

| Course Name | Code\No. | Number of Credits | | | |
|------------------------|----------|-------------------|------|--------|--------|
| | | Theo. | Lab. | Train. | Credit |
| Urban Drainage Network | HWR 353 | 1 | 2 | - | 2 |
| Pre-Requests | HWR 352 | | | | |

Course Objectives:

The overall goal of this course is to introduce students to the use of software modeling tools to analyze urban drainage networks.

Course Contents:

1. Available software: Types of software, limitations, and suitability for existing conditions.
2. Simulations: Procedures to simulate a network, simplifications, calibrations, critical conditions and applications
3. Future developments: Expanding a network, integration with new network and rehabilitation.

Course outcomes:

Graduates are expected to comprehend the following

- Sewer network modeling.
- Choice of suitable software.
- Ability to simulate existing network.
- Ability to envision critical cases.
- Ability to analyze results.
- Ability to suggest alternative solution and select the optimum one.

Evaluation Method:

Student can be evaluated upon two exams through the term, final exam and class homework.

References:

- **Computer application in Hydraulic Engineering** (2013), 8th Edition, Bentley Press.
- **Butler, D. and Davies J.** (2010) Urban Drainage, CRC Press, 3rd Edition.
- **Urban Drainage Design Manual (2015)**, by: U.S. Department of transportation and Federal Highway Administration.