SNS COLLEGE OF TECHNOLOGY

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DEPARTMENT OF AGRICULTURE ENGINEERING
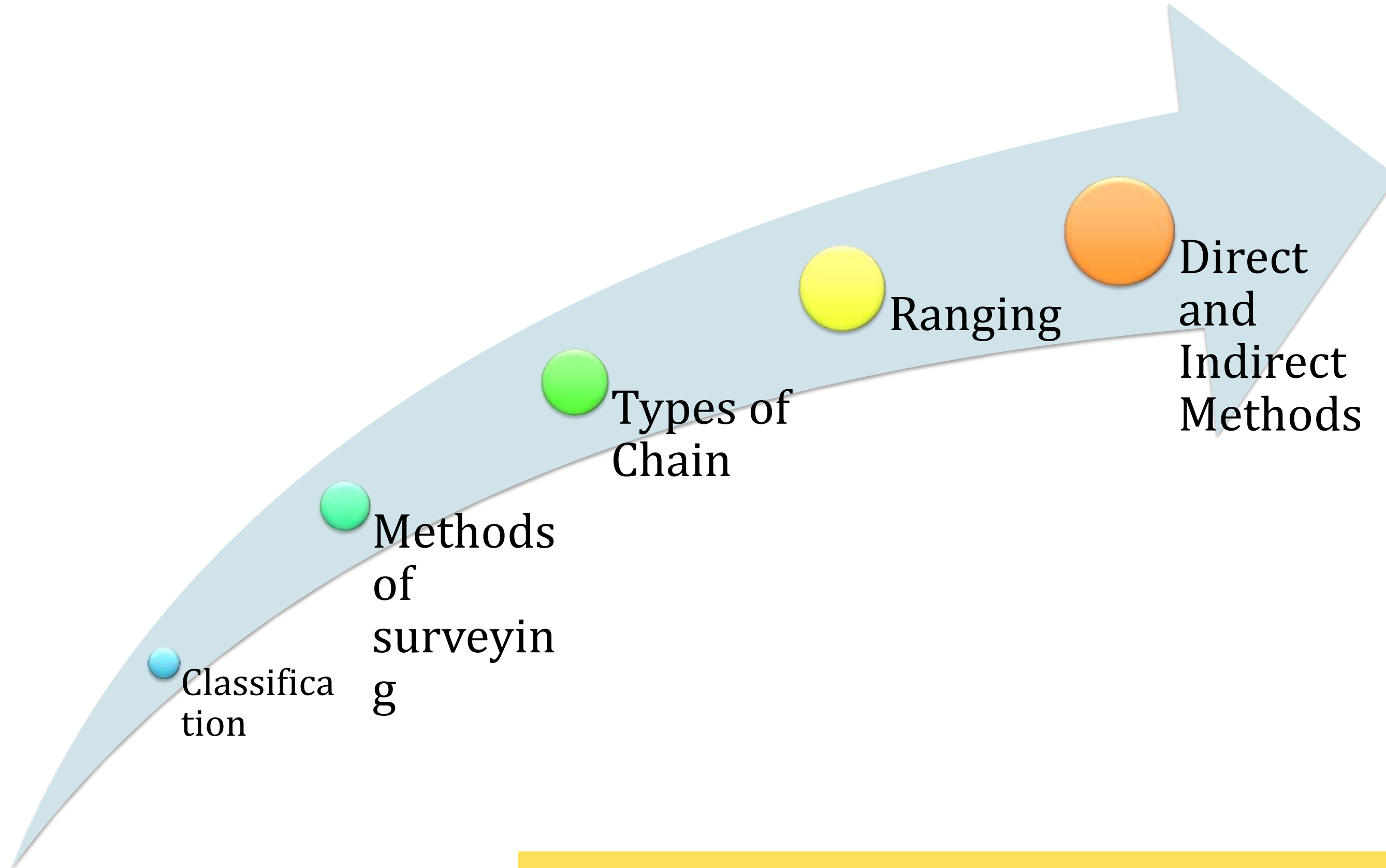
19AGT201 – SURVEYING AND LEVELING

