SYLLABUS:

Robot – Definition – Robot Anatomy – Co-ordinate systems, Work Envelope, types and classification – specifications – Pitch, yaw, Roll, Joint Notations, Speed of Motion, Pay Load – Robot Parts and their functions – Need for Robots – Different Applications

1.1 INTRODUCTION:

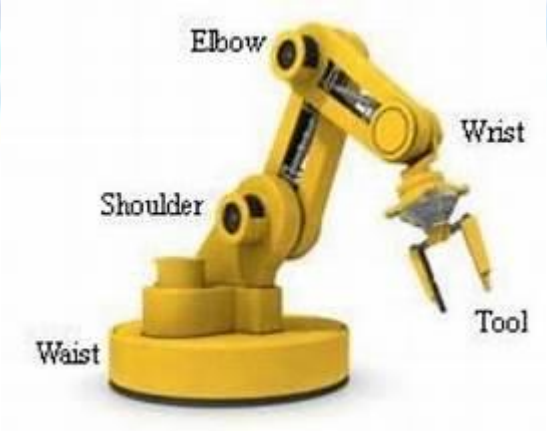
Robots are devices that are programmed to move parts, or to do work with a tool. Robotics is a multidisciplinary engineering field dedicated to the development of autonomous devices, including manipulators and mobile vehicles.

Robots are man-made mechanical devices that can be move by themselves, whose motion must be modelled, planned, sensed, actuated and controlled, whose motion behavior can be influenced by programming in moving in safe interaction with an unstructured environment, while autonomously achieving their specified task.

DEFINITION:

An automatically controlled, reprogrammable, multipurpose, manipulator programmable in three or more axes, which may be either, fixed in place or mobile for use in industrial automation application.

1.2 ROBOT ANATOMY:



Robot anatomy is concerned with physical construction of the body, arm and wrist of the machine. Most Robots used in plants today are mounted on a base fastened on the floor.

BODY:

The body is attached to the base and Arm assembly is attached to the body.

WRIST:

At the end of the arm is wrist. The wrist consists of a number of components that allow it to be oriented in a variety of positions.

JOINTS:

The relative movements between various components of the body, arm, and wrist are provided by a series of joints. These joint movements usually involve either rotating or sliding motions.

MANIPULATOR:

The body, arm, and wrist assembly are sometimes called the manipulator.

ENDEFFECTOR:

Attached to the robot wrist is a hand or a tool called the “end effector”. The body and arm joints of the manipulator are used to position the end effector and the wrist joint of the manipulator is used to orient the end effector.