53 Course Specification of Irrigation Engineering

I. Course Identification and General Information:

1	**Course Title:**	***Irrigation Engineering***				
2	**Course Code & Number:**	CE 312				
3	**Credit hours:**	C.H				TOTAL
		Th.	Tu.	Pr.	Tr.	
		2	2		--	3
4	**Study level/ semester at which this course is offered:**	4^{th} Level/2^{nd} semester				
5	**Pre –requisite (if any):**	Fluid mechanics- Hydraulic- Irrigation				
6	**Co –requisite (if any):**	Hydrology				
8	**Program (s) in which the course is offered:**	Civil Engineering				
9	**Language of teaching the course:**	English+ Arabic				
10	**Location of teaching the course:**	Classes and Lecture room				
11	**Prepared By:**	Ass. Prof. Dr.. Sharafaddin A. A. Saleh				
12	**Date of Approval**	Partially in 2014				

II. Course Description:

This course aims to introduce knowledge and skills into the students namely the principles and basics of plant water requirement calculation and design of irrigation systems and irrigation network for the purpose of irrigation and applied design methods for traditional and modern irrigation systems.

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

III. Course Intended learning outcomes (CILOs) of the course		Reference PILOs
a.1	Explain the principals and functions of irrigation structures.	A1
a.2	Recognize the principles of design techniques related to Irrigation Engineering subject.	A3
a3	Show the role of the professional engineer in society, including safety, environmental issues, cultural heritage and traditional practices related to Irrigation Engineering subject	A4
b.1	Demonstrate competence in identifying, defining and solving Irrigation systems problems	B1
b.2	Choose appropriate mathematical and computer-based methods for analyzing irrigation systems networks problems	B2
b3	Demonstrate proficiency in the evaluation and integration of information and processes irrigation Engineering subject works.	B3
b4	Consider the economic, social, and environmental issues as well as management in design of irrigation systems networks elements	B4
c.1	Design an irrigation systems networks, component, and process meeting codes, standards.	C2
c.2	Investigate desired needs to solve irrigation systems networks problems.	C2
c.3	Apply engineering techniques, modern tools, and software packages related to irrigation systems networks design and construction practical works.	C3
d.1	Communicate effectively using written, oral and graphical skills to clarify to irrigation systems networks design and construction practical works.	D1
d.2	Work independently and in a team with realization of the importance of leadership of Irrigation Engineering subject group work.	D3
d3	Commit professional and ethical responsibility in conducting work	D4

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1. Explain the principals and functions of irrigation structures,	Lecture Multimedia Presentations Tutorial, student's participation, Reading, and Assignment	Written Assignment-student Presentations- and short exam (quizzes)
a2- Recognize the principles of design techniques related to Irrigation Engineering subject.	Lecture Multimedia Presentations Tutorial, student's participation, Reading, and assessment	Written assignment and short exam (quizzes)
a3- Show the role of the professional engineer in society, including safety, environmental issues, cultural heritage and traditional practices related to Irrigation Engineering subject	Lecture Multimedia Presentations Tutorial Reading Individual projects	Problem set- Written exam- Written assignment- individual and group assignment project- Written short exam (quizzes)

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1- Demonstrate competence in identifying, defining and solving Irrigation systems problems	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation- Written exam
b2- Choose appropriate mathematical and computer-based methods for analyzing irrigation systems networks problems	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation, project and Written exam

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

b3- Demonstrate proficiency in the evaluation and integration of information and processes irrigation Engineering subject works.	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation, project and Written exam
b4- Consider the economic, social, and environmental issues as well as management in design of irrigation systems networks elements	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation, project and Written exam

C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1- Design the irrigation systems networks, component, and process meeting codes,	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation, project, and Written exam
c2. Recognize standards desired needs to solve irrigation systems networks problems.	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation, project, and Written exam
c.3- Apply engineering techniques, modern tools, and software packages related to irrigation systems networks design and construction practical works.	Lecture Tutorial & Reading Individual project for small group	Problem set – Assignment Participation, project, and Written exam

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1- Communicate effectively using written, oral and graphical skills to clarify irrigation systems networks design and construction works	Lectures for small group Tutorials & Reading Interactive class Discussion	Assignment, Student presentation, Participation- Individual

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

	Exercises and homework Problem set – assignment and students' presentation	and group assignment project
d2- Work independently and in a team with realization of the importance of leadership of Irrigation Engineering subject group work.	Lectures for small group Tutorials & Reading Interactive class Discussion Exercises and homework Problem set – assignment and students' presentation	Assignment, Student presentation, Participation- Individual and group assignment project
d3- Commit professional and ethical responsibility in conducting work	Lectures for small group Discussion assignment and student's presentation	Assignment, presentation, Participation and group assignment (project)

