Graphic Communications

Lecture 1:

Introduction to Graphic Communication

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What is Graphic?

graphein (greek)

- **Written or drawn or engraved**
- **Of or relating to written or pictorial representation**
- **the presentation of information which is not in '*character*' form**

What is Graphic?

- •Description and demonstration of information by visual means

What is Communication?

- the activity of communicating
- the activity of conveying information
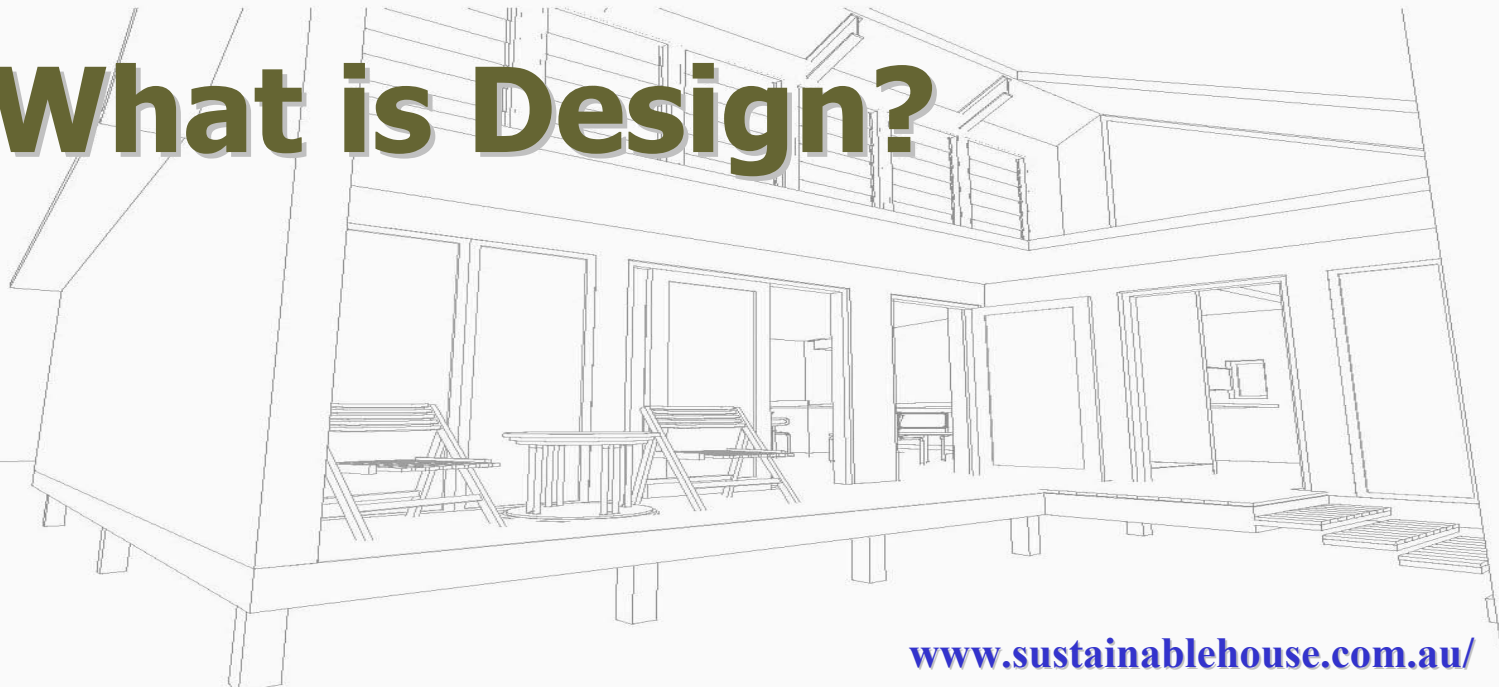- a connection allowing access between persons or places

What is Communication?

- The process by which information and feelings are shared by people through an exchange of verbal and non-verbal messages.

What is Communication?

