

**KING SAUD UNIVERSITY
COLLEGE OF ENGINEERING
CIVIL ENGINEERING DEPARTMENT**

COURSE:- CE 505 HYDRAULICS FOR AGRICULTURE STUDENTS

INSTRUCTOR: Prof. ABDULAZIZ A ALHAMID
(BSc MSc PhD CEng MIAHR MSCE MSSCE)

REFERENCES

Textbook:

Gupta, R. S. 'Hydrology and Hydraulic Systems', Printice Hall, USA.

Other Textbooks:

Roberson, J, Cassidy, J. and Chaudhry, M., 'Hydraulic Engineering', Houghtton Mifflin Comp. USA.

Streeter, V. L. and Wylie, E.B. 'Fluid \ Mechanics', McGraw-Hill Book Company.

Chow, V.T., 'Open Channel Hydraulics', McGraw-Hill Book Company.

Massey, B.S., 'Mechanics of Fluids', Van Nostrand Reinhold.

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CHAPTER ONE REVIEW OF BASIC PRINCIPLES

1.1 Reynolds number

1.2 Boundary layer

1.3 Flow equations

CHAPTER TOW PIPE FLOW

2.1 Pressure loses in pipes

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2.2.1 Darcy-Weisbach equation

2.2.2 Other equations

2.3 Minor loses

2.4 Pipe systems

2.4.1 Pipes in series

2.4.2 Pipe in parallel

2.4.3 Pipe branch

2.5 Analysis of pipe networks

2.5.1 Hardy cross method

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3.1 Pressure change as a result of a velocity change

3.2 Pressure wave propagation and reflection

3.3 Wave speed

3.4 Continuity and momentum equations

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CHAPTER FOUR DIMENSIONAL ANALYSES AND SIMILITUDE

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GRADES

25 % Midterm Exam

25 % Quizzes, Homework and reports.

50 % Final Exam