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	Introduction for irrigation engineering and irrigation systems and network	a1, a3 ,b2, b3	Introduction for irrigation engineering and irrigation systems and network	1	2
2	Water soil and plant relation	a1, a2,b1, b2, b3, c1, c2, d1,d2	Water soil and plant relation	1	2
3	Evapotranspiration and plant water requirements	a1,a2,b1, b2, b3, b4, c1, c2, d1,d2	Evapotranspiration and plant water requirements	1	2

4	Calculate irrigation water requirements and irrigation scheduling	a1, a2,b1, b2, b3, b4, c1, c2, d1,d2	Calculate irrigation water requirements and irrigation scheduling	1	2
5	Traditional irrigation methods	a1, a2,b1, b2, b3,b4, c1, c2, d1,d2	Basin irrigation, strip irrigation, and Farrow irrigation	3	6
6	Modern irrigation methods	a1, a2, ,b1, b2, b3, b4, c2, c3, d1,d2	Sprinkler irrigation and localized irrigation (drip irrigation)	4	8
7	Environmental Impact Assessment (EIA) for irrigation systems networks "	a1, a2, b1, b2, b3, d1, d2	Environmental Impact Assessment (EIA) for irrigation systems networks "	1	2
8	Irrigation project to design irrigation networks	a1, ,a2,b1, b2, b3, b4, c1, c2, d1,d2, d3	Select location and design the irrigation system network	2	4
Number of Weeks /and Units Per Semester				**14**	**28**

b - Tutorial Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Assignments to calculate the evapotranspiration	**1**	**2**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2
2	Assignments to calculate the water requirements and irrigation scheduling	**1**	**2**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2
3	Assignments to design and applied basin irrigation	**1**	**2**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2
4	Assignments to design and applied strip irrigation	**1**	**2**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2
5	Assignments to design and applied farrow irrigation	**2**	**4**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2
6	Assignments to design and applied sprinkler irrigation	**2**	**4**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2

Prepared by — Head of Department: Dr. Abdulkareem Yahya Al khattabi

Quality Assurance Unit: Ass. Prof. Dr. Mohammad Algorafi

Dean of the Faculty: Prof. Dr. Mohammed AL-Bukhaiti

Academic Development Center & Quality Assurance: Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

7	Assignments to design and applied drip irrigation	**3**	**6**	a1, a3,b1,b2, b3, b4, c1, c2, d1,d2
8	Environmental Impact Assessment (EIA) for irrigation systems networks	**1**	**2**	a1, a2, b3, b4, d1, d2
9	Project design and applying suitable irrigation method group work	**2**	**4**	a1, a2, a3, b1, b2, b3, b4,
Number of Weeks /and Units Per Semester		**14**	**28**	

V. Teaching strategies of the course:

Lecture, Tutorial, student's participation, Reading, and assessment, Presentations, Multimedia Presentations, Reading and discussion, Field visit, and small Individual project Lectures for small group, Tutorials & Reading, Interactive class Discussion, Exercises and assignment and students' presentation.

VI. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Assignments to calculate the evapotranspiration	a1, a3,b1,b2,b3,b4, c2, c3, d1,d2	2	1
2	Assignments to calculate the water requirements and irrigation scheduling	a1, a3,b1,b2, b3,b4, c2, c3, d1,d2	3	1
3	Assignments to design and applied basin irrigation	a1, a3,b1,b2, b3,b4, c2, c3, d1,d2	4	1
4	Assignments to design and applied strip irrigation	a1, a3,b1,b2, b3,b4, c2, c3, d1,d2	5	1
5	Assignments to design and applied farrow irrigation	a1, a3,b1,b2, b3,b4, c2, c3, d1,d2	6,7	2
6	Assignments to design and applied sprinkler irrigation	a1, a3,b1,b2, b3,b4, c2, c3, d1,d2	8,9	2
7	Assignments to design and applied drip irrigation	a1, a3,b1,b2, b3,b4, c2, c3, d1,d2	10,11	2
8	Project design and applying suitable irrigation method as group work	a1, a3,b1,b2,b3,b4 c1, c2, d1,d2,d3	12,13, 14	2

