Lecture No 12 Topic: SOME OF GRAPHIC STANDARDS

- **GKS** (Graphical Kernel Systems)
- **PHIGS** (Programmer's Hierarchical Interface for Graphics)
- **CORE** (ACM-SIGGRAPH)
- **GKS-3D**
- **IGES** (Initial Graphics Exchange Specification)
- **DXF** (Drawing Exchange Format)
- **STEP** (Standard for the Exchange of Product Model Data)
- **DMIS** (Dimensional Measurement Interface Specification)
- **VDI** (Virtual Device Interface)
- **VDM** (Virtual Device Metafile)
- **GKSM** (GKS Metafile)
- **NAPLPS** North American Presentation Level Protocol Syntax)

GRAPHIC STANDARDS

- FOUR TYPES OF MODELNG DATA USED IN PRODUT DESCRIPTION
- Shape data contains information of both geometrical and topographical information along with surface features.
- Non shape data contains shade images and model global data.
- Design data
- Manufacturing data

Requirements for the Exchange

- Shape data: both geometric and topological information, part or form features. Fonts, color, annotation are considered part of the geometric information.
- Non-shape data: graphics data such as shaded images, and model global data as measuring units of the database and the resolution of storing the database numerical values.
- Design data: information that designers generate from geometric models for analysis purposes. Mass property and finite element mesh data belong to this type of data.
- Manufacturing data: information as tooling, NC tool paths, tolerancing, process planning, tool design, and bill of materials (BOM).

Data Exchange Standards

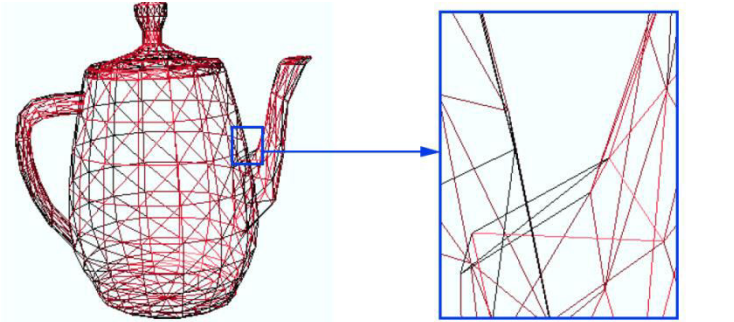
Standard neutral data formats:

- Initial Graphics Exchange Specification (**IGES**) - the most popular format of the neutral file, supported by all CAD/CAE/CAM systems and defined by the international standard organization (ISO).
- Drawing Interchange Format (**DXF**) - a format originated by AutoDesk and used mainly for the exchange of drawing data.
- Standard for The Exchange of Product Model Data (**STEP**) - the standard data format used to store all the data relevant to the entire life cycle of a product, including design, analysis, manufacturing, quality assurance, testing, and maintenance, in addition to the simple product definition data. The data format was also called **PDES** (Product Design Exchange Specification) at the early stage of its development in North America.

A number of other neutral data formats for CAD/CAE/CAM systems were used in the past. These include PHIGS, NAPLPS and GKS.

Currently, CAD systems, which used to support IGES format, are moving toward the use of STEP.

Lecture No 13 Topic: Line Drawing



The lines of this object appear **continuous**

However, they are **made of pixels**