

Faculty of Engineering
Surveying and Geomatics Engineering
Department

Engineering Drawing

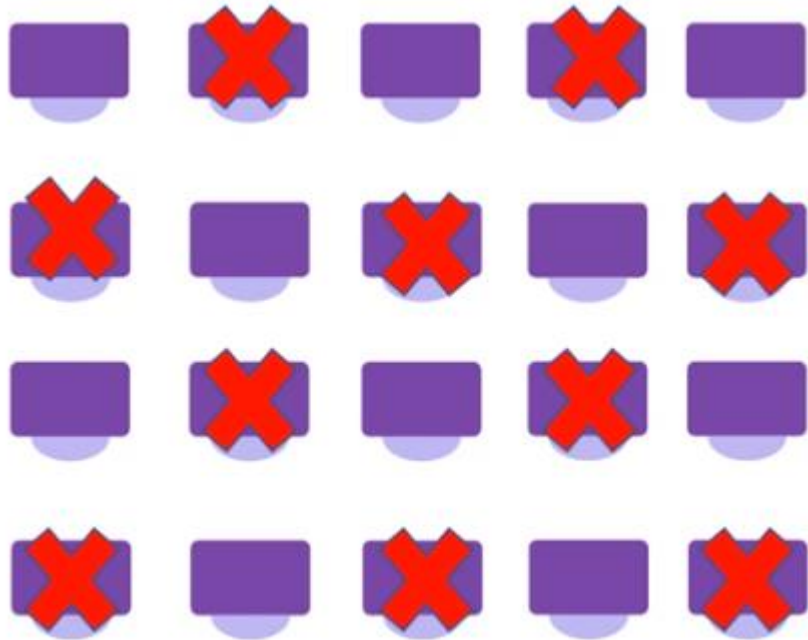
Introductory of Engineering
Drawing

By Mohammed Q. Ali

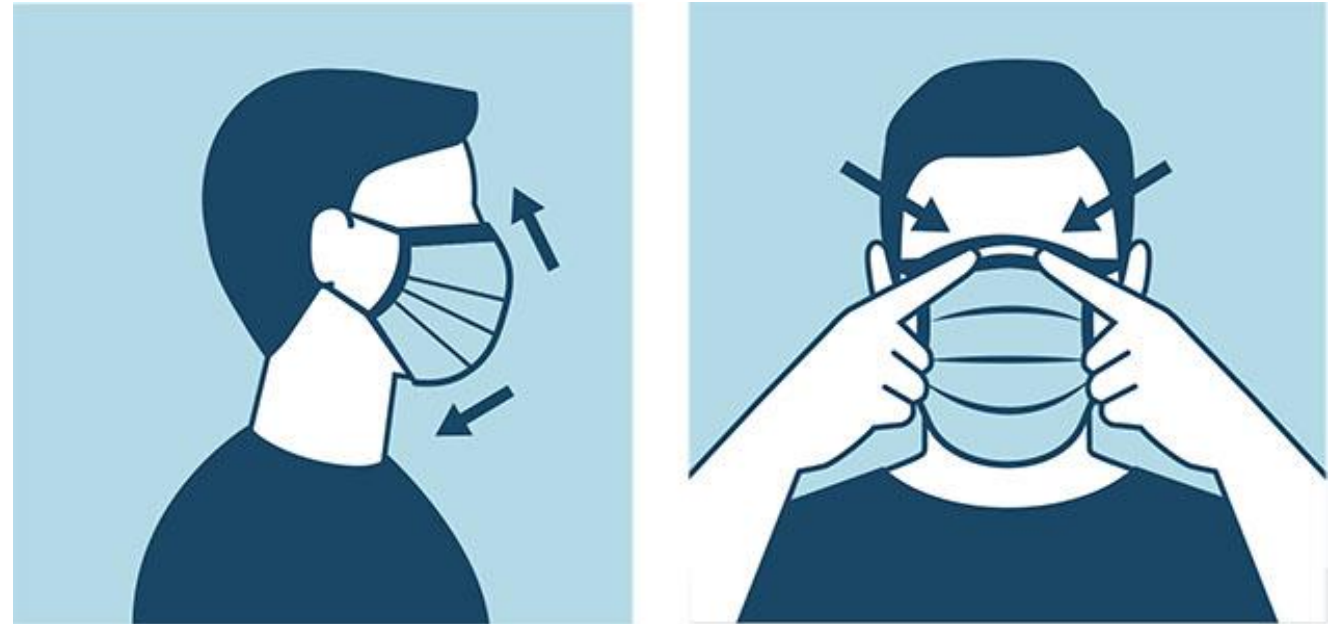
Lecture 1

Covid 19

Skipping seats



Wearing Mask



My Teacher Philosophy

- My teaching philosophy and vision of teaching and academic lifetime, shall be knowledge based in addition to **analytics**. This would require a great effort of both the instructor and the students to achieve their **objectives in teaching and learning**, respectively.
- A Teacher in the field should provide **his great experience** to be added in the course teaching. He/she should always ensure that students get benefit of the **experience of the Lecturer**.
- A Teacher should provide and depends on **variety of references** in addition to the textbook.
- A Teacher should train the student of how to use the relevant **design aids, chart, tables and any related design aid**.

My Teacher Philosophy

- A Teacher should appropriately **assign homework, reading assignments, solving textbook problem sets**.
- A Teacher should implement **quizzes such away** that help students in learning not the testing memorizations.
- A Teacher should, in the analysis and design course, assign **different design projects, encourage teamwork** in this context, and should take appreciable weight in the final grade.
- A Teacher should provide appropriately **midterm and final** exam and shall include approximately **75%** of the total grades as analysis and design problems and **25%**, short answers MCQs or true/false questions

Regulation

- Lectures: **Monday 10:00 AM – 02:00 PM**
- Lectures: **Explanations, and Tutorials**
- You have to study!
- Class attendance : Come to class **on time** (MANDATORY)
- Bring your **Drawing Tools** and **Calculators** to class!
- Take good **notes**!
- Mobiles are **NOT** permitted during class

Grading

Method	Quantity	Percentage (%)
• Quiz	2	5
• Homework	5	1
• Project	1	5
• Midterm Exam(s)	1	30
• Laboratory	5	2
• Final Exam	1	40
• Total		100

Pre Requisites

- Drawing Instruments
- Basic Knowledge of Geometry
- Basic Knowledge for Using Calculator
- Basic Knowledge of Units & Conversion

Textbook

- Textbook of Engineering Drawing by K Venkata Reddy, 2nd Edition, 2008.
- Engineering Drawing by A W Boundy

Contact me anytime!

- My Office No. : 245 “For Now”
- Office hours (03:00 PM – 05:00 PM)