- **The successful transmission of information through a common system of symbols, signs, behavior, speech, writing, or signals.**
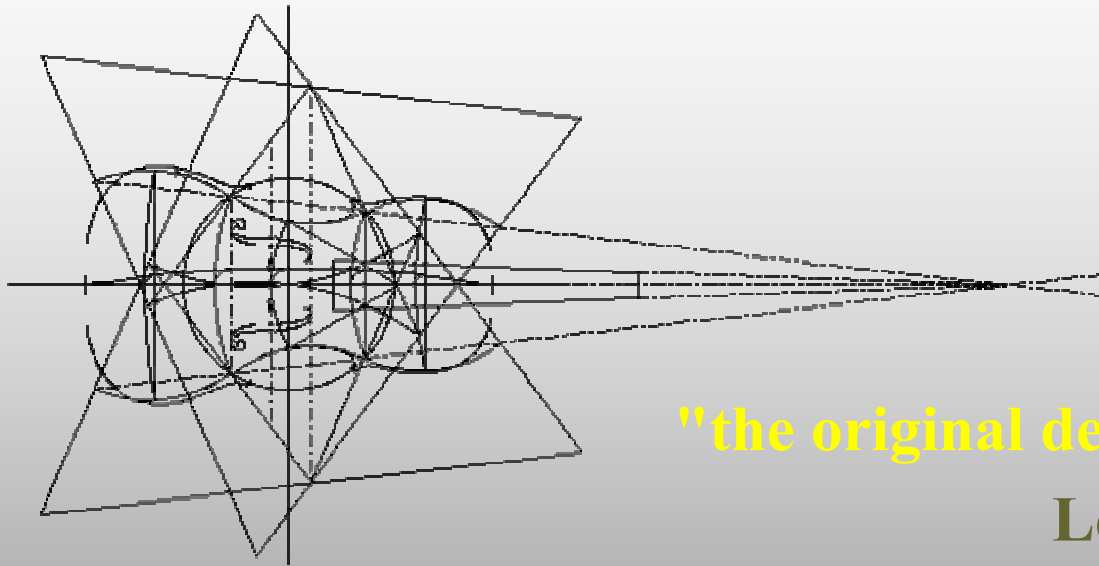
What is Design?

- the act of working out the form of something (as by making a sketch or outline or plan)

- something intended as a guide for making something else

- the creation of something in the mind

What is Design?

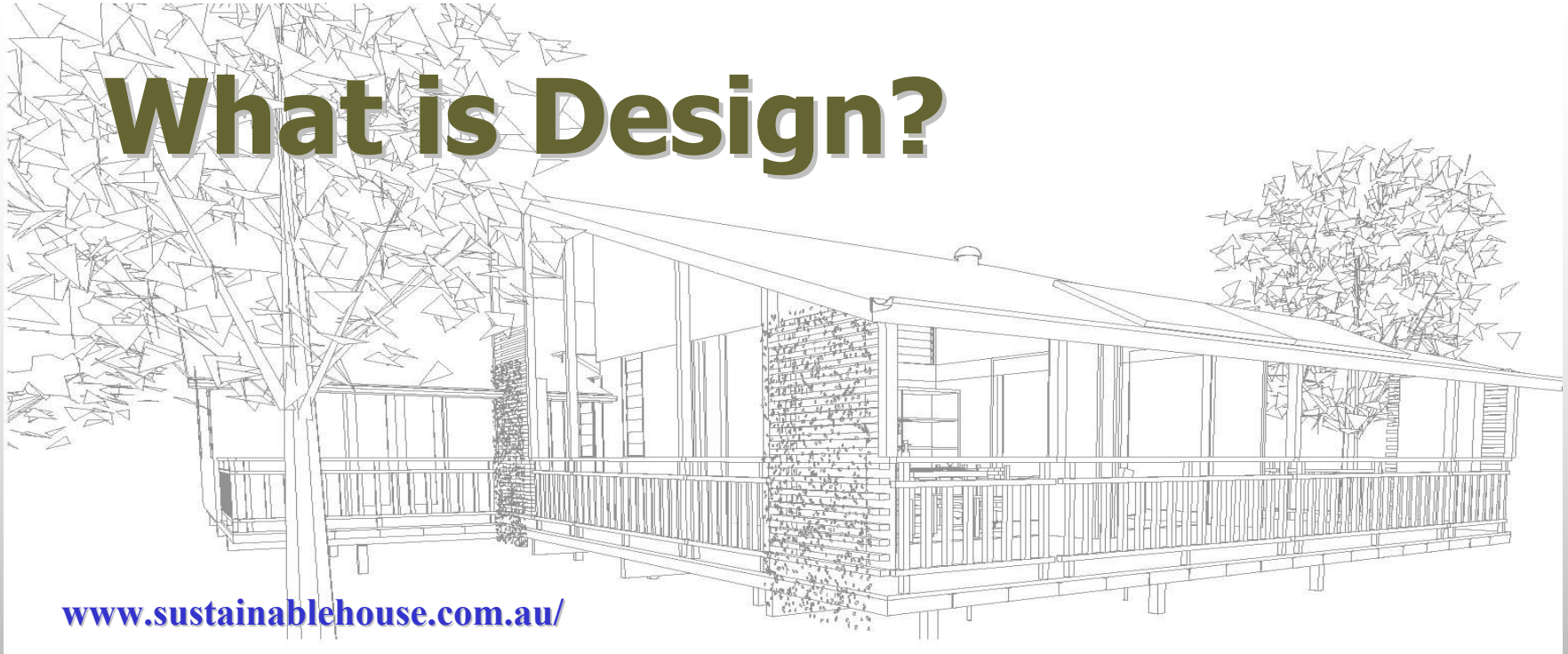"the original design of the violin"

