Padagogical teaching Aids

Sem: V   **Sub Name : Electromagnetic Waves**   **Sub. Code:21EC54**

As Electromagnetics is one of the core critical course of Electronics and Communication Engineering. The course has to be learnt in three dimensional co-ordinate systems namely 1. Rectangular co-ordinate System 2. Cylindrical co-ordinate System 3. Spherical co-ordinate System.
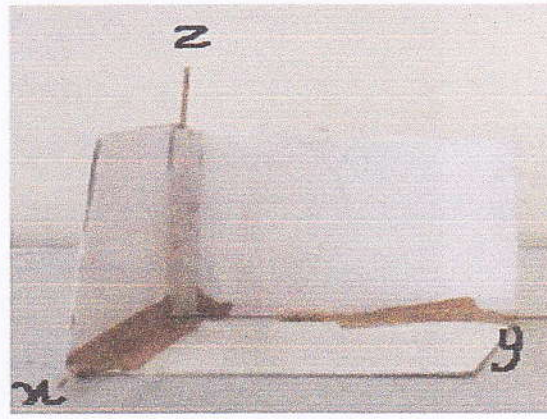
1. Rectangular Co-ordinate System

Fig.1: Rectangular Co-ordinate System

Description : Rectangular co-ordinate system has x, y and z as it's vertices Usually x- directionis considered to in a direction coming out from the board y is assumed from left to right direction and z is upward movement to convince the co-ordinate system and constant planes a model with card sheet and paper prepared as depicted in Fig. 1.

2. Cylindrical Co-ordinate System

Fig.2: Cylindrical Co-ordinate System

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Description : Cylindrical co-ordinate system has r, Ø and z as it's vertices, z- direction is same as considered in rectangular co-ordinate system. The r direction is along the radius of the cylinder and Ø is an angle defines the circularity of the cylinder, varies from 0 degrees to 360 degrees for the complete cylinder. To convince the vertices and constant planes of this co-ordinate system a model with card sheet and paper prepared as depicted in Fig. 2.
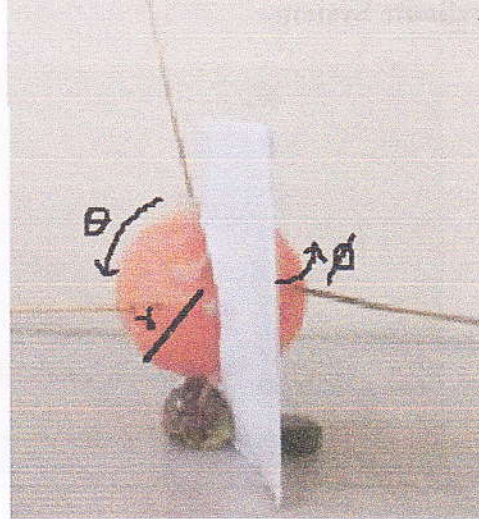
3. Spherical Co-ordinaries.ate System

Fig.3: Spherical Co-ordinate System

Description : Spherical co-ordinate system has r, θ and Ø as it's vertices, z. The r direction is along radius of the sphere. The θ- direction is top- down movement the sphere, which is measured from z-direction and it's an angle. For the complete sphere θ runs from 0 degrees to 180 degrees Movement in θ -direction depends on r. i.e (rdθ). The Ø is an angle varies from 0 degrees to 360 degrees to make the complete sphere. To convince the vertices and constant planes of this co-ordinate system a model with card sheet, ball and paper prepared as depicted in Fig. 3.

Outcome : As per the oral feedback by students these models truly help in convincing the various co-ordinate systems thoroughly.hence help in better understanding of the course.

Prepared by :

Prof. S. S. Kamate
Course Incharge

HOD
Electronics & Communication Engg.
Hirasugar Institute of Technology,
Nidasoshi-591 236