- Email: mohammed.qadir@tiu.edu.iq
- Edmodo Class No. : **78rpuY** (Check the updates Every Day)
 - Phone: 750 455 455 1
- I meet with students periodically for tutoring “**NOT Re-lecturing**” in library
 - Contact me if you’re going to miss a class session.

ENGINEERING DRAWING II

Course code; SGE 102

Credit; 3 credits

ECTS; 4 ECTS

Instructor; Mohammed Q. Ali

Goal

- • It provides them with some understanding of the basics of engineering drawing and the different geometrical construction methods and their applications.
- • It is intended to provide the Surveying & Geomatics Engineering students with the methods of pictorial and orthographic projection principles and applications.
- • The students will be introduced to the main three dimensional illustration methods . The isometric drawing principles will be illustrated and applications on that will be made.
- • The basic principles of sectioning of solid objects and the production of different sectional views will be explained to the students with some solved examples.
- • The students will also be introduced to the basic principles and applications of descriptive geometry and the visualization of points, lines, planes and three dimensional bodies in a two dimensional manner.

Learning Outcomes (LOs)

At the end of this class, you will be able to:

- Student's ability to perform basic sketching techniques will improve.
- Students will be able to draw orthographic projections and sections.
- Students' ability to produce engineered drawings will improve
- Students' ability to convert sketches to engineered drawings will increase.
- Students will develop good skills of representing three dimensional objects, planes, lines and points two dimensionally

Course Contents of first course

- ❖ Introduction,
- ❖ Lettering
- ❖ Dimensioning
- ❖ Scales
- ❖ Geometrical Construction
- ❖ Orthographic Projection
- ❖ Isometric Projection

- **Introduction.** Types of lines, lettering, dimensioning, use of pencil and drawing instruments, planning of drawing sheet.
- **Projections.** Types of projections, orthographic projections, plane of projections, four quadrants, projection of points, projection of straight lines, examples with different quadrants, traces of a line, true length of a line, inclination to both the planes.
- Use of instruments and letter writing practice
- Engineering Geometry
- First angle and third angle projection engineering drawing practice.





