21PCM102T					Engineering Graphics					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
1	0	2	2	3	0	0	0	50	50	100

COURSE OBJECTIVES

- ➢ Demonstrate various graphical projections
- ➢ Improve analytical skills to understand design blueprints
- ➢ Improve skills to prepare designs blueprints for mechanical parts
- ➢ Develop skills to plan site layout for petrochemical industries

UNIT I   **8 Hrs.**

Introduction to Engineering Graphics: Drawing instruments and accessories, lines and dimensioning. BIS -SP46. Use of plane scales and Representative Fraction. Introduction to Engineering curves and their classification. Introduction to principal planes of projections. Projections of the points. Projections of line and True length of line determination when inclined to two reference planes.

UNIT II   **8 Hrs.**

Orthographic Projections: Principle of projection, Principal Planes of projection, Projections from the pictorial view of the object on the principal planes using first angle projection method and third angle projection method. Sectional View: Principle and applications

UNIT III   **8 Hrs.**

Isometric Projections and Isometric View or Drawing: Isometric Scale, Conversion of orthographic views into isometric projection, isometric view or drawing.

UNIT IV   **8 Hrs.**

Introduction to software: AutoCAD and ProE/Soildworks. Understanding the fundamentals of 3D printing and application in oil and gas industries

        Max. 32 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1: Apply the concept of engineering scales and understand the application of various engineering curves.
CO2: Demonstrate the concept of projection of line for various engineering application.
CO3: Prepare an orthographic and sectional orthographic views of any given object and comprehend the drawings to extract complete information of the object.
CO4: Construct an isometric view and isometric projection of any object from provided orthographic views.
CO5: Create 2D and 3D engineering drawings by using AutoCAD software.
CO6: Demonstrate the understanding of 3D CAD software and 3D printing fundamentals and their application in oil and gas industries.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100   **Exam Duration: 2 Hrs.**

Part A: Continuous evaluation   50 Marks

Part B: End semester examination and Viva-voce   50 Marks

TEXT/REFERENCE BOOKS

1. R Hanifan, "Perfecting Engineering and Technical Drawing", Springer International Publishing Switzerland.
2. Bethune, J. D., "Engineering Design and Graphics with SolidWorks 2019, 1st edition", Macromedia Press.
3. K Morling, "Geometric and Engineering Drawing", Elseveir Insights.
4. DM Kulkarni, "Engineering Graphics with AutoCAD", Easter Economy Edition.
5. Agrawal, B. & Agrawal C. M., "Engineering Drawing", Tata McGraw Hill Publishers.
6. P.J. Shah, "Engineering Graphics", S. Chand Publishing.
7. Engineering Drawing, N.D. Butt, Chariot Publication.