

Summary

From this lecture students learnt that

- A sphere is the locus of a point which remains at a constant distance from a fixed point.
- The fixed point is called the center and the constant distance is the radius of the sphere.
- The equation of a sphere whose center and radius are given is $(x - \alpha)^2 + (y - \beta)^2 + (z - \gamma)^2 = r^2$.
- Tangent plane is the one which sphere at only one point.
- The equation of the tangent plane at (x_1, y_1, z_1) to the sphere $x^2 + y^2 + z^2 + 2ux + 2vy + 2wz + d = 0$ is given by $xx_1 + yy_1 + zz_1 + u(x + x_1) + v(y + y_1) + w(z + z_1) + \frac{d}{2} = 0$.
- When a plane cut the sphere, a cross section of a sphere is obtained as circle.