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Design

## ME 1110 – Engineering Practice 1

**Engineering Drawing and Design - Lecture 5**

# Drawing Procedure and Dimensioning

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www.staff.city.ac.uk/~ra600/intro.htm



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## Objectives for today

- To learn about differences between assembly and detailed drawings
- o understand steps and order of drawing procedure
- To learn general rules of dimensioning and specific dimensioning of drawing features



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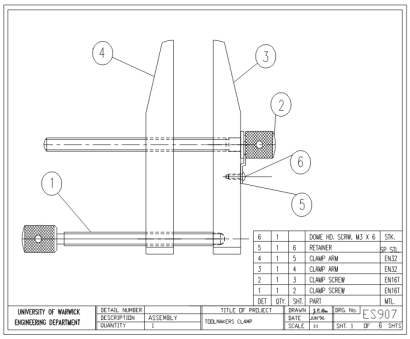
## Assembly drawing



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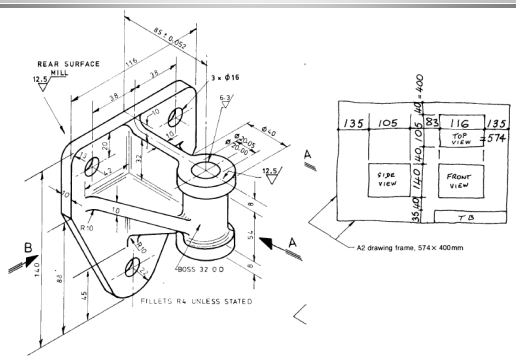
## Example detailed drawing of bracket



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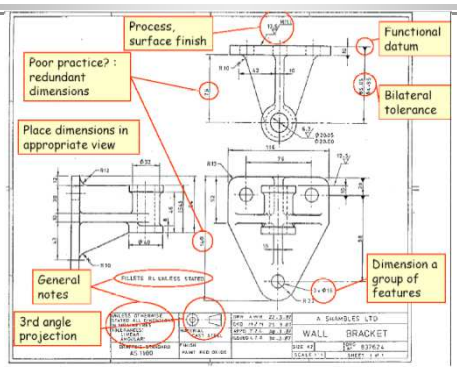
## Detailed drawing



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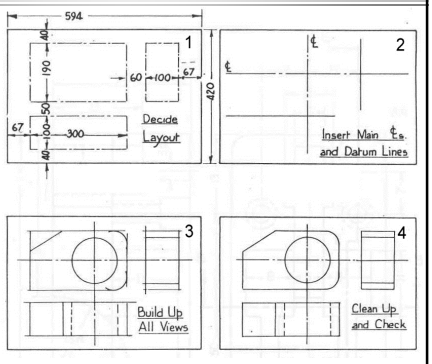
## Drawing Scales

- Scale is the linear ratio of the size of the object and the size of its drawing view
  - » It consist of the word SCALE and the ratio
  - » SCALE 1:1 for full size
  - » SCALE **X**:1 for ***enlargement*** (X > 1)
  - » SCALE 1:**X** for ***reduction*** (X > 1)
- **BS8888**
- Dimension values in drawing refer to the full size of the object.