II – YEAR III SEMESTER

UNIT 1 – PRINCIPLES OF SURVEYING

TOPIC 7 – DIRECT AND INDIRECT METHODS- ON SLOPING GROUND / OBSTACLES IN CHAINING
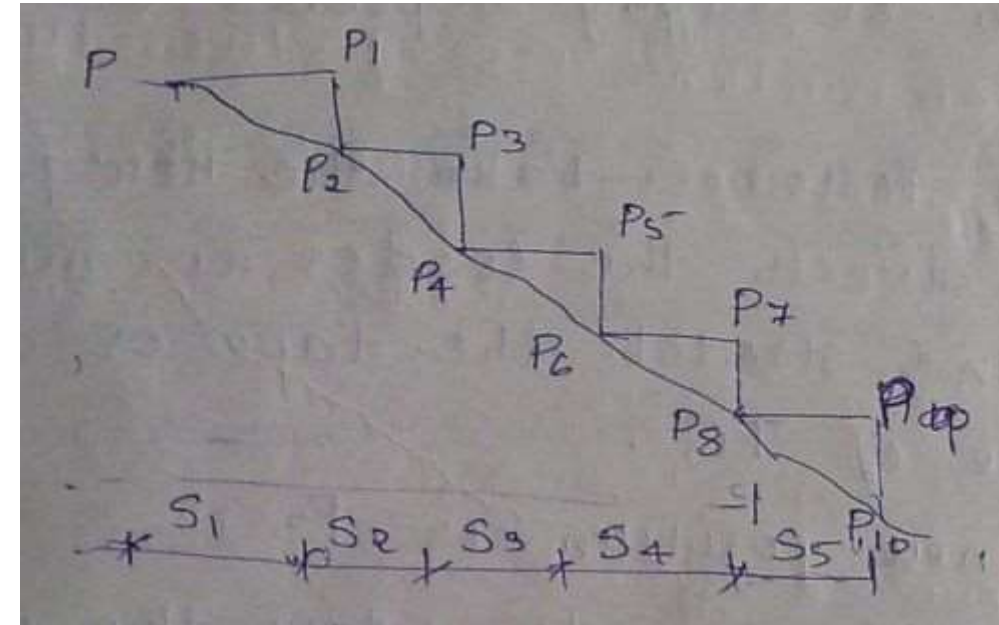
Last Class Review

Classification

Methods of surveying

Types of Chain

Ranging

Direct and Indirect Methods

Direct Methods

- Also known as Stepping method

Procedure

- A path of chain or tape is stretched out from 'P'.
- The path length of chain or tape depends on the steepness of the ground.
- The follower holds the zero end of the chain at 'P' and directs the leader at P1 to be in the line of PQ and stretch the chain or tape above the ground in horizontal line.
- The leader then transfers the point 'P1' to P2 on the ground by means of plumb bob or dropping a pebble or an arrow,
- Now the followers take the new position 'P2' and directs the leader to move forward and stretch the tape or chain in a line of PQ.
- Now the followers take the new position 'P2' and directs the leader to move forward and stretch the tape or chain in a line of PQ and the new position is P3.
- Again the leader transfers the point P3 to P4 on the ground as done earlier.
- This process is repeated till the point Q is reached.