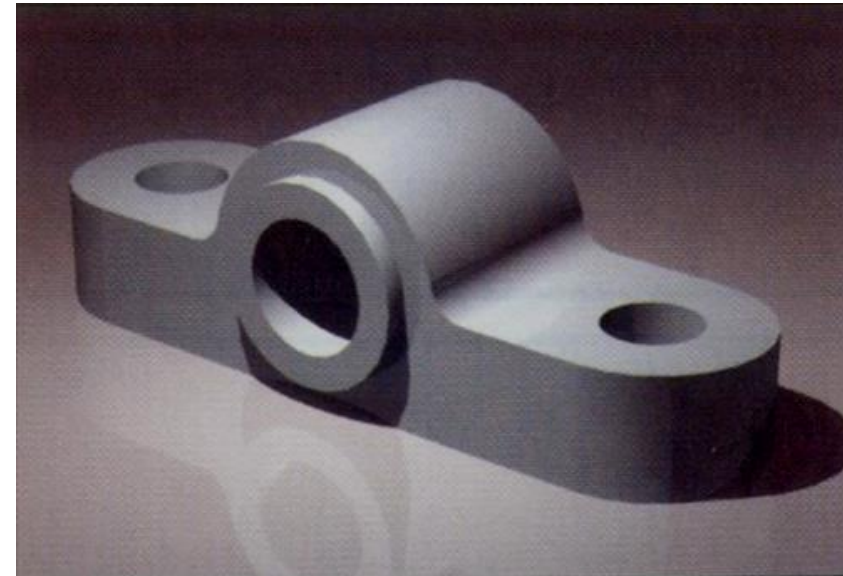
- ❖ Engineering drawing is a two dimensional representation of three dimensional objects.
- ❖ In general, it provides necessary information about the shape, size, surface quality, material, manufacturing process, etc., of the object.
- ❖ It is the graphic language from which a trained person can visualize objects.
- ❖ Engineering drawing is called the universal language of engineers.
- ❖ The ability to read drawing is the most important requirement of all technical people in any profession. As compared to verbal or written description, this method is brief and more clear. Some of the applications are : building drawing for civil engineers, machine drawing for mechanical engineers, circuit diagrams for electrical and electronics engineers, computer graphics for one and all.

Lecture Objectives

- Graphics language
- Engineering drawing
- Traditional drawing tools
- Drawing standards

Use of Graphics Language

1. Try to write a description of this object.
 2. Test your written description by having someone attempt to make a sketch from your description.
-



You can easily understand that ...

The word languages are inadequate for describing the *size*, *shape* and *features* completely as well as concisely.