Prepared by — Head of Department: Dr. Abdulkareem Yahya Al khattabi

Quality Assurance Unit: Ass. Prof. Dr. Mohammad Algorafi

Dean of the Faculty: Prof. Dr. Mohammed AL-Bukhaiti

Academic Development Center & Quality Assurance: Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

VII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Written assignment and quizzes	2 - 11	12	8%	a1,a2,a3,b1,b2,b3,b4,d1,d2
2	Mid-term exam.	7th	22.5	15%	a1,a2,a3,b1,b2,b3,b4,d1,d2
3	Practical Exam, reports and attendance	12th	10.5	7%	a1,a2,a3,b1,b2,b3,b4, d1,d2
4	Final-exam.	15th	105	70%	a1,a2,a3,b1,b2,b3,b4, d1,d2
	Sum		**150**	**100%**	

VIII. Learning Resources:

- Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

1. ا.د. فاروق عبد الله الفتياني واخرين ،2000 "شبكات الري والصرف " التخطيط والتصميم الهندسي". كلية الهندسة – جامعة الاسكندرية – مصر – دتر الراتب الجامعية – بيروت – لبنان 2000م
2. د. طه محمد طاهر 2003، " محاضرات هندسة الري ". جامعة صنعاء – كلية الهندسة 2003

2- Essential References.

1. ا.د. فاروق عبد الله الفتياني واخرين ،2000 "شبكات الري والصرف " التخطيط والتصميم الهندسي". كلية الهندسة – جامعة الاسكندرية – مصر – دتر الراتب الجامعية – بيروت – لبنان 2000م
2. د. محمد حنفي حسين 2001، "الري اساسيات التصميم". جامعة القاهره – كلية الزراعة – مصر 2001
3. د. محمد نصر الدين علام (2004)، "مقدمة في هندسة الري والصرف". جامعة القاهره – كلية الهندسة – مصر 2004
4. د. طه محمد طاهر 2003، " محاضرات هندسة الري ". جامعة صنعاء – كلية الهندسة 2003

3- Electronic Materials and Web Sites *etc*.

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

IX. Course Policies:

1	**Class Attendance:** The students should have more than 75 % of attendance according to rules and regulations of the faculty.
2	**Tardy:** The students should respect the timing of attending the lectures. They should attend within 10 minutes from starting of the lecture.
3	**Exam Attendance/Punctuality:** The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.
4	**Assignments & Projects:** The assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time.
5	**Cheating:** If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for investigation and punishment according to the faculty rules
6	**Plagiarism:** The student will be terminated from the Faculty, if one student attends the exam on another behalf according to the policy, rules and regulations of the university.
7	**Other policies:** - All the teaching materials should be kept out the examination hall. - The mobile phone is not allowed. - There should be a respect between the student and his teacher.

Reviewed By	**Vice Dean for Academic Affairs and Post Graduate Studies** **Dr. Tarek A. Barakat** **Dr. Mohammad Algorafi**
	Deputy Rector for Academic Affairs Dr. Ibrahim AlMutaa **Dr. Ahmed mujahed** **Dr. Munaser Alsubri**

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

Template for Course Plan (Syllabus)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	Dr. sharafaddin A. A. Saleh	**Office Hours**					
Location& Telephone No.	+967,777665575 College of Eng. SU	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
E-mail	Sharaf1960s@gmail.com	2		2			

II. Course Identification and General Information:						
1-	**Course Title:**	***Irrigation Engineering***				
2-	**Course Number & Code:**	CE 312				
3-	**Credit hours:**	**C.H**				**Total**
		Th.	Tu.	Pr.	Tr.	
		2	2		---	3
4-	**Study level/year at which this course is offered:**	4th Level /2nd semester				
5-	**Pre –requisite (if any):**	Fluid Mechanics- Hydraulic- Irrigation				
6-	**Co –requisite (if any):**	Hydrology				
7-	**Program (s) in which the course is offered**	Civil Engineering				
8-	**Language of teaching the course:**	English+ Arabic				
9-	**System of Study:**	Classes and Lecture room				
10-	**Mode of delivery:**					
11-	**Location of teaching the course:**					

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

III. Course Description:

This course aims to introduce knowledge and skills into the students namely the principles and basics of plant water requirement calculation and design of irrigation systems and irrigation network for the purpose of irrigation and applied design methods for traditional and modern irrigation systems.

IV. Intended learning outcomes (ILOs) of the course:

- Brief summary of the knowledge or skill the course is intended to develop**:**

a.1 Explain the principals and functions of irrigation structures.

a.2 Recognize the principles of design techniques related to Irrigation Engineering subject.

a.3 Show the role