LNCT SM

GROUP OF COLLEGES

"WORKING TOWARDS BEING THE BEST"

NOTES FOR STUDIES

NAME OF THE TEACHER	AJAY CHAUDHARI
SUBJECT	ENGG. GEOLOGY
SUBJECT CODE	CE405
UNIT NO.	4
TOPIC NAME	INTRODUCTION OF STRUCTURAL GEOLOGY
DEPARTMENT	LNCTS, CIVIL ENGG.
INTENDED FOR	4TH SEMESTER CIVIL

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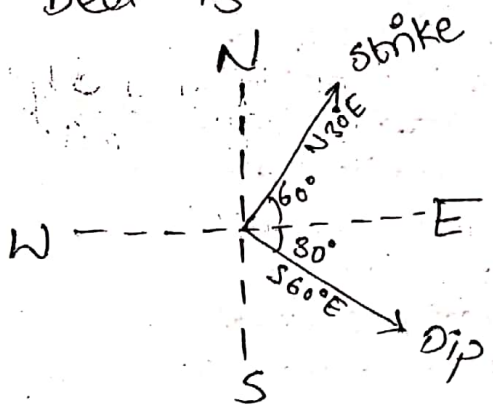
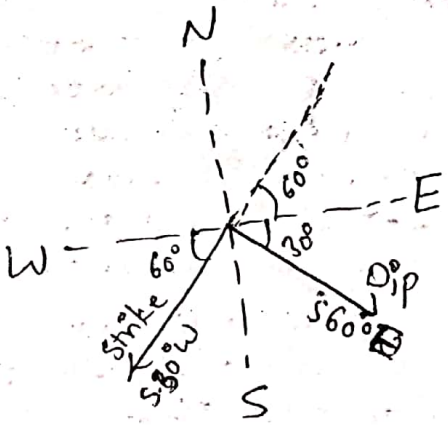
Unit - 4 Structural Geology

DIP → The dip direction is the direction along ~~with~~ which the inclination of the bedding plane occurs. The dip amount is the angle of inclination between the bedding plane and a horizontal plane. The dip of a bed is the angle in degrees which the bed line makes with the horizontal line, and the direction with respect to north, south, east and west; in which the bed is inclined.





The Inclined strata, the inclination of the bedding planes will be maximum in a direc" perpendicular to the strike direc", and this is called the true dip direc" or simply dip direc", and the amount of Inclina" along this direction is called the True dip amount. The dip amount gradually decreases on either side of the true dip direc", when we move towards the strike direc".

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The true dip and apparent dip values are infact related to each other by the equation:

$$\tan\alpha = \tan\beta \cos\gamma$$

Where β = angle of true dip

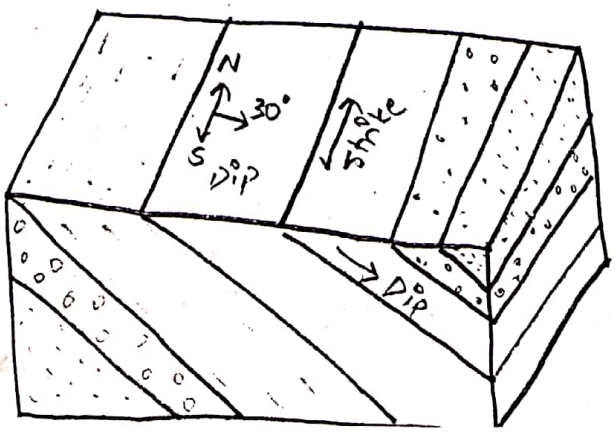
α = angle of apparent dip

γ = angle b/w the strike of the layer and the direction in which apparent dip(β) is being measured.

Vertical beds, only strike direction no dip direction, and the dip amount will be 90°.

Horizontal beds, there can be neither strike direction nor dip (direc' and amount).