Composition of Graphic Language

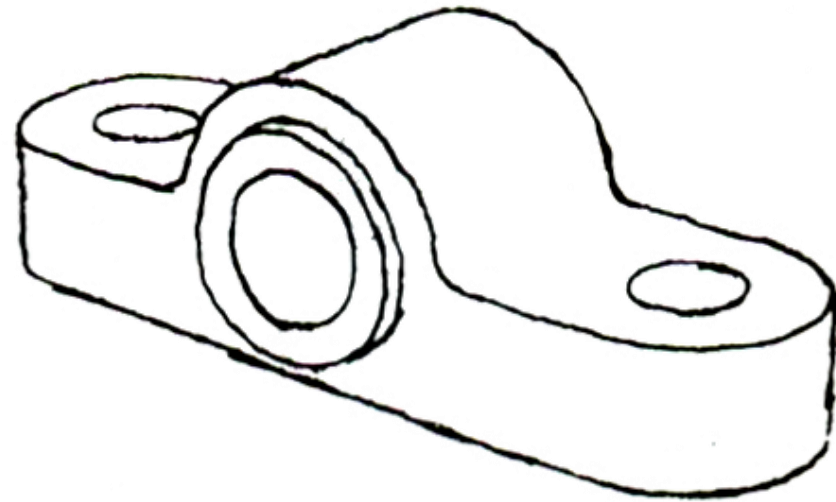
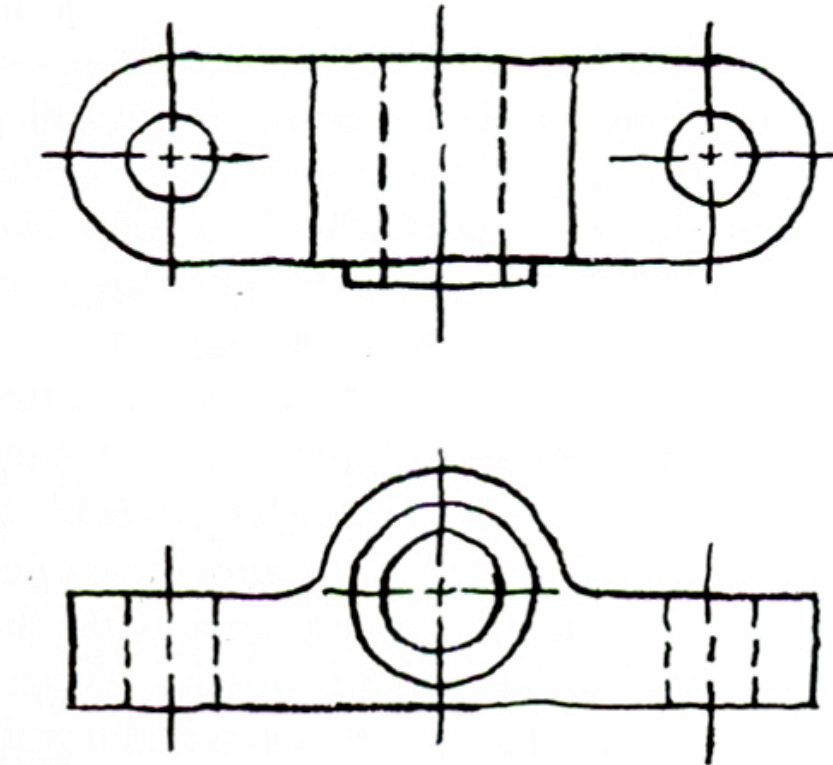
Graphic language in “engineering application” use *lines* to represent the *surfaces*, *edges* and *contours* of objects.

- The language is known as “*drawing*” or “*drafting*” .
- A drawing can be done using *freehand*, *instruments* or *computer* methods.

Freehand drawing

The lines are sketched without using instruments other than pencils and erasers.

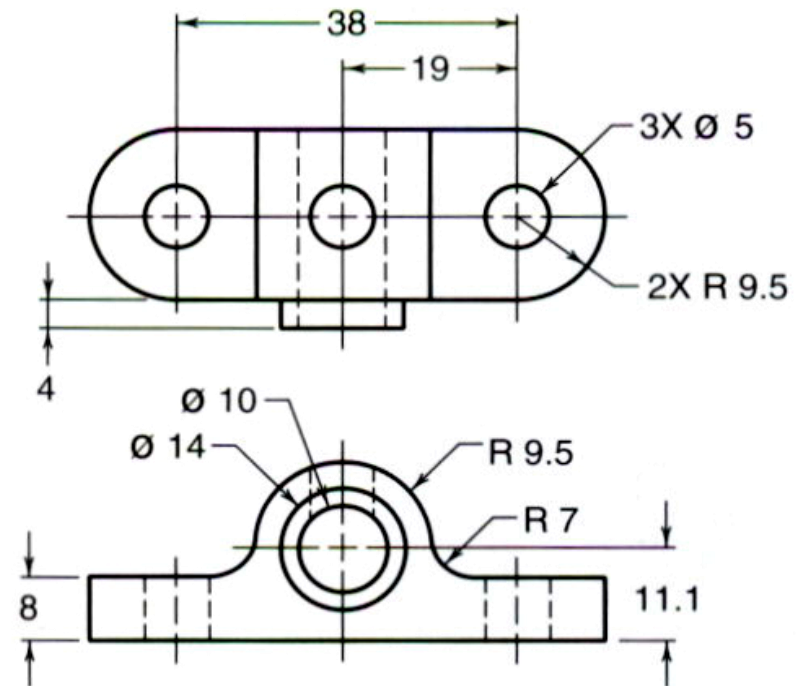
Example



Instrument drawing

Instruments are used to draw straight lines, circles, and curves concisely and accurately. Thus, the drawings are usually made to scale.

Example



Computer drawing

The drawings are usually made by commercial software such as AutoCAD, solid works etc.