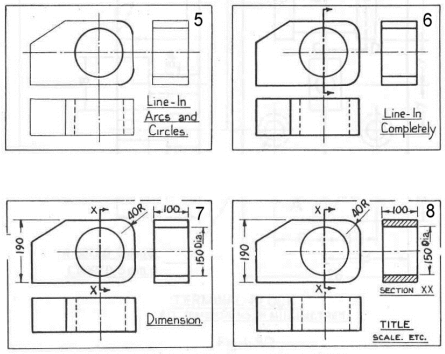
# Drawing procedure

- Accurate drawings
- Methodical approach
- Neat and clean



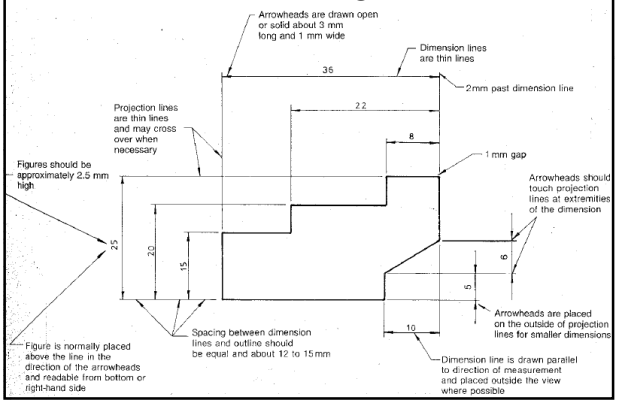



# Drawing procedure 2



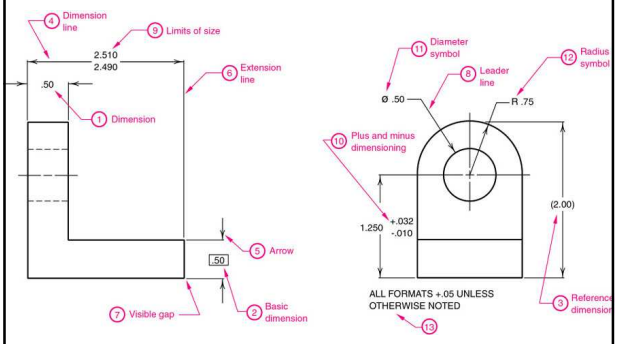



# Dimensioning basics



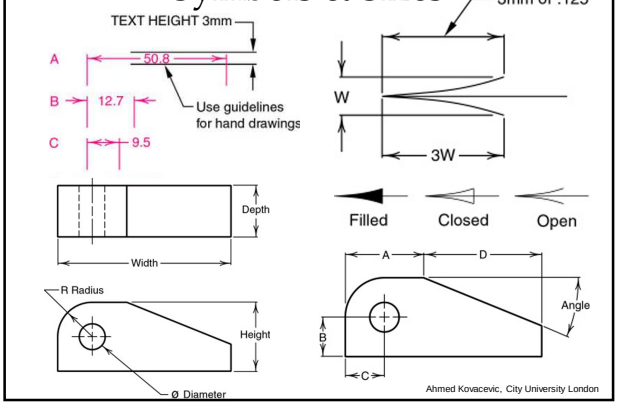



# Dimension elements



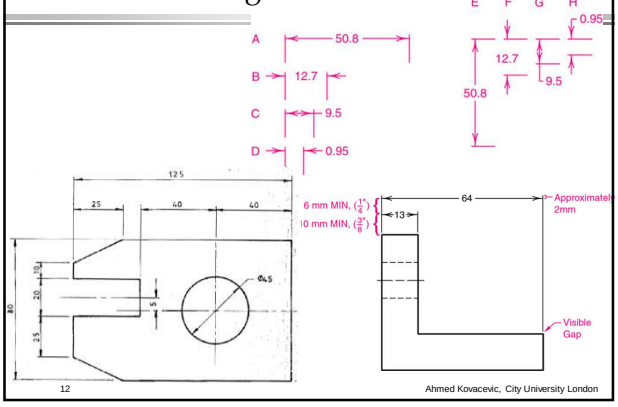



# Symbols & Sizes

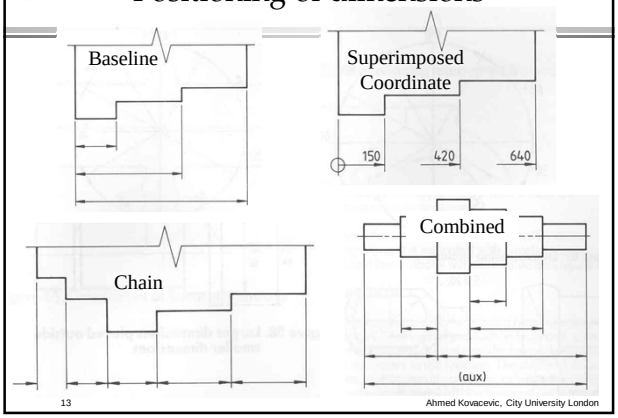





# Positioning of dimensions



## Positioning of dimensions



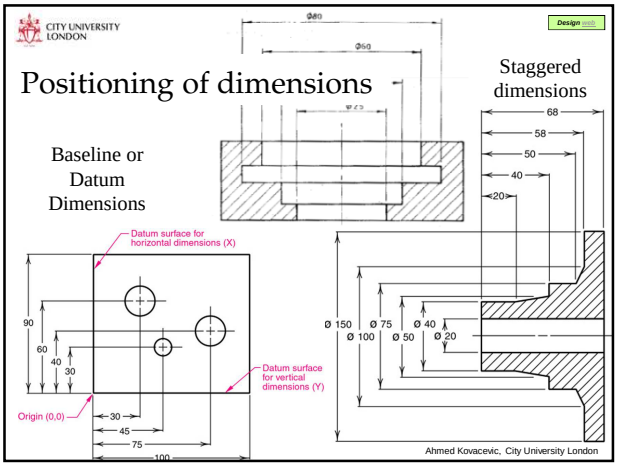