STRIKE → When a bedding plane (or a joint plant, or a fault plane) is cut by a horizontal plane, a line of intersection will be obtained at the surface. The direction is known as the strike, ~~or the~~



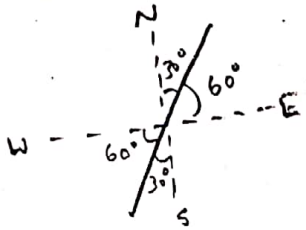


Fig. shows Dip and strike of beds.

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FOLD

ELEMENT OR PARTS OF FOLDS →

1) Limbs → The sloping sides of a fold crest to trough are called "Limbs".

2) Axial plane → It is an imaginary plane or surface which divides a fold into two equal parts.

3) Axis of fold → An "Axis of fold" is defined as the line of intersection between the axial plane and the surface of the constituent rock bed.

4) Plunge of fold → folds having inclined axis are called "Plunging folds". The angle of inclination of a fold axis with the horizontal, is called the "Angle of folds plunge".

5) Crest & trough → The highest point of the arch of an anticlined is called the "crest".

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of the fold and the lowest point of the syncline is called the "trough".

6) Hinge, Hinge line and Hinge area → 'Hinge' is the maximum curvature of the fold. Line which join the maximum curvature point in the fold is called "Hinge line".

The adjoining area of Hinge line is called "Hinge area".

(7) Inflection → The point of zero curvature is called "Inflection". And line which join the inflection points is called "Inflection line".

(8) Inter limb angle → The angle between to limbs is called "Inter limb angle".

(9) Arch length of the fold → The actual length of between alternate hinge point.

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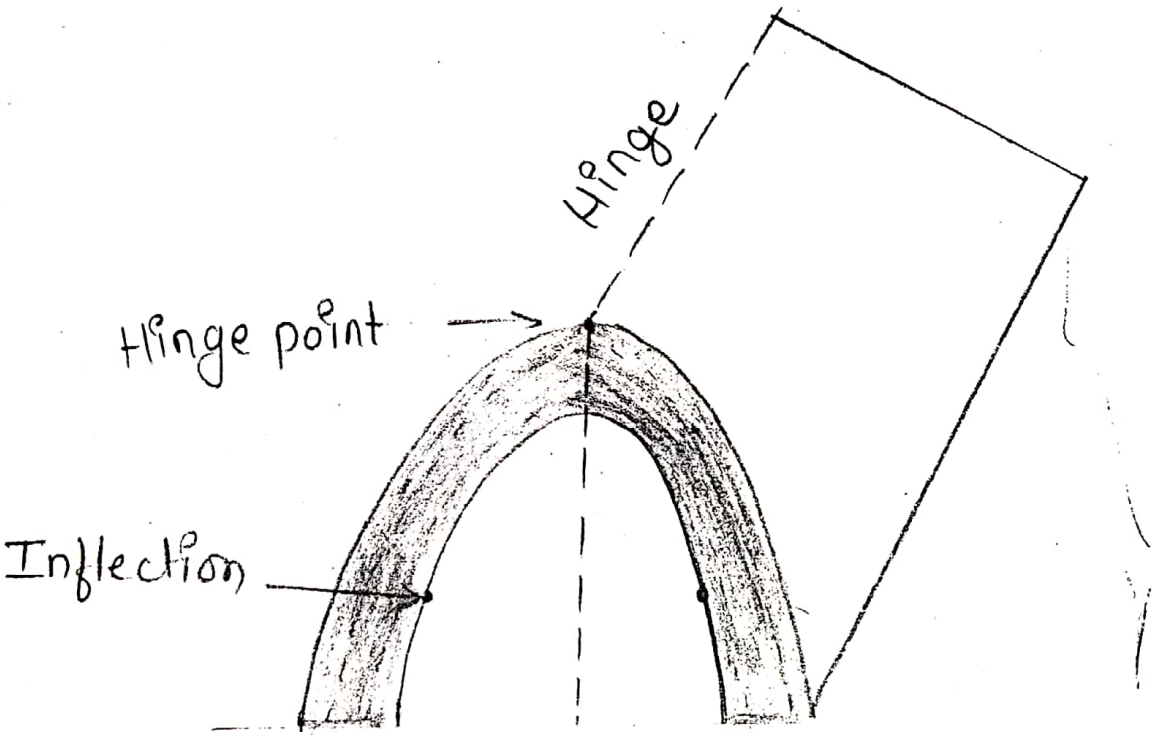