Example



Elements of Engineering Drawing

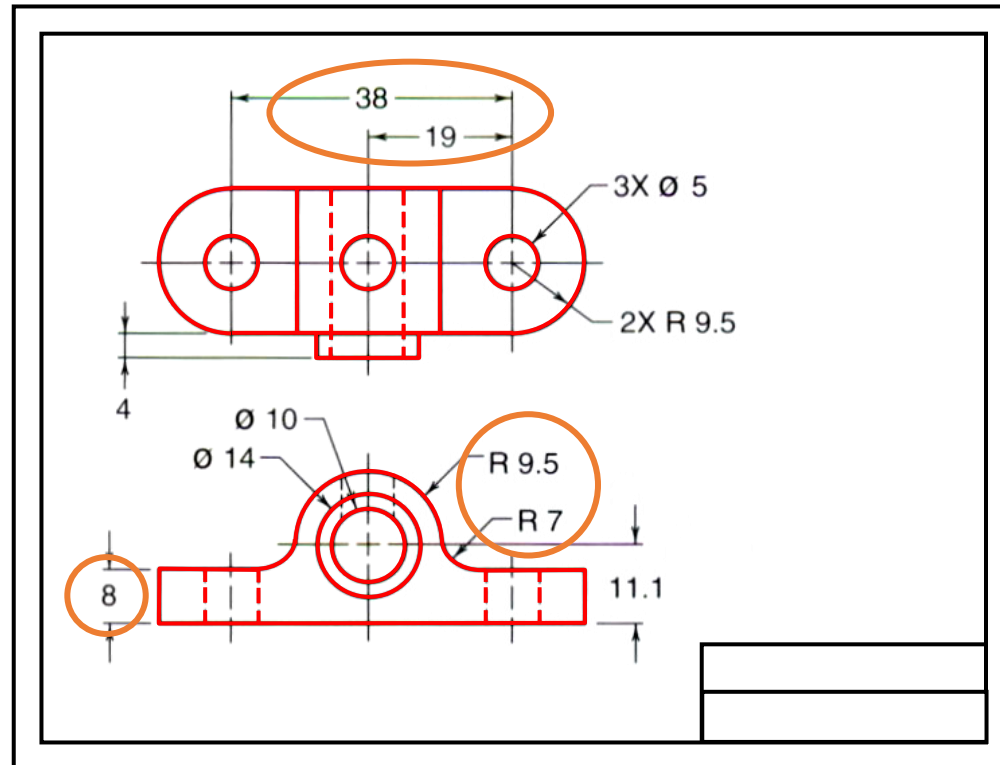
Engineering drawing are made up of *graphics language* and *word language*.

Graphics language

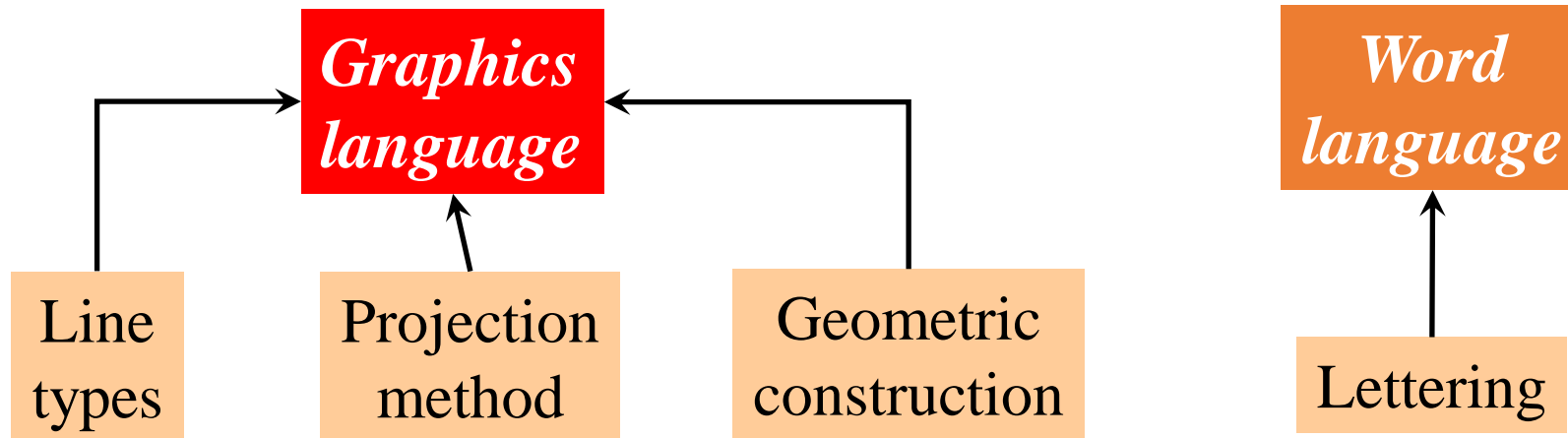
Describe a shape (mainly).

