice on sheet. 2- Unit test. 3- Reading reference books in library.	(05-10-2022)- Introduction of scale, R.F. Types of scale. Simple or Plain Scale. (06-10-2022)- Simple or Plain Scale. (10-10-2022)- Simple or Plain Scale. (11-10-2022)- Diagonal Scale. (12-10-2022)- Diagonal Scale. (13-10-2022)- Diagonal Scale.
UNIT – 5 **PRINCIPLE OF PROJECTIONS** (15 PERIODS)	**OCTOBER/WEEK -3rd** MONDAY-17 TUESDAY-18 WEDNESDAY-19 THRUSDAY-20 **OCTOBER/WEEK- 4th** MONDAY-24 TUESDAY-25 WEDNESDAY-26 THRUSDAY-27	1- Principle of orthographic projection and introduction to first angle projection and third angle projection. 2- Projection of points situated in different quadrants. 3- Projection of lines, Lines inclined to one plane and parallel to the other and vice versa (all quadrants); Line inclined to both reference planes (HP and VP) and limited to both ends in same quadrant. 4- Projection of Planes triangular, square, rectangular, pentagonal, hexagonal and circular) ,Planes perpendicular to one	The student shall be able to learn- 1- Basic principle of projection. 2- What is Orthographic projection? 3- What is First angle and third angle projections. 4- How to draw Elevation, plan and side views of given pictorial view. 5- How to draw hidden parts or lines in elevation, plan and side views. 6- How to draw	1- Drawing practice in class. 2- Reading reference books in library. 3- Unit test-1 4- Unit test-2	(17-10-2022)- Principle of projection, Orthographic projection, First angle projection. (18-10-2022) Orthographic projection, Third angle projection. (19-10-2022)-. Projection of Points. (20-10-2022)- Projection of Straight Lines. (24-10-2022)- Projection of Straight Lines. (25-10-2022)- Projection of Planes

		reference plane and parallel to other, planes inclined to one reference plane and perpendicular to other or vice versa (1st& 3rd quadrants) 5- Projection of solids, such as Prism, ,Pyramid (triangular, square, rectangular, pentagonal hexagonal), Cone, Cube, Cylinder Tetrahedron, Frustum with axis perpendicular to one reference plane and axis inclined to one reference plane and parallel to other reference plane. 6- Orthographic views of given pictorial views (1st and 3rd angle).	elevation, plan and side views of a point. 7- How to draw, elevation, plan and side views of a line in different conditions. 8- How to draw elevation, plan and side views of a plane in different conditions. 9- How to draw elevation, plan and side views of a solid in different conditions.		(26-10-2022)- Projection of Solids (27-10-2022)- Projection of Solids.
UNIT – 6 **ISOMETRIC PROJECTION** (15 PERIODS)	MONDAY-31 **NOVEMBER/WEEK-1ˢᵗ** TUESDAY-01 WEDNESDAY-02 THRUSDAY-03 **NOVEMBER/WEEK-2ⁿᵈ** MONDAY-07 TUESDAY-08 WEDNESDAY-09 THRUSDAY-10	1- Fundamentals of Isometric projections/views (Theoretical instructions) and Isometric Scales. 2- Isometric views/projections of different types of planes. 3- Isometric views/projections of different types of solids. 4- Isometric views/projections of combination of regular solids like cylinder, cone, cube, prism and pyramid. 5- Conversion of Isometric views from given Orthographic projections.	The student shall be able to learn- 1- Basic concept of isometric projection. 2- How to draw isometric scale. 3- Isometric views of planes. 4- Isometric views of solids. 5- How to draw isometric view form orthographic projections.	1- Drawing practice in class. 2- Reading reference books in library. 3- Unit test	(31-10-2022)- Principle of Isometric projection (01-11-2022)- Isometric scale, Isometric views /projections of different types of planes. (02-11-2022)- Isometric views/projections of different types of solids. (03-11-2022)- Isometric views/projections of different types of solids. (07-11-2022)- Isometric views/projections of combination of regular solids like cylinder, cone, cube, prism and pyramid. (08-11-2022)- Isometric views/projections of

					combination of regular solids like cylinder, cone, cube, prism and pyramid. (09-11-2022)- Conversion of Isometric views from given Orthographic projections.
UNIT – 7 **SYMNOLS AND CONVENTIONS** (15 PERIODS)	**NOVEMBER/WEEK-3rd** MONDAY-14 TUESDAY-15 WEDNESDAY-16 THRUSDAY-17 **NOVEMBER/WEEK-4th** MONDAY-21 TUESDAY-22 WEDNESDAY-23 THRUSDAY-24	1- Civil engineering sanitary fitting symbols. 2- Electrical fitting symbols for interior Installations. 3- Electronic symbols.	The student shall be able to learn- 1- Basic conventional symbols for sanitary fitting items. 2- Basic conventional symbols for electrical items. 3- Basic symbols for electronic items.	1- Drawing practice in class. 2- Reading reference books in library. 3- Unit test	(14-11-2022)- Conventional symbols for sanitary fitting items. (15-11-2022)- Conventional symbols for sanitary fitting items. (16-11-2022)- Conventional symbols for sanitary fitting items. (17-11-2022)- Basic conventional symbols for electrical items. (21-11-2022)- Basic conventional symbols for electrical items. (22-11-2022)- Basic conventional symbols for electrical items. (23-11-2022)- Basic symbols for electronic items. (24-11-2022)- Basic symbols for electronic items.