Water Resources (Hydraulics) Engineering

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- Major Branches of Civil Engineering
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- Water Resources Engineering Structures
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Major Branches of Civil Engineering

- Structural Engineering
  - Mechanics
- Construction Materials
- Construction Management
- Geotechnical Engineering
- Transportation Engineering
- Water Resources (Hydraulics) Engineering
- Coastal Engineering
- Environmental Science

Major Branches of Civil Engineering

- Structural Engineering
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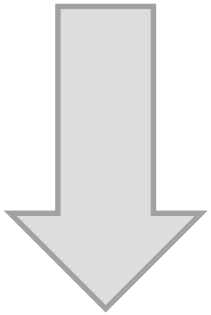
- Water Resources (Hydraulics) Engineering
- Coastal Engineering
- Environmental Science

Water Resources (Hydraulics) Engineering

- A hydraulics engineer deals with;
  - Measurement
  - Utilization
  - Development

Water Resources



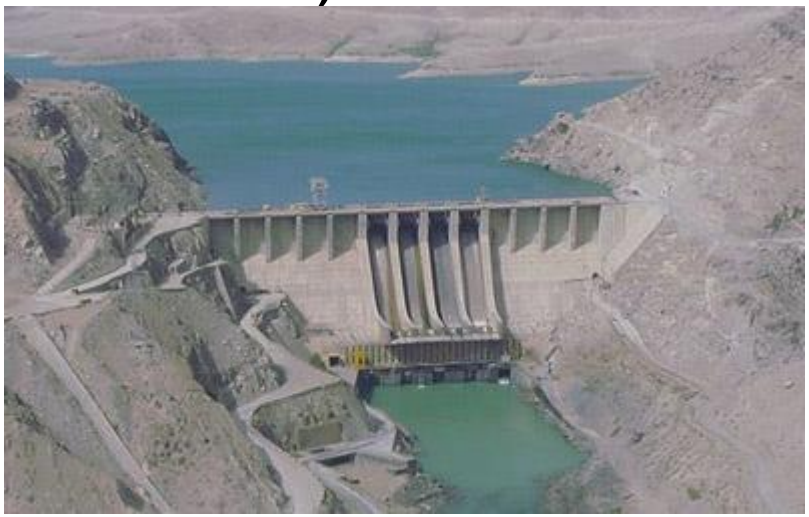
In order to fulfill the needs of people

Duties of water resources engineers

- Collection and distribution of clean potable water
- Disposal and treatment of polluted water
- Irrigation and drainage
- Energy
- Safety (against floods)

Water Resources Engineering Structures
DAMS

- Collection of water
  - Potable water
  - Irrigation (Agricultural purpose)
- Energy
- Safety (against flood)



Water Resources Engineering Structures
DAMS

- Measurement of precipitation
- Estimation of reservoir basin (Upstream)

Water Resources Engineering Structures
DAMS

- Design of spillways
- Water flow on downstream

Water Resources Engineering Structures

Hydroelectric Power Plants

- Energy Production
  - Potential energy to electricity

Water Resources Engineering Structures

Pumping Systems

- Distribution of water

Water Resources Engineering Structures

Pipelines

- Distribution of water
  - Dams
  - Sewage systems
  - Water treatment facilities