Stepping Method

Horizontal distance PQ = S1 + S2 + S3 + S4 + S5

Indirect Methods

By measuring angle of Inclination

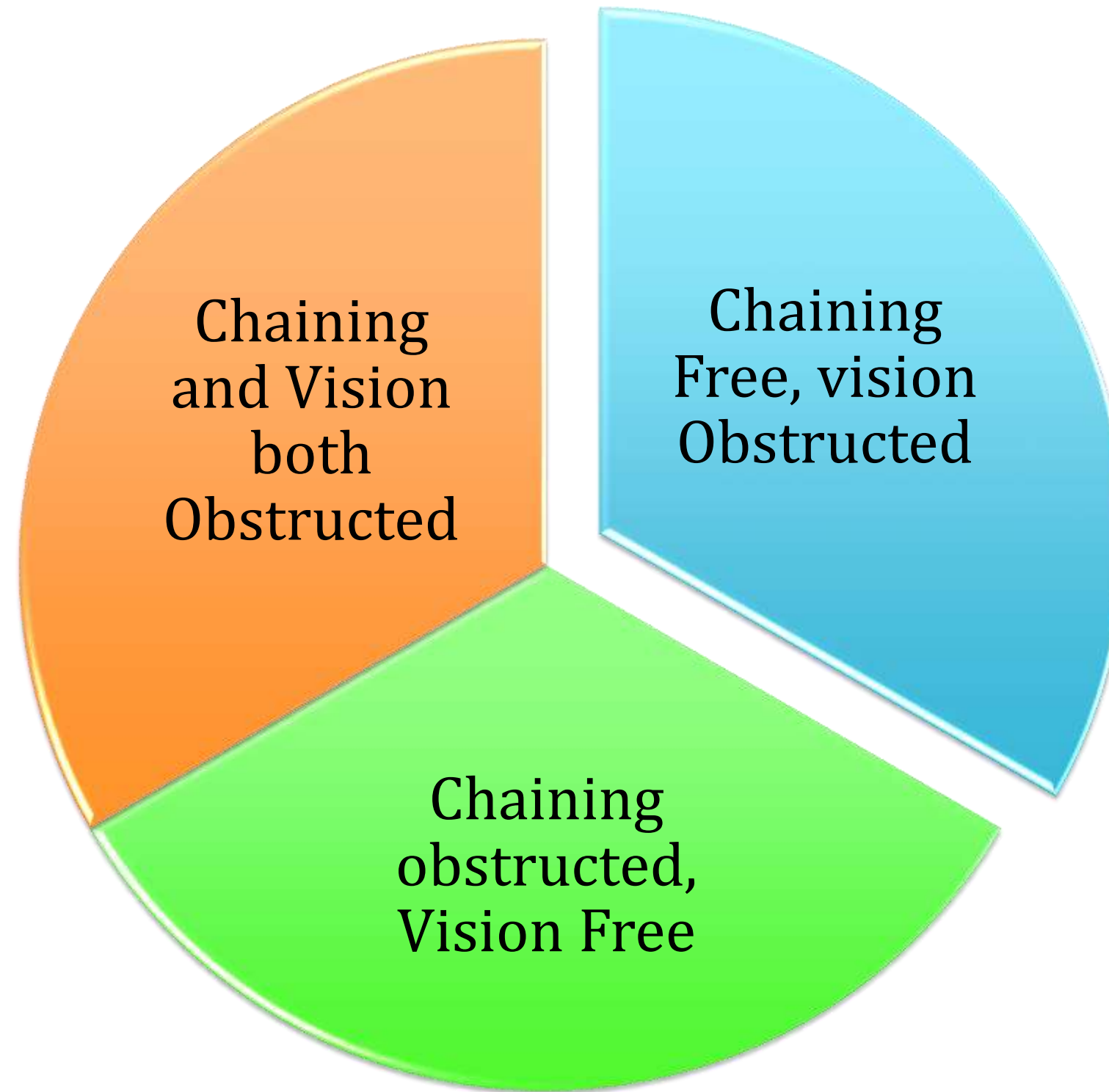**By measuring difference of levels**

By hypotenusal allowance

Assessment

- **How to eradicate occurrence of errors**

Obstacles in Chaining

DIRECT AND INDIRECT METHODS, OBSTACLES IN CHAINING/ 19AGT201– SURVEYING AND LEVELING/Ms.R.MUTHUMINAL , AP/AGRI/SNSCT

Chaining Free, vision Obstructed

In this type of obstacles, the ends of the lines are not intervisible e.g. rising ground,

hill or jungle intervening.

Here two cases may arise:

(i) Both ends may be visible from any intermediate point lying on the line such as in the case of a hill. The obstacle of this kind may easily be crossed over by reciprocal ranging and length measured by stepping method of chaining.