Word language

Describe size, location and specification of the object.



Basic Knowledge for Drafting



Standards are set of rules that govern how technical drawings are represented.

- Drawing standards are used so that drawings **carry the same meaning to everyone** who reads them.

Standard Code

Country	Code	Full name
UK	BS	B ritish S tandard
Australia	AS	A ustralian S tandard
Germany	DIN	D eutsches I nstitut für N ormung
	ISO	I nternational S tandards O rganization

standard paper sizes

A7 = 105 x 74.25 mm

A6 = 148.5 x 105 mm

A5 = 210 x 148.5 mm

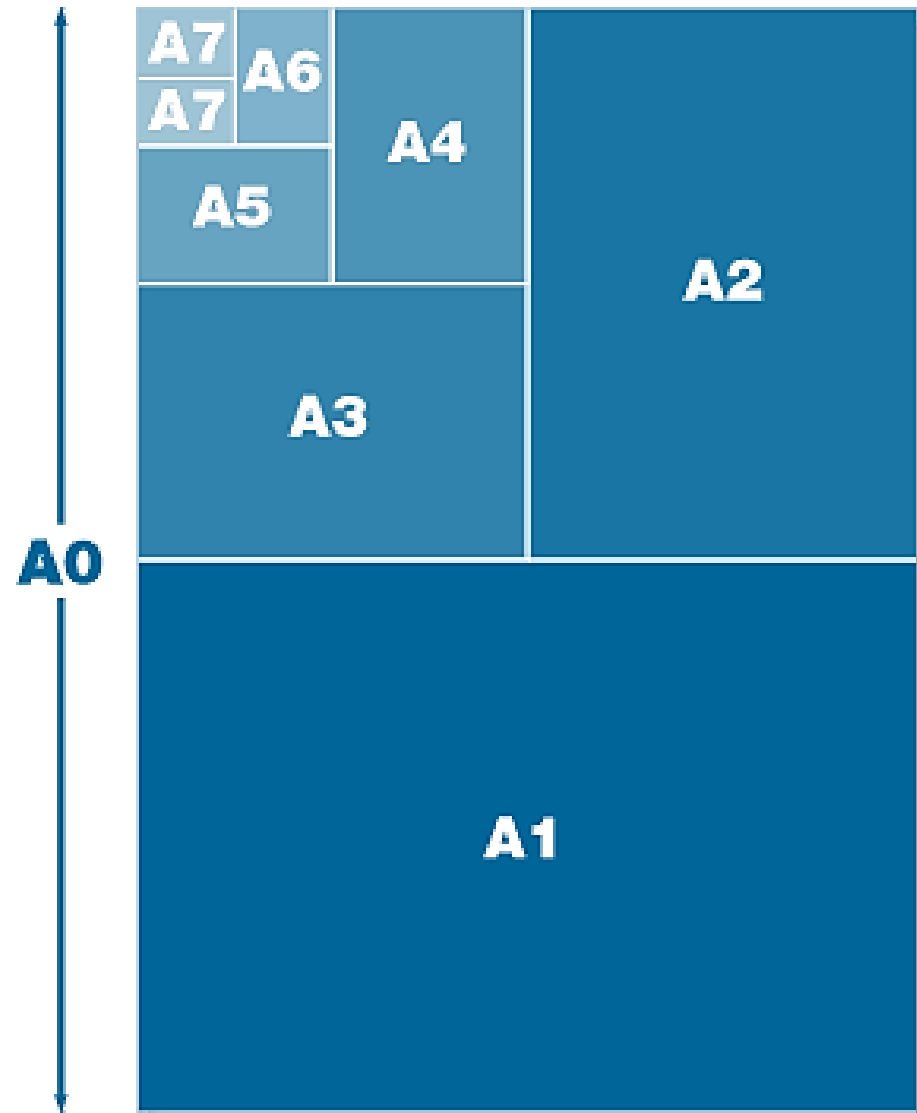
A4 = 297 x 210 mm

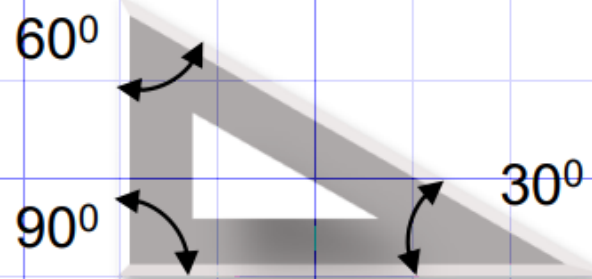
A3 = 420 x 297 mm

A2 = 594 x 420 mm

