

Course Specifications (2011 - 2012)

A. Basic Information

Course Title	Hydraulics			Course Code:	CVE 225		
Lecture:	2	Tutorial:	1	Practical	1	Total	4
Programme (s) on which this course is given:	B.Sc. Civil Engineering (General)						
Major or minor element of program:	Major						
Department offering the program:	Civil Engineering						
Department offering the course:	Civil Engineering						
Academic Year of program:	Second	Level of program:	Second Semester				
Date of specifications approval:	16/03/2010						

B. Professional Information

1. Overall aims of course

By the end of the course the students will be able to:

- Understand fundamentals treatment of Engineering hydraulics
- Apply the basic principles and their practical applications in hydraulic engineering
- Explore the fundamental principles of fluid mechanics through experimentation
- Develop skills for analyzing experimental data and working in teams
- Share ideas and work in a team

2. Intended Learning outcomes of Course (ILOs)

a. Knowledge and Understanding:

- a.1) Recognize concepts and theories of mathematics and sciences, appropriate to the discipline.
- a.3) Understand characteristics of engineering materials related to discipline.
- a.4) Understand principles of design including elements design, process and/or a system related to specific disciplines.
- a.5) Recognize methodologies of solving engineering problems, data collection interpretation.
- a.13) Apply Engineering principles in the fields of reinforced concrete and metallic structures analysis and design, geo-

b. Intellectual Skills

- b.3) Think in a creative and innovative way in problem solving and design.
- b.5) Assess and evaluate the characteristics and performance of components, systems and processes.

c. Professional and Practical Skills

c.1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to

c.4) Practice the neatness and aesthetics in design and approach.

c.5) Use computational facilities and techniques, measuring instruments, workshops and laboratories equipment to design

d. General and Transferable Skills

d.2) Work in stressful environment and within constraints.

3. Contents

Week #	Topics	No. of Hours	ILOS	Teaching / learning methods and	Assessment method
1	Open channels: types of flow, sections' shapes	3	a1	Lectures	Assignments
2	the velocity distribution	3	a1	Lectures	Assignments
3	equations of Manning and Chezy equations	3	a3, a4	Lectures	Assignments
			b3		
			c4		
4	Design sectors of the canals and the drains, critical depth	3	a3, a4	Lectures	Assignments
			b3		
			c4		
5	Effective irregular high speed change flow	3	a3, a4,a5,a13	Lectures	Assignments
			b3		
			c1,c4, c5		

6	hydraulic jump	3	a3, a4,a5,a13 b3 c1,c4, c5	Practical training / laboratory	Experimental write up
7	flow over weirs, measuring devices	3	a3, a4,a5,a13 b3 c1,c4, c5	Lectures	Quiz
8	Midterm Exam	3	a3, a4,a5,a13 b3 c1,c4, c5		Mid-term exam
9	measuring devices	3	a4, a5, a13 b3 c1, c5 d2	Tutorial	Assignments
10	gradual change flow non- uniform flow	3	a4, a5, a13 b3 c1, c5 d2	Lectures	Assignments
11	calculated curves of the surface of the water	3	a4, a5, a13 b3 c1, c5 d2	Lectures	Assignments
12	Pipe Flow	3	a5, a13 b3 c1, c4	Lectures	Assignments
13	Pipe networks	3	a5, a13 b3 c1, c4	Tutorial	Oral exam

14	Pumps: operational information of pumps, pump type choice and turbines	3	a5, a13 b5	Lectures	Assignments
15	Final Exam	3	a1,a3,a4,a5,a13 b3,b5 c1,c4,c5 d2		
Total		45			

4- Teaching and Learning Methods:

Check using the symbol

<input checked="" type="checkbox"/>	Lectures
<input checked="" type="checkbox"/>	Practical training / laboratory
<input type="checkbox"/>	Seminar / workshop
<input type="checkbox"/>	Class activity
<input type="checkbox"/>	Case study
<input type="checkbox"/>	Project work
<input checked="" type="checkbox"/>	Tutorial
<input type="checkbox"/>	Computer based work
<input type="checkbox"/>	Other :

5- Student Assessment Methods:

Check using the symbol

<input checked="" type="checkbox"/>	Assignments	to assess
<input checked="" type="checkbox"/>	Quiz	to assess
<input checked="" type="checkbox"/>	Mid-term exam	to assess
<input checked="" type="checkbox"/>	Oral exam	to assess
<input checked="" type="checkbox"/>	Final exam	to assess
<input type="checkbox"/>	Design Project	to assess
<input type="checkbox"/>	Report	to assess
<input checked="" type="checkbox"/>	Experimental write up	to assess
<input type="checkbox"/>	Informally assessment	to assess
<input type="checkbox"/>	Other	to assess

a1,a3,a4,a5,a13	b3,b5	c1	
a3, a4,a5,a13		c1,c4, c5	
a3, a4,a5,a13	b3	c1,c4, c5	
a1,a13			
a1,a3,a4,a5,a13	b3,b5	c1,c4,c5	d2
		c5	d2

6. Assessment schedule

Assessment 1 Assignments on weeks	1,2,3,4,5
Assessment 2 Quizzes on weeks	7
Assessment 3 Mid-term exam on week	8
Assessment 4 Oral Exam on week	13
Assessment 5 Final exam on week	15
Assessment 6 Design Project on weeks	
Assessment 7 Report on weeks	
Assessment 8 Experimental write up on weeks	6
Assessment 9 Informally assessment	

7. Weighting of Assessments

Assignments	12%
Quiz	5%
Mid-term exam	14%
Oral exam	7%
Final exam	60%
Design Project	
Report	
Experimental write up	2%
Informally assessment	
Other	
Total	100%

8. List of References

8.1 Course Notes

Course notes prepared by instructor.

8.2 Essential Books (Text Books)

8.3 Recommended Books

Chow, V. T., Open Channel Hydraulics, McGraw Hill Book Co. New York, 1953.
Hwang, N. H. C and Hita, C. E., Fundamentals of Hydraulic Engineering, Prentice

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8.4 Periodicals Web sites, etc

9. Facilities Required for Teaching and learning

Presentation board, computer and data show
Laboratory

Course Coordinator:

Dr. Nivin Badawi AbdulMageed Badawi

Course instructor:

Dr. Nivin Badawi AbdulMageed Badawi

Head of department:

Prof. Ahmed AbdulFattah Mahmoud Ahmed

Signature:

Date:

D	M	Y
15	12	2011