Leonardo da Vinci

http://w1.428.telia.com/~u42802424/

•The work required to represent content and data to meet the communication objectives

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What is Design?

www.sustainablehouse.com.au/

- An iterative decision-making process that produces plans by which resources are converted into products or systems that meet human needs and wants or solve problems.

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What is Design?
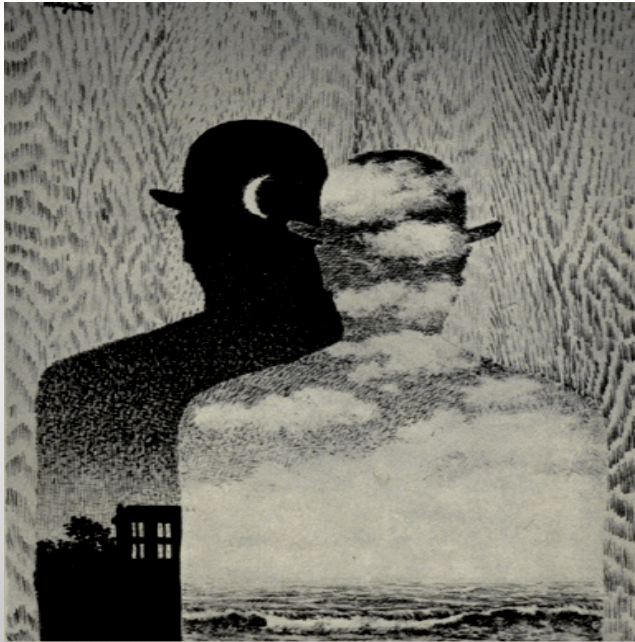

Magritte, Rene "The Thought Which Sees," 1965. Drawing

- Finding the best solution to a problem within the limitations of the problem
  - Multiple solutions exist.
  - Some are better than others.

What things are *designed*?

http://www.acclivity.ca/hpv/vic/TB-jw1.JPG

- **Communication**
  - Event posters, letterheads, business cards, signage...
- **Products**
  - Clothing, furniture, software, containers, appliances...
- **Environments**
  - Houses, rooms, offices, stores, gardens, landscapes...

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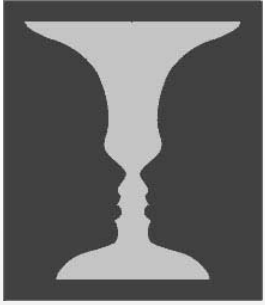
What is *designing*?

- **An *iterative process* for solving problems.**
  - Solutions which build upon other solutions expose different facets of the problem.
  - An excellent design accounts for each facet.

- **Purposeful**
  - Each design has a clear goal and observable success criteria.

- **Disciplined**
  - A good design process helps to ensure a functional design.

- **Creative**
  - Design problems are not solved by formulas or prefab solutions.
  - An excellent design functions aesthetically as well as functionally.

