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Department of Civil Engineering	
Hydraulics (61345)	
Total Credits	**3**
major compulsory	
Prerequisites	P1 : Fluid Mechanics (61340) OR Fluid Mechanics (61341)

Course Contents

Flow resistance, and velocity profiles in pipes and open channels. Water distribution networks. Open channel flow, uniform and varied flow in open channels. Introduction to hydraulic machines (pumps and turbines). Introduction to the design requirements of water systems including water supply, storm water drainage, and hydraulic structures. Introduction to software used for water systems design and analysis.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	To be able to solve problems of flow in pipes and distribution networks	E	35 %
2	To be able to perform hydraulic analyses for pumps and turbines and perform pump selection	E	15 %
3	To be able to perform hydraulic analysis of open channels	E	30 %
4	To be able to design water distribution networks, storm water drainage, and hydraulic structures	C	20 %

Textbook and/ or Refrences

Elementary Hydraulics. Cruise, Sherif and Singh. 2007. Thomson. Class notes can be downloaded from the following website: http://sites.google.com/site/mohammadnablus/Home

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	20 %
Projects	10 %
Final Exam	50 %

Course Plan

Week	Topic
1	Introduction and Review of hydraulic principles
2, 3 &4	Flow in pipes
5, 6, 7 &8	Flow in open channels
9 &10	Hydraulic machines (pumps and turbines)
11	Introduction to water supply
12	Introduction to storm water drainage
13 &14	Introduction to hydraulic structures
15	Introduction to software used for water systems design