CE246 Aug 3:0

Urban Hydrology

Instructor

P P MUJUMDAR
Email: pradeep@iisc.ac.in

Teaching Assistant

Jeenu Mathai
Email: jeenu156@gmail.com

Department: Civil Engineering

Course Time:

Lecture venue:

Detailed Course Page:

Announcements

Brief description of the course

The course is targeted at masters students of Water Resources Engineering specialisation, who typically have a bachelors degree in Civil Engineering. The course prepares the students to understand the basic concepts of urban hydrology, with a view to train them in urban designs.

Prerequisites

None.

Syllabus

Review of basic hydrology; Stromwater runoff generation; Return period; Hydrologic risk; Frequency analysis â€“ IDF relationships; Design storm; Open channel flow in urban watersheds; Interception storage, Infiltration, Depression storage; Combined loss models; Estimation of runoff rates from urban watersheds; Flow routing; Stormwater drainage structures; stormwater detention; structural and non-structural control measures; Source control techniques; urban stormwater models; introduction to urban groundwater systems.

Course outcomes

The students would be prepared to analyse urban stormwater systems, urban precipitation and stormwater runoff. They would also learn quantification of impacts of climate change on short duration high intensity rainfall in urban areas. Case studies of several cities in India are dealt with, in the seminars presented by the students, and thus they get an exsposure to a variety of urban flooding problems. An exposure to the entire urban water cycle is also provided.

Grading policy

10% for Assignments

10% for Short Project

5% for seminar

25% for midterm (consisting of two tests)

50% for final exam

Assignments

Resources

Butler, D. & Davies, J.W. Urban Drainage, Spon Press, 2nd Edn., 2004.

Akan A.O and Hioughtalen R.J. Urban Hydrology, Hydraulics and Stormwater Quality â€“ Engineering Applications and Computer Modeling, John Wiley & Sons 2003

Hall, M.J. Urban Hydrology. Elsevier, 1984.

Shaw, E.M. Hydrology in Practice. 3rd Edn., Chapman & Hall, 1994.