## Positioning of dimensions

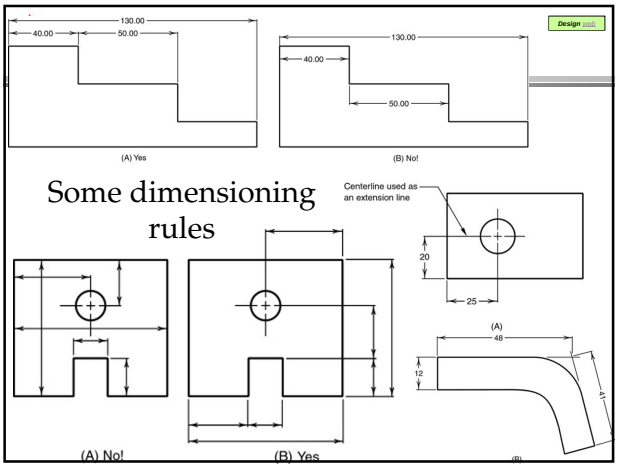
Staggered dimensions

Baseline or Datum Dimensions

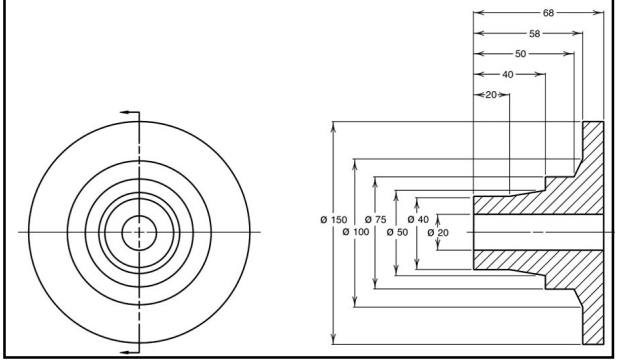




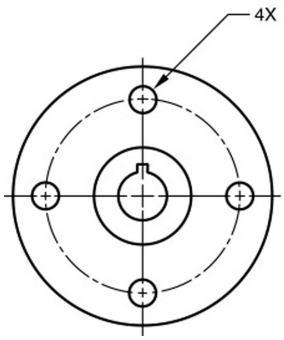

## Some dimensioning rules




## Circular patterns



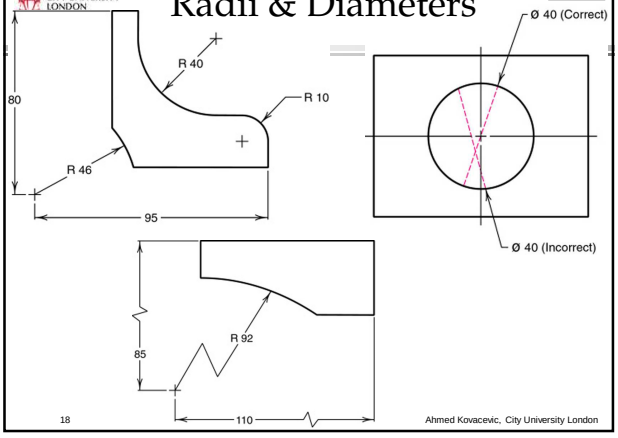

## Circular patterns



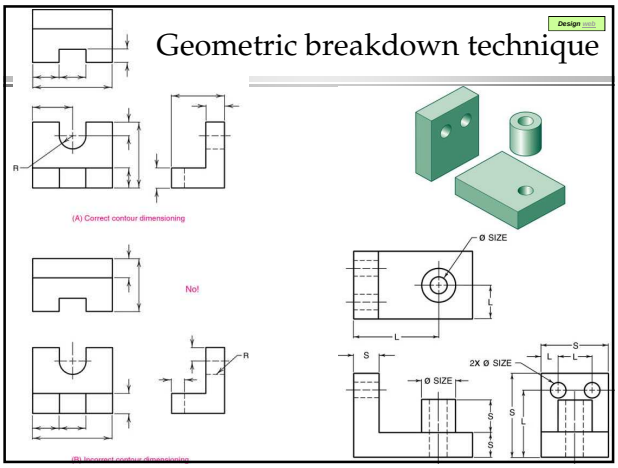




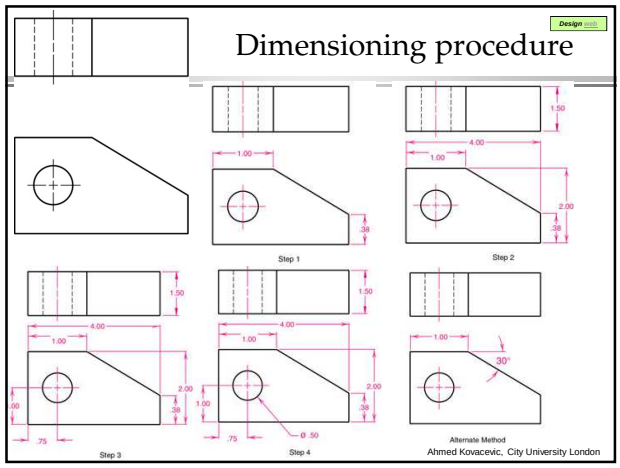
## Radii & Diameters



## Geometric breakdown technique




## Dimensioning procedure

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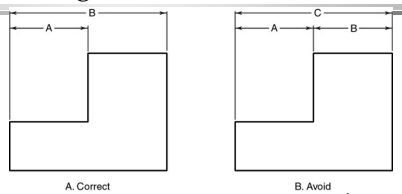
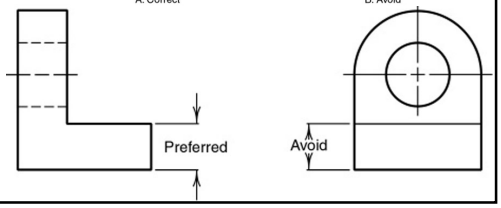
## Some general rules

Do not over dimension




Dimension the most descriptive view

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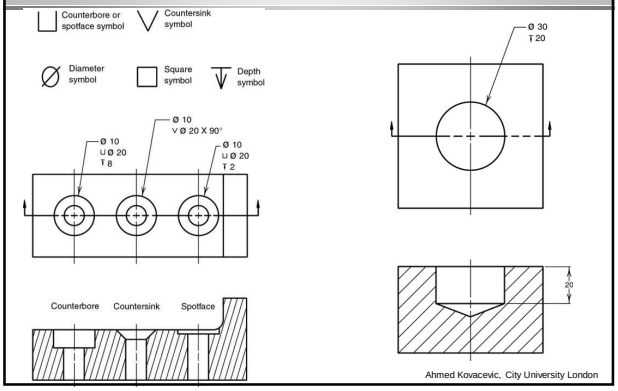
## Symbols for drilling operations

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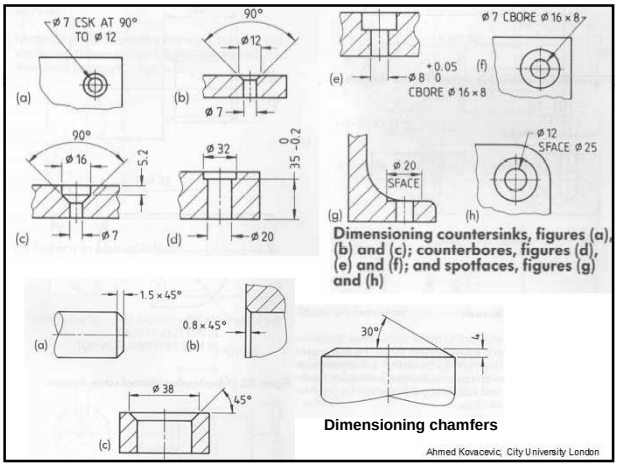


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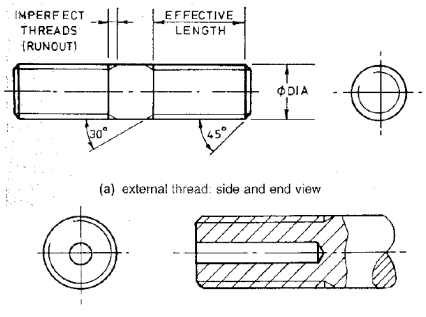
## Representing external thread

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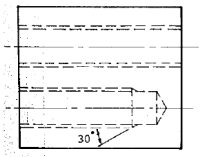
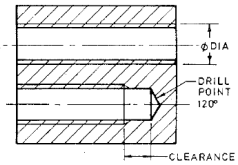
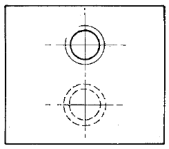
## Representing internal threads




(c) internal thread: outside view



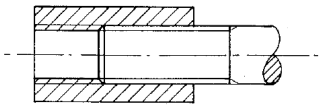

(d) internal thread: sectional view



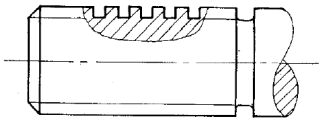
(e) internal thread: end view



## Representing threads in assembly



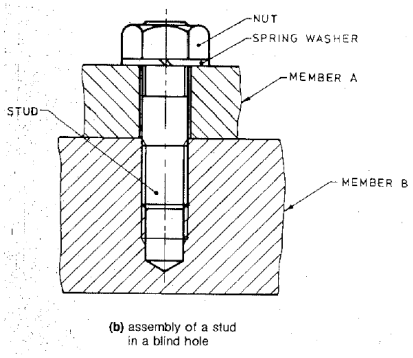
(a) threads in assembly



(c) square thread



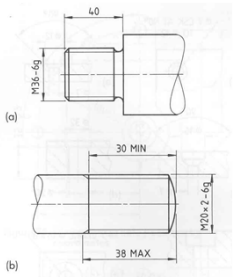
## Representing bolted assembly



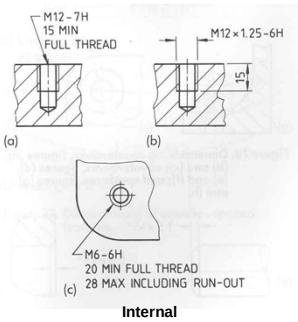

(b) assembly of a stud in a blind hole



## How to dimension threads



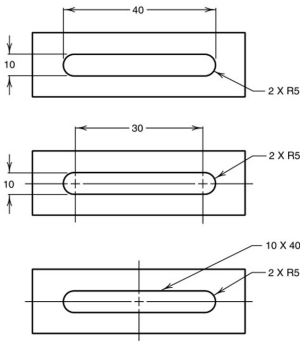

External




Internal

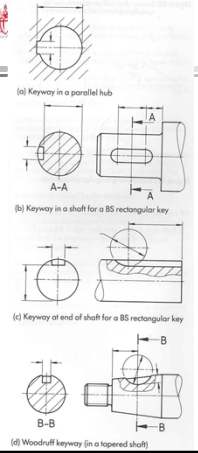


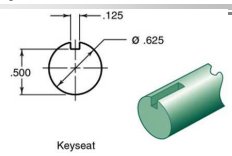
## Dimensioning slots



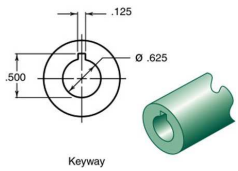



## Key ways




Keyseat




Keyway

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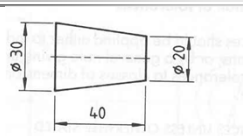
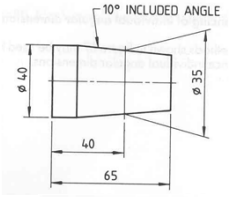
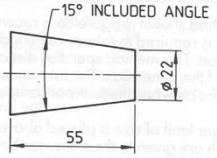
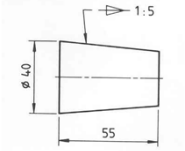
# Dimensioning tapered features



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