**Plumbing Engineering**

**Plumbing:** the system of pipes, tanks, fittings, and other apparatus required for the water supply, heating, and sanitation in a building.

**Introduction:** Water plays a vital and essential role in our ecosystem. This natural resource is becoming scarce, making its availability a major social and economic concern.

A water supply is an essential requirement for all people.

The Islamic and Arab countries in particular are the highest consumption of water per capita, where the consumption of water per person (capita) about 220 liters per day, and the water rates of consumption affected by variety of factors such as nature of climate, the standard of living, water prices, water distribution systems and type of activity.

**Type of main water system**

1. **A single-main system:-** It is one main water pipe which serve both side of the street.
2. **A double-main system:-** It is a main water pipe on each sides of the street.

The main advantage of the double system is that repair can be made without interfering with traffic and without damage to the pavement.

**Points which required consideration in designing water supply:**

1. Population of the city to be served.
2. Topographical of the city to be served
3. Source of water
4. Future development trends of the city
5. Rate of water consumption
6. Kind of consumers

**Points which required consideration in designing sewage networks:**

1. Population of the city to be served.
2. Topographical of the city to be served
3. Source of sewage
4. Rate of sewage expected to be available
5. Treatment method
6. Rainfall in the locality

**Plumbing Fixtures:-**

Points which indicating the best qualities of plumbing fixtures

1. The desired qualities and durability
2. Resistance to shock or mechanical damage
3. Smooth and flush exterior surfaces
4. Resistance to corrosion