

**The Islamic University of Gaza**  
**Faculty of Engineering/Civil Engineering Department**  
**Engineering Hydrology (ECIV 4323)**

**Instructors:** Dr. Yunes Mogheir, Dr. Ramadan Al Khatib,

**Semester:** 2<sup>nd</sup>/2011-2012

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**Course Objective:**

This course is designed to present:

- The principles underlying hydrology
- Application of these principles to solve hydrologic problems

**Course Content:**

Chapter 1: Introduction

- *Hydrologic cycle*
- *Water budget*
- *Application in engineering*

Chapter 2: Precipitation

- *Forms of Precipitation*
- *Measurements*
- *Raingauge network*
- *Presentation of rainfall data*

Chapter 3: Abstraction from Precipitation

- *Evaporation and Transpiration*
- *Interception and Depression Storage*
- *Infiltration*

Chapter 4: Stream Flow Measurements

- *Measurements of stage*
- *Methods of measurements*
- *Rating Curve*
- *Volume and duration of runoff*

Chapter 5: Runoff

- *Runoff characteristics of stream*
- *Flow duration curve*
- *Flow mass curve*

**MIDTERM (1/4/2012)**

Chapter 6: Hydrographs

- *Factors Affecting Hydrograph*
- *Components of a hydrograph*
- *Base flow separation*
- *Unit hydrograph*

Chapter 7: Floods

- *Rational methods*
- *Empirical Formulae*
- *Flood-Frequency studies*

Chapter 8: Groundwater Hydrology

- *The occurrence of groundwater*

- Factors of influence
- Groundwater flow
- The abstraction of groundwater
- The yields of wells
- Test pumping analyses

**Course text:**

**Engineering Hydrology**, Second Edition, K. Subramanya. Tata Mc. Graw-Hill. 2003 (Chapters 1-7)

**Engineering Hydrology**, E.M Wilson, 4th edition. McGraw-Hill, Inc. (Chapter 5)

**Recommended Reading:**

1. Applied Hydrology, by V.T. Chow, D.R. Maidment, and L.W. Mays, McGraw-Hill, New York, 1988.
2. A Text Book of Hydrology, by Dr. Reddi Jayarmi, 2001.
2. Handbook of Hydrology, ed. by D.R. Maidment, McGraw-Hill, New York, 1993
4. Lecture note on Principle of Hydrology, by Dr. P.J.M de Laat, IHE-Delft, 1995
5. Engineering Hydrology by E.M. Wilson, The Macmilan Press LTD, 1993.

**Homework problems:**

To be assigned at the end of each chapter by the instructor

**Exams and Grading Policy:**

Homework, and quizzes .....	15%
Mid-term Exam .....	30%
Final Exam .....	55%
Total .....	100%

**Instructions:**

- **Attendance Policy:** Attendance is important. Students with absence that exceeds 25% will not be permitted to take the final exam.
- **Homework Policy:** Homeworks are due one week after the day they were assigned. Late homeworks cannot be accepted and will not be graded.
- **Exam Policy:** Exams are closed book.