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Phases of a Design Process

- **Problem Definition**
  - **Identify a need**
  - **Analyze the situation**
  - **Redefine the problem**

- **Research**
  - **Research previous solutions**
  - **Redefine the problem (if necessary)**
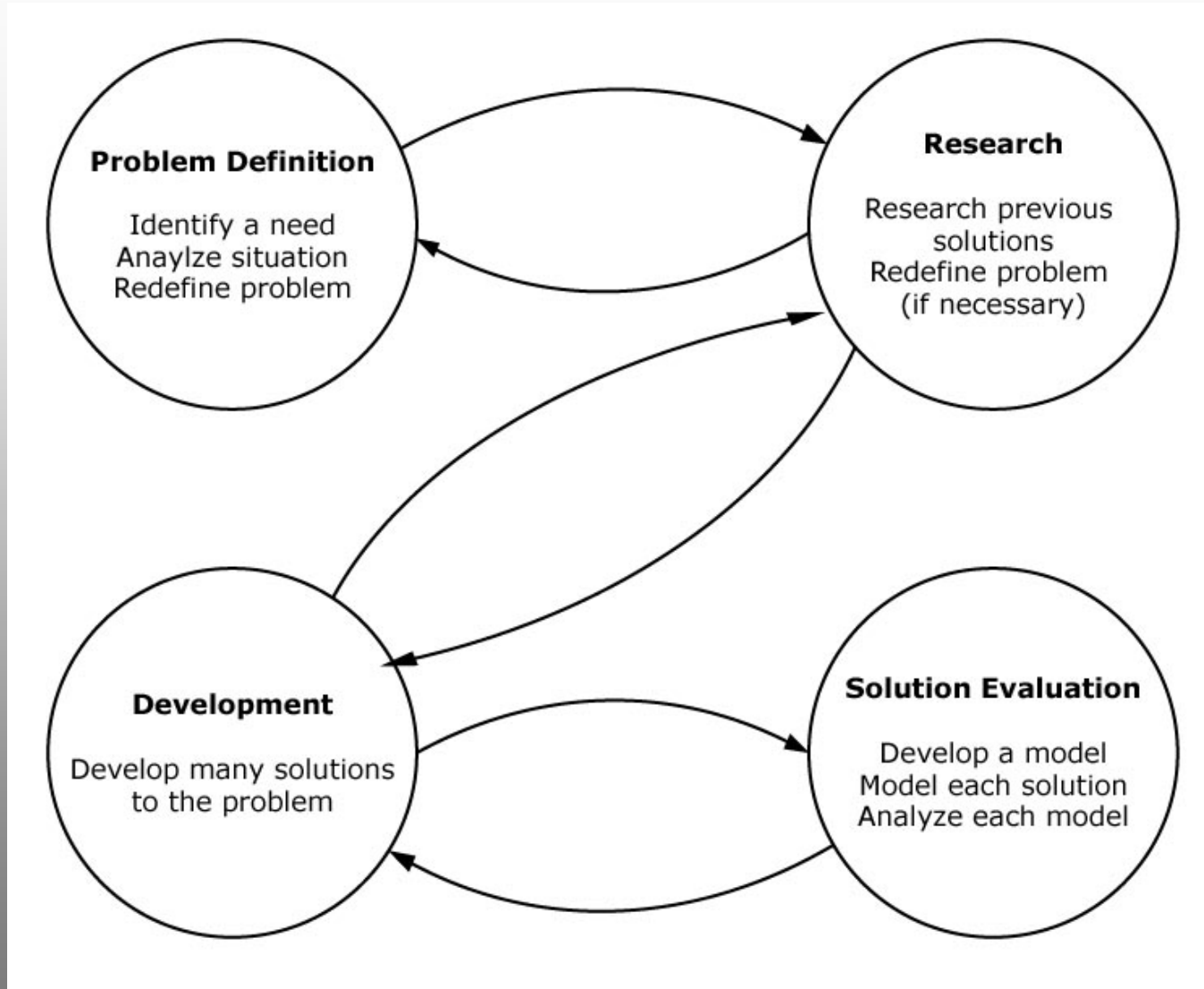
- **Development**
  - **Develop *multiple* solutions to the problem**

- **Solution Evaluation**
  - **Develop a model for judging a solution's effectiveness**
 - **Model each solution**
  - **Analyze each model**

Flowchart of a Design Process

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Design is not Art!

- **They often look similar.**
  - **Similar materials and techniques.**
  - **Artist and designer solve similar visual problems**

- ***Art* encompasses works which are purely aesthetic; *Design* has utility.**

- **A 'pure' artist works without restrictions; A designer's solution is often tightly restrained.**

- **There are sound criteria for judging Design effectiveness; Art is more subjective**

- **Art movements generally preceded related design movements.**

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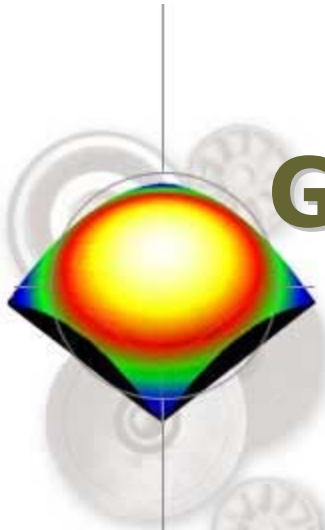
Graphic Communication in Engineering

In engineering, 92 percent of the design process is graphically based. The other 8 percent is divided between mathematics, and written and verbal communications.

