



Course Specifications

Muharram 1437 H

Institution:	College of Engineering
Academic Department :	Civil and Environmental Engineering.
Programme :	Civil Engineering.
Course :	Hydraulics-2
Course Coordinator :	Dr. Yousef Okour.
Programme Coordinator :	Dr. Sameh Ahmed
Course Specification Approved Date :	10/ 05 / 1437 H

A. Course Identification and General Information

1 - Course title :	Hydraulics-2	Course Code:	CE 241
2. Credit hours :	2,1,2		
3 - Program(s) in which the course is offered:	Civil Engineering		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	Dr. Yousef Okour		
6 - Level/year at which this course is offered :	6/3		
7 - Pre-requisites for this course (if any) :	<ul style="list-style-type: none"> • CE 240 		
8 - Co-requisites for this course (if any) :	<ul style="list-style-type: none"> • None 		
9 - Location if not on main campus :	Opposite to Al-Yahiya Building		
10 - Mode of Instruction (mark all that apply)			
A - Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	60 %
B - Blended (traditional and online)	<input type="checkbox"/>	What percentage?	0 %
D - e-learning	<input checked="" type="checkbox"/>	What percentage?	30 %
E - Correspondence	<input type="checkbox"/>	What percentage?	0 %
F - Other	<input checked="" type="checkbox"/>	What percentage?	10 %
Comments: <i>The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.</i>			

B Objectives

What is the main purpose for this course? To apply the fundamentals of engineering fluid mechanics and derived equations of hydraulics in water engineering structures
Briefly describe any plans for developing and improving the course that are being implemented : To increase the use of IT or web based reference material, and to changes in content as a result of new research in the field.

C. Course Description

1. Topics to be covered

List of Topics	No. of Weeks	Contact Hours
Classification of pipes flow/ laminar and turbulent.	1	2
Friction losses and Minor losses/ Energy gradient line.	2	4
Pipes in series and parallel/ pipes networks.	2	4
Pumps characteristics.	2	
Open channel flow (Manning and Chezy equation).	2	4
Specific energy and its application (change in channel).	2	4
Hydraulic jump.	2	4
Gradually varied flow.	2	4
Total	15	30

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	15	30	0	0	75
Credit	2	0	1	0	0	3

3. Additional private study/learning hours expected for students per week.

5-6

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	To understand the classification of pipes flow/ laminar and turbulent.	Course delivery by citing real life examples and problems.	Regularly asking questions on different topics and concepts.
1.2	To specify the friction losses and Minor losses/ Energy gradient line.	Emphasis on understanding concepts and illustrating applications to problems.	Midterm and End-semester tests that will force the student to think and apply the knowledge.
1.3	To determine the pipe networks design in terms of series and parallel/ pipes networks.	Placing before the class mind provoking and thinking questions	Reports and discussions.
1.4	To learn the concepts of pumps characteristics.	Emphasis on understanding concepts and illustrating applications to problems.	Midterm and End-semester tests that will force the student to think and apply the knowledge.
1.5	To apply open channel conditions.	Placing before the class mind provoking and thinking questions	Reports and discussions.
2.0	Cognitive Skills		
2.1	To apply hydraulics formulas on actual problems.	Solving problems through assignments on each topic.	Asking the student to solve the problems on white board guiding him when required.
2.2	To learn how to calculate the hydraulic equations using different types of fluid parameters.	Assignment problems, Exercise / tutorial problems for applications that will force the students to think	Quizzes and Exams. Asking students to participate in oral discussion during the

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		and apply the knowledge gained.	class.
2.3	To carrying out hydraulics experiments, measure different parameters, analysis and interpret.	Asking the students to explain the steps adopted in the problem and ensures that they understand the problem.	Setting assignment problems or mini project which will apply principles and concepts.
2.4	To determine, estimate, draw diagrams, design, conduct, evaluate, comment, and writing reports during experiment and exercise sessions:	Asking searching questions on topic fundamentals.	Questions in Quiz, Midterm and End semester tests which will force the student to think and apply concepts and principles learnt.
3.0	Interpersonal Skills & Responsibility		
3.1	To help the student to solve the problem by asking questions during the office hours.	Help the student to solve the problem by asking questions during the office hours.	Help the student to solve the problem by asking questions during the office hours.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.
4.0	Communication, Information Technology, Numerical		
4.1	To develop the computer skills in preparing presentation.	Asking students to solve problems in the class by guiding him.	Discussion, Questioning during topics.
4.2	To improve the communication skills through interactive discussing during the seminar	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.	Highlighting the concepts and principles through real life problems Asking the students to solve the numerical part and check that the answers are tallying with notes.
4.3	To facilitate students to use the modern information technology such as interment, and smart board.		Asking the students to participate in evaluating their mates.
5.0	Psychomotor		



5. Schedule of Assessment Tasks for Students during the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	First midterm exam	7	20
2	Second exam	12	20
3	Quizzes	-	5
4	Report, and homework assignments	-	15
5	Final Exam	15	40
	Total		100



D. Student Academic Counseling and Support

Every day one hour is marked as Office Hour in the Time Table of teaching staff. During this hour the students can consult the teacher individually on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks :

Nalluri and Featherstone "Civil Engineering Hydraulics", McGraw-Hill, Latest edition.

2. List Essential References Materials :

Chow, V., "open channel hydraulics", McGraw-Hill, Latest edition.

3. List Recommended Textbooks and Reference Material :

All ASCE Journals

4. List Electronic Materials :

Selected Papers, and video clips from U-tube and trustable web sites.

5. Other learning material :

Seeking Hydraulics software's.

F. Facilities Required

1. Accommodation

- Lecture room available: (25 students/class) to avoid student movement. It is necessary to keep lectures for one course / level in the same classroom.
- Lab spaces (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.

2. Computing resources

- Available for students in the computer labs. Better to add more in other areas so the students can use them during the break time.

3. Other resources

- Laboratory equipments are available for experiment.

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- Importance of feedback should be first explained. Only then the feedback should be taken.
- Have a question as to how the teaching can be improved – speed, more problems etc.
- Still we depend on the evaluation of previous semesters. However, I intend to do assessment at the middle of each semester.

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :

- Ask the students if the speed of teaching and the approach is helping the students in learning the subject.
- Students are free to report any difficulties to the Head of the department.

3 Processes for Improvement of Teaching :

- Review of strategy of at the mid-semester after assessment of M-1 answer papers.
- Group discussion and using different ways in teaching (white board, seminars, Power point,



reading and conducting lab works.)

4. Processes for Verifying Standards of Student Achievement

- Independent checking of End-Semester assessment (another faculty member)
- Checking of course files by the Quality Centre Nominee and give suggestions for improvement in writing.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Mid Semester review of Course files.
- End Semester review of Course files.
- Student feedback at end of the semester.
- Feedback of the assessment at the beginning of the next semester.
- Departmental meeting at the beginning of the next semester on improvements suggested.

Course Specification Approved Department Official Meeting No (11) Date 10 / 05 / 1437 H

Course Coordinator

Name : Dr. Yousef Okour
Signature : *Yousef Okour*
Date : 02/ 05 / 1437 H

Department Head

Name : Dr. Abdullah AlShehri
Signature : *AlShehri*
Date : 10/ 05 / 1437 H

