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| **Addis Ababa Institute of Technology****School of Civil and Environmental Engineering****Water Supply and Urban Drainage (CEng 3182)**The general objective of the course is to provide students with an understanding of the basic principles and knowledge for the planning, design and construction of water supply and sewerage systems. Specifically, by the end of the course students should be able to:

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| * Explain the objectives of water supply and sewerage systems
* Enumerate factors considered in the planning of water supply and sewerage systems
* Design the different components of a water supply system
* Design sewerage systems
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| **1. WATER DEMAND AND QUANTITY** 1.1. General introduction 1.2. Water supply system planning 1.3. Population forecasting 1.4. Population density 1.5. Components of water demands 1.6. Variations in water consumption 1.7. Design periods for water supply system components 1.8. Water conservation **2. SOURCES OF WATER SUPPLY** 2.1. The water cycle 2.2. Types of water sources 2.3. Water quality considerations 2.4. Source siting and selection 2.5. Storage reservoirs 2.6. Groundwater hydraulics 2.7. Alternative water supply sources **3. COLLECTION AND DISTRIBUTION OF WATER** 3.1. Surface water intakes 3.2. Water conveyance systems3.3. Pipes and appurtenances 3.4. Distribution systems  | 3.5. Layout of distribution systems 3.6. Design of distribution systems 3.7. Distribution reservoirs 3.8. Pumps and pumping station 3.9. Construction and maintenance of distribution systems **4. WATER SUPPLY AND SANITARY INSTALLATION FOR BUILDING** 4.1. Water supply for buildings 4.2. Wastewater collection system for buildings **5. WASTEWATER AND STROM WATER COLLECTION SYSTEM** 5.1. General introduction 5.2. Sources and quantities of wastewater 5.3. Fluctuations in sewage flow 5.4. Sewerage system 5.5. Sewer materials and appurtenances 5.6. Design of sanitary sewer systems 5.7. Design of storm sewers 5.8. Sewerage system construction and maintenance 5.9. Non-conventional sewerage systems  |
|  | **References** 1. Textbook: Elements of water supply Engineering by Tesfaye Nigussie 2. M.Hammar, Water supply and Pollution Control 3. E.W.Steel, Water Supply and Sewerage  |