Why?

Because graphics serves as the primary means of communication for the design process.

Graphics & Engineering

GRAPHIC DESIGN

Drafting and documentation, along with design modeling, comprise over **50 percent of the engineer's time** and are purely visual and graphical activities. Engineering analysis depends largely on reading **engineering graphics**, and manufacturing engineering and functional design also require the production and reading of graphics.

Engineering & Graphics

- **Engineering graphics** communicate solutions to technical problems.
- **Engineers** are creative people who use technical means to solve problems. They design products, systems, devices, and structures to improve our living conditions.
- **Technologists** assist engineers and are concerned with the practical aspects of engineering in planning and production.

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The Importance of Engineering Graphics

Engineering graphics is a real and complete language used in the design process for:

1. **Communicating**
2. **Solving problems**
3. **Quickly and accurately visualizing objects**
4. **Conducting analyses**

What is Technical Drawing ?

A drawing is a graphical representation of objects and structures and is done using freehand, mechanical, or computer methods.

Technical drawing is used to represent complex technical ideas with sufficient precision for the product to be mass-produced and/or the parts to be easily interchanged.

Traditional Drawing Tools
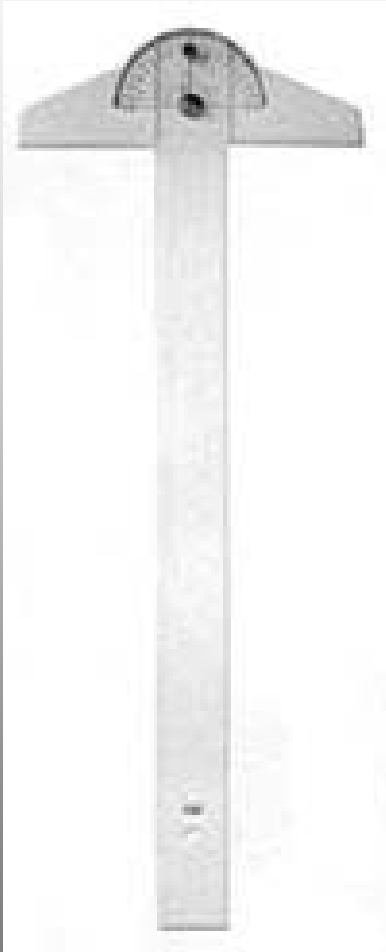
- Wood and mechanical pencils.
- Instrument set
  (compass and dividers)
- 45- and 30/60-degree triangles.
- Scales.
- Irregular curves.
- Protractors.
- Erasers and erasing shields.
- Drawing paper.
- Circle templates.
- Isometric templates.

Changes in the Engineering Design Process

Nowadays, the design process is shifting from a linear, segmented activity to a team activity, involving all areas of business and using computers as the prominent tool.
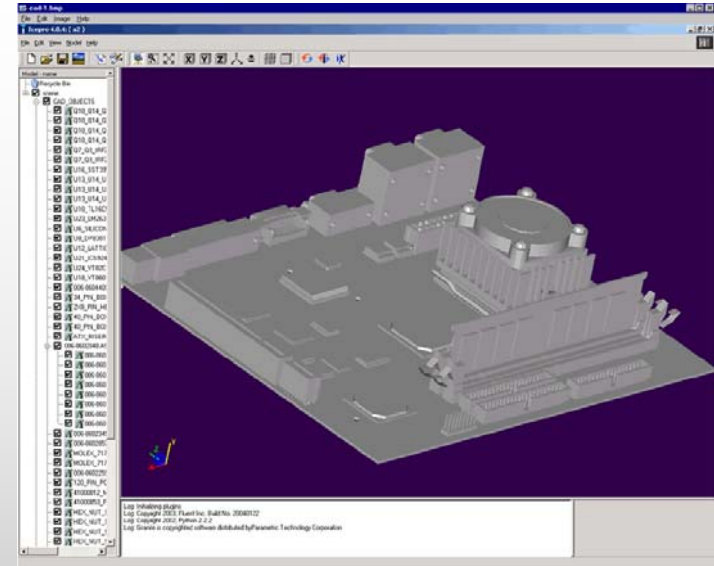

This new way of designing, with its integrated team approach, is called **concurrent engineering**.