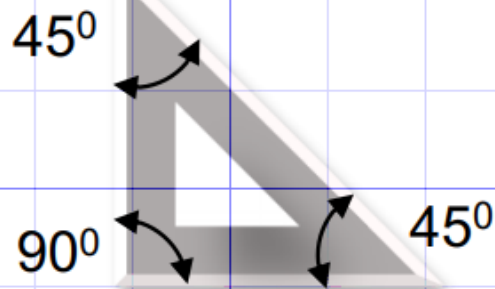
A1 = 840 x 594 mm

A0 = 1188 x 840 mm

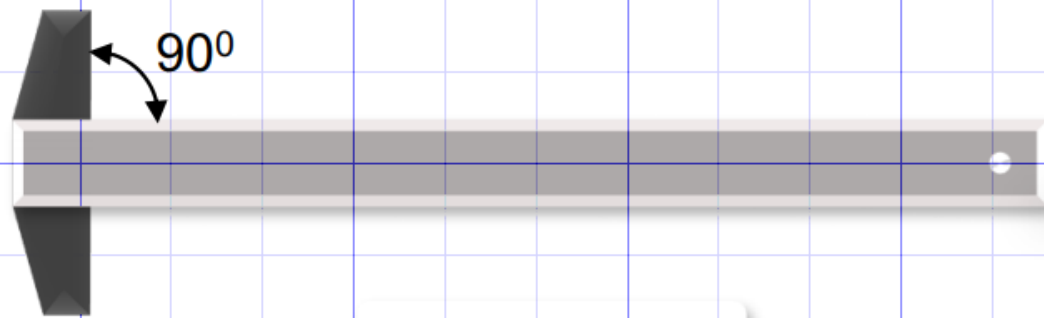




30° and 60° Triangle



45° Triangle



T - SQUARE



3. Adhesive Tape



4. Compass



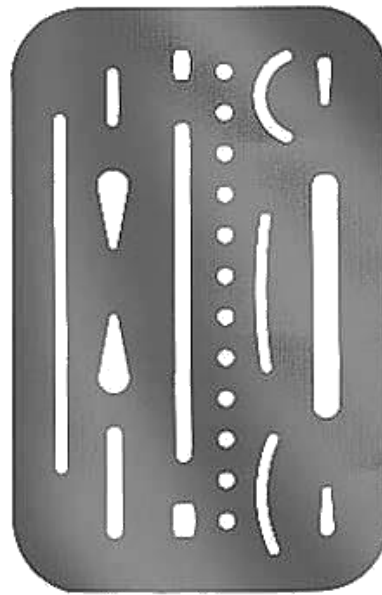
2H or HB for thick line
4H for thin line



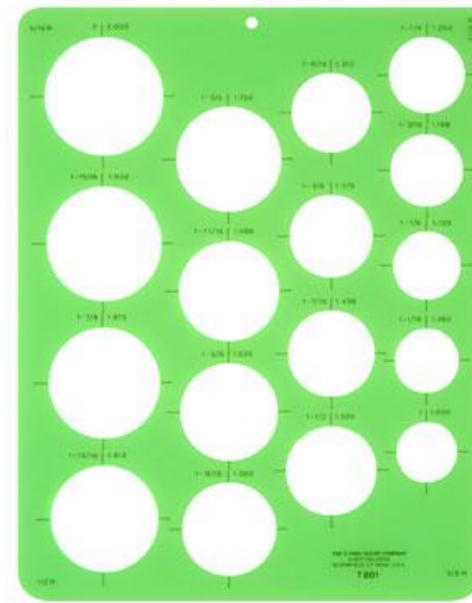
5. Pencils



6. Pencil Eraser



7. Erasing Shield



8. Circle Template



9. Sharpener

A large, textured orange splash graphic with white text centered on it. The splash has a watercolor-like appearance with various shades of orange and yellow, and some white speckles. The text is white and centered within the splash.

NEXT Lecture

Orthographic Projection

Any Questions

