Centre Universitaire Mila

Département des Sciences et Techniques

Spécialité: Hydraulique Urbaine

Module : Anglais technique et terminologie

Lecture 04

Hydraulic Engineering

Hydraulic engineering is the Science of water in motion and its interactions with the surrounding environment. Water plays a major role in human perception of the environment because it is an indispensable element. More importantly Human Life is totally dependent upon water. The technical challenges facing hydraulic engineers are formidable and sustained research efforts are essential.

The term 'Hydraulics' is related to the application of the Fluid Mechanics principles to water engineering structures, civil and environmental engineering facilities: e.g., canal, river, dam, reservoir, water treatment plant. Hydraulic engineering is the science of water in motion, and the interactions between the flowing fluid and the surrounding environment. Hydraulic engineers are concerned with application of the basic principles of fluid mechanics to open channel flows and real fluid flow hydrodynamics. Examples of open channels are natural streams and rivers. Man-made channels include irrigation and navigation canals, drainage ditches, sewer and culvert pipes running partially full, and spillways.

Hydraulic Engineering as a sub-discipline of Civil Engineering is concerned with the flow and conveyance of fluids, principally water. This area of engineering is intimately related to the design of bridges, dams, channels, canals, and to both sanitary and environmental engineering.

Ms. Bouhaddad

Hydraulic engineering is the application of the principles of fluid mechanics to problems dealing with the collection, storage, control, transport, regulation, measurement, and use of water. Before beginning a hydraulic engineering project, one must figure out how much water is involved. The hydraulic engineer is concerned with the transport of sediment by the river, the interaction of the water with its alluvial boundary, and the occurrence of scour and deposition. “The hydraulic engineer actually develops conceptual designs for the various features which interact with water such as spillways and outlet works for dams, culverts for highways, canals and related structures for irrigation projects, and cooling-water facilities for thermal power plants.”

Civil engineers play a vital role in the optimal planning, design and operation of water resource systems. Job opportunities in hydrology and water resources are quite varied.

Ms. Bouhaddad