Engineers must be able to work in teams.

Engineers must be able to design, analyze, and communicate using powerful CAD systems, and they must possess a well-developed ability to visualize, as well as the ability to communicate those visions to nontechnical personnel.

Computer Aided Drawing Tools

A *CAD* **System** consists of hardware devices used in combination with specific software. The hardware for a *CAD* system consists of the physical devices used to support the CAD software

Future Trends
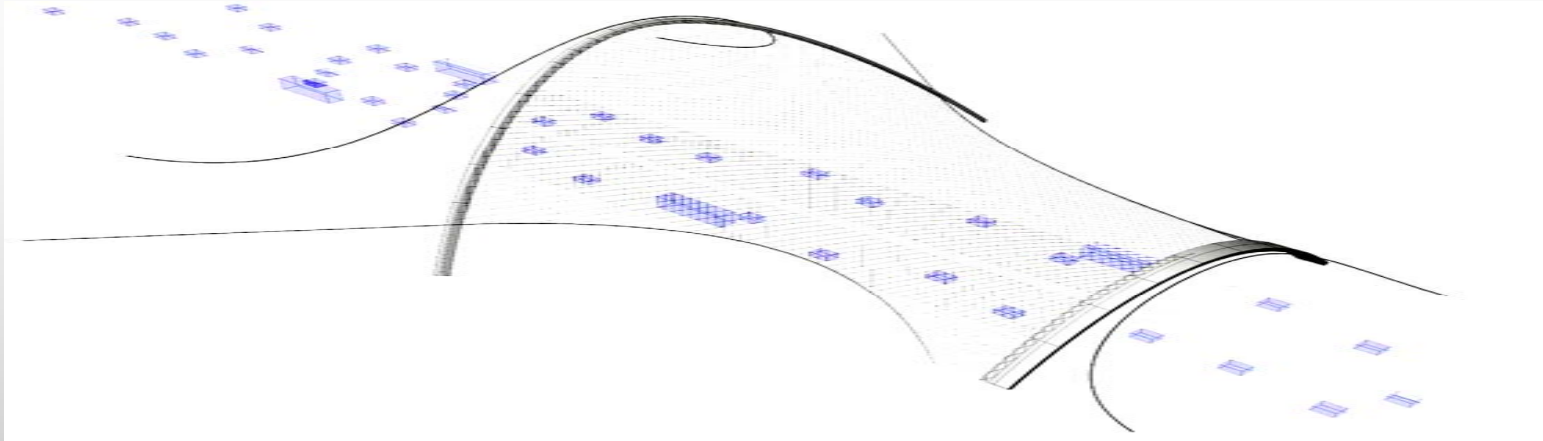
- Future trends in technical and engineering graphics include the use of increased realism in graphic images through the use of high resolution displays, animation and simulation, 3-D stereo, holographic, and other virtual reality techniques.
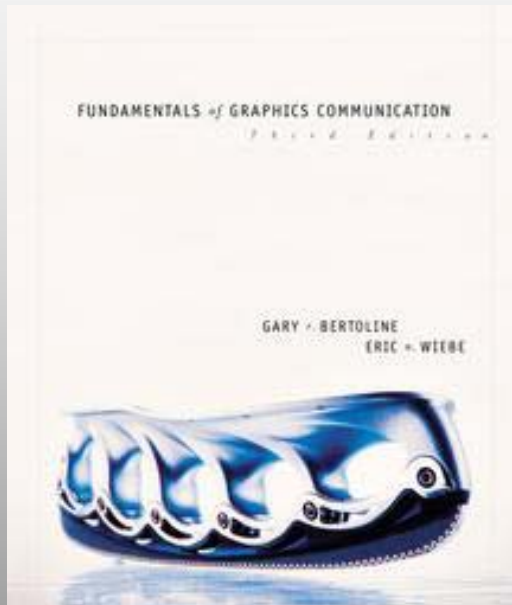
VR-Systems

- **Virtual models** is the 3-D models of real world objects created on the computer are meant to be.

- **Virtual reality** is simply technology which strives to make this model and its surrounding environment as realistic as possible.

- Together, these two factors create a sense of **immersion**.

References

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