Course Syllabus:

Introduction to porous media, Distribution of Groundwater, Porosity, Hydrogeological formations, Hydraulic head and Hydraulic Gradient, Hydraulic conductivity, Darcy’s Law, Homogeneity and Anisotropy, Unconfined aquifers, Confined aquifers, Continuity Equation, Numerical Groundwater Models, Wells, Steady flow towards a well (confined, unconfined and leaking aquifers), Unsteady groundwater flow, Pumping test, Unsaturated zone, Soil properties, Water Budget, Contaminant sources, mass transport processes, Advection and groundwater contamination, Flick’s Law, Molecular diffusion, Diffusion in porous media, Dispersion, applications of 1-D and 2-D flow and mass transport to groundwater contamination problems, Numerical Models of groundwater contamination.