Figure – Parts of fold

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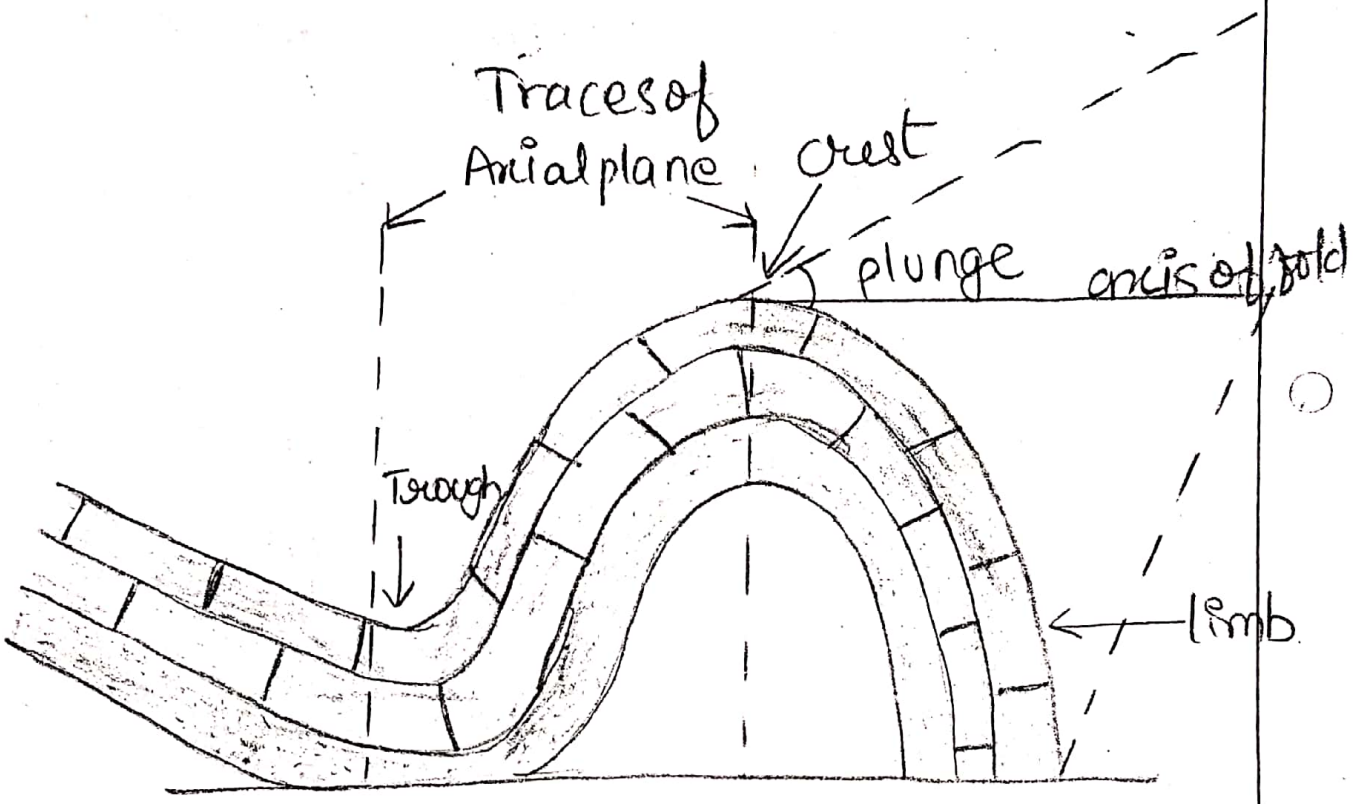

Figure – Parts of fold.

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