Fig 3.20

(ii) Both ends may not be visible from any intermediate point such as in the case of a jungle. The obstacle of this kind may be crossed over by "Random line method"
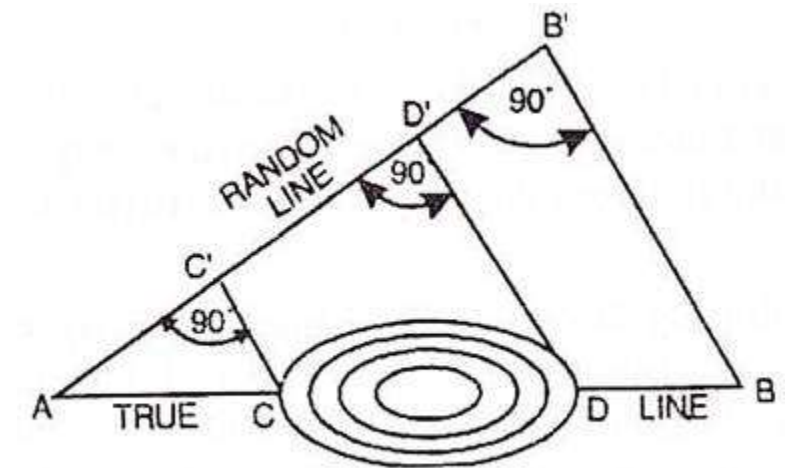
Chaining obstructed, Vision Free

The typical obstacle of this type is a sheet of water, the width of which in the direction of measurement exceeds the length of the chain or tape. The problem consists in finding the distance between convenient points on the chain line on either side of obstacle.
Two cases may arise:

(a) When the obstacle can be chained around, e.g. a pond, a thorny hedge etc.

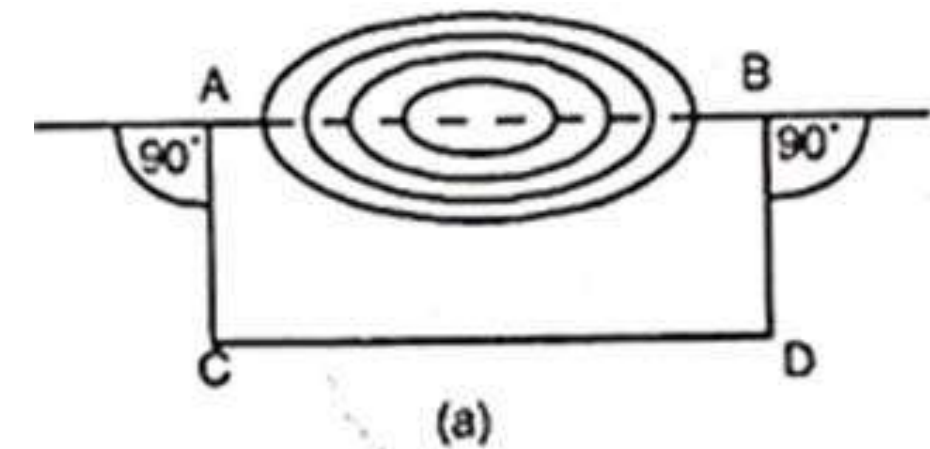(b) When the obstacle cannot be chained around e.g. a river.

(a)

Fig 3.21(a)

