AMTD25 CAD/CAM DESIGN

UNIT-1 INTRODUCTION TO CAD
1.1 Design process, Fundamentals of CAD: Role of computers in design. Computer Graphics: Raster scans graphics, Coordinate system, Database structure for graphic modeling
1.2 Transformation of geometry: Translation, Rotation, Reflection, Scaling, Homogenous representation, Projection: Orthographic projection, Isometric Projection.

UNIT-2 GEOMETRIC MODELING:
2.1 Requirement of Geometric Modelling, Geometric models, Geometric Construction Methods, Wireframe modeling, Curves representation, Curve fitting,
2.2 Synthetic Curves: Cubic splines, Bezier curve.
2.3 Surfacing: Surface of revolution, ruled surface. Solid Representation concepts: B-Rep, CSG.
2.4 CAD Standards: Standardization in graphics, Exchange of modeling data- IGES, Standard for the exchange of product model data (STEP), Drawing Exchange Format, DMIS.

UNIT-3 INTRODUCTION PRODUCT DESIGN:
1.1 Definition, Design by Evolution, Design by Innovation, Essential factors of Product Design, Morphology of Design, Role of Allowance,
1.2 Primary design phases and flow charting, Process capability and Tolerance in detailed design and assembly, Product strategies, Product characteristics,
1.3 Designer and his role, Basic design considerations, Types of Models designed by designers.

UNIT-4 COMPUTER & DESIGN
4.1 Product cycle & CAD/CAM, Role of computer in design process. Modern approaches to
4.2 Product Design: Concurrent Design, Quality function deployment. New Product
4.3 Development: New product development, Model utilized in various phases, managing product life cycle,
4.4 Diffusion models: Models of first purchase.

Reference Books:
1. Rogers, D. F. and Adams, A., Mathematical Elements for Computer Graphics, McGrawHill Inc., NY, 1989.
2. Groover and Zimmer, CAD / CAM : Computer Aided Design & Manufacturing, Prentice Hall, 1984.
3. Karl.T.Ulrich, Steven D.Eppinger, Anita Goyal Product Design and Development Tata McGrawHill , 2009