Water Resources Engineering Structures

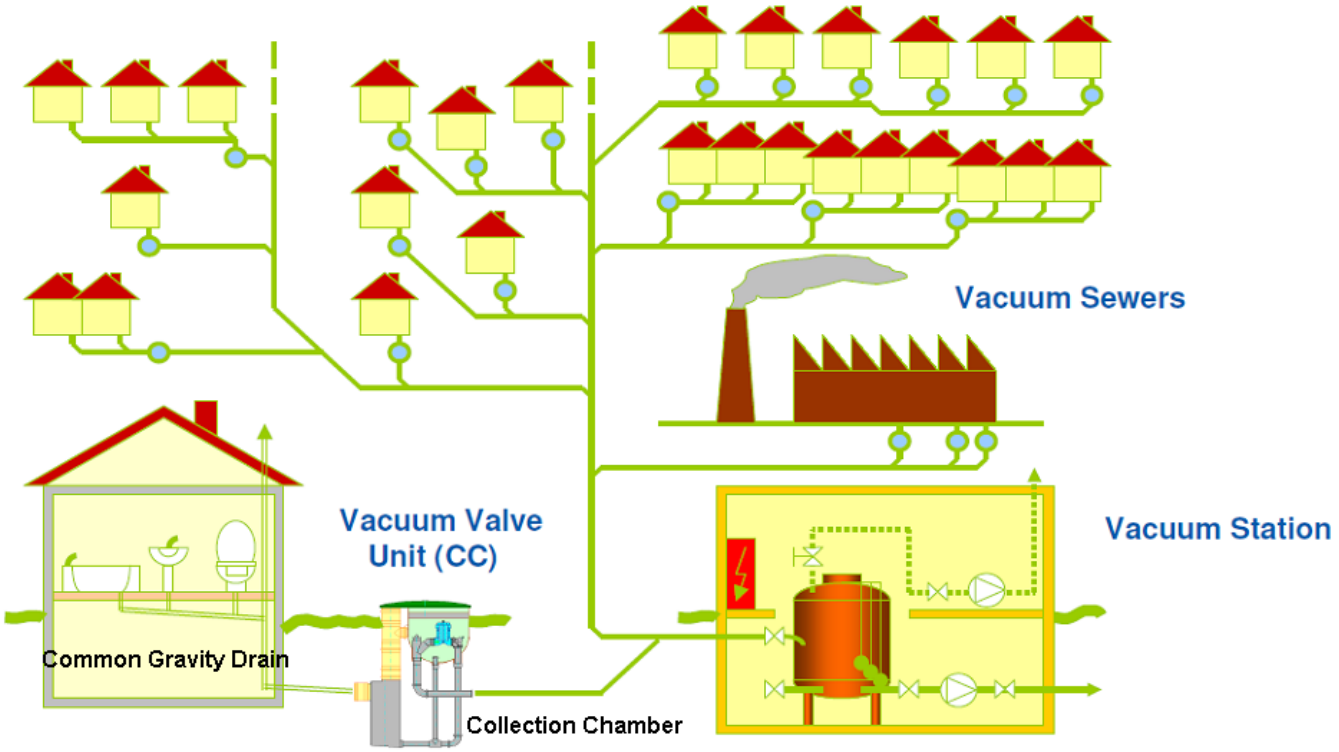
Open Channels

- Drainage
- Distribution of water
- Protection to flood

Water Resources Engineering Structures

Sewage Systems

- Disposal of polluted water



Water Resources Engineering Structures

Water Treatment Facilities

Hydraulics Lessons in BS Program

- 2nd Year
  - Fluid Mechanics (Departmental Required)
    - Fundamental principles of fluid behavior
    - (Behavior of water under static and dynamic conditions)

- 3rd Year
  - Hydraulics (Technical Elective)
    - Design of pipeline, pumps and channels
  - Hydrology (Technical Elective)
    - Precipitation, hydrologic cycle
  - Water Resources Engineering (Technical Elective)
    - Design of general water resources engineering structures
  - Introduction to Coastal Engineering (Technical Elective)
    - Major coastal structures such as breakwater

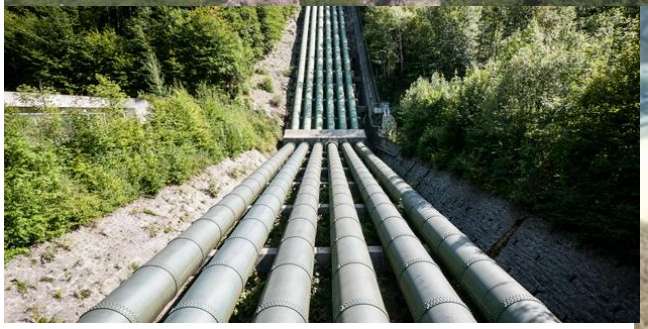
Hydraulics Lessons in BS Program

- 4rd Year
  - Geographical Information Systems (Technical Elective)
    - Basics of geographical information systems
  - Water Supply and Sewerage Engineering (Technical Elective)
    - Fundamentals of water supply and sewerage engineering
  - Coastal Zone Management (Technical Elective)
    - Management of coastal areas in engineering perspective

Hydraulics Lessons in BS Program

- 4rd Year
  - Irrigation and Drainage (Technical Elective)
    - Design of irrigation and drainage systems
  - Port Planning and Design (Technical Elective)
    - Design of ports and coastal structures like breakwaters


Deriner Dam
249m




Keban Dam
210m