Chaining and Vision both Obstructed

A building is a typical example of this class of obstacles. The problem in this case consists both in prolonging the line beyond the obstacle and finding the distance across it.
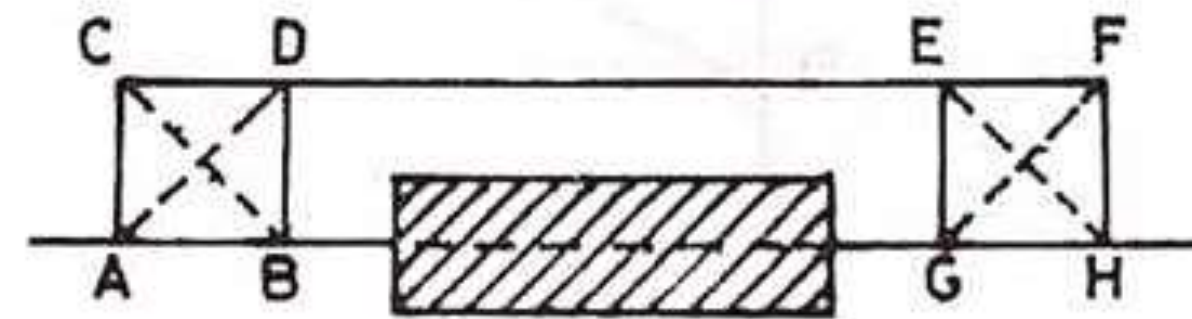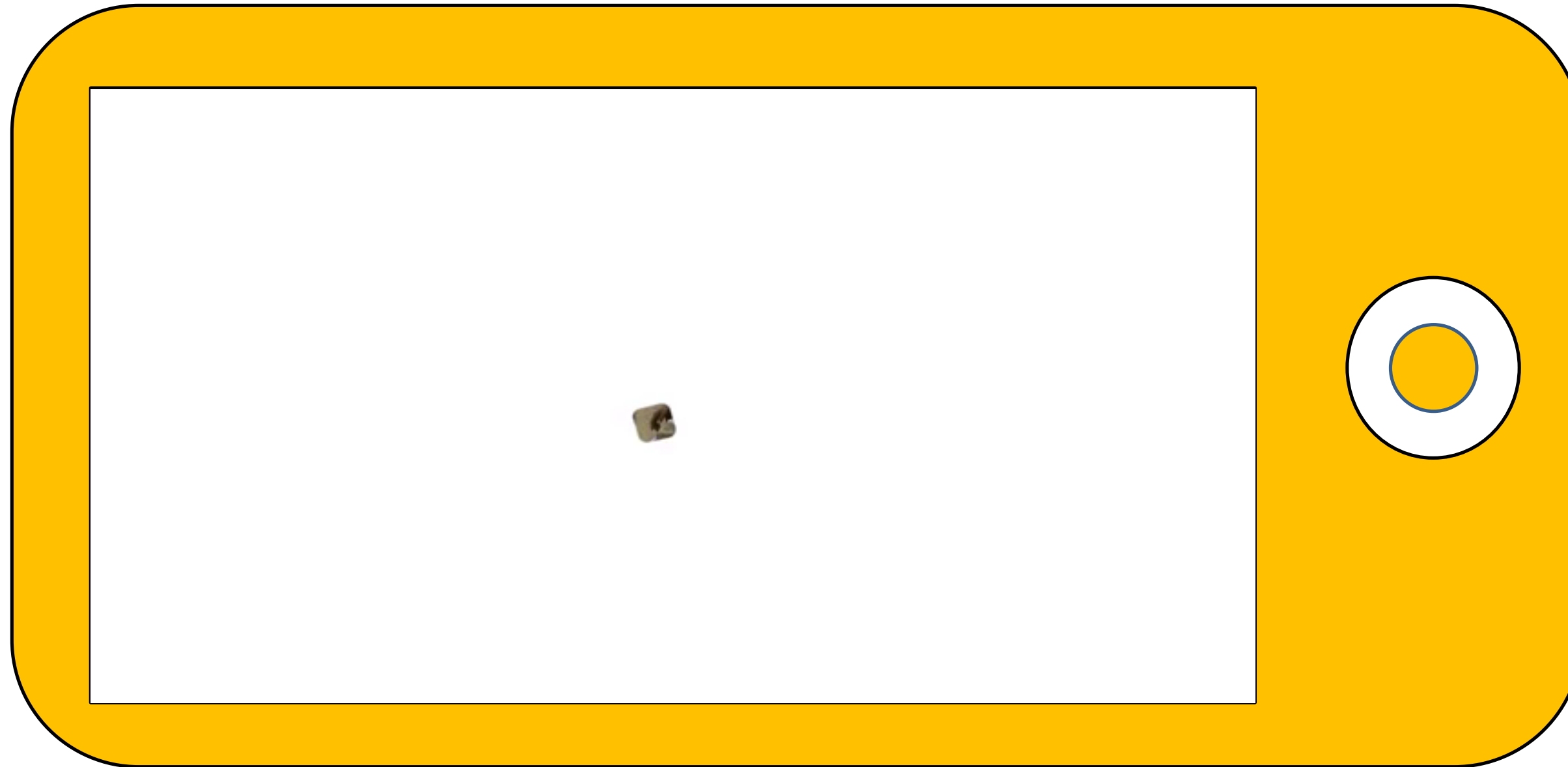

Fig. 3.23. (a)

Reference Videos

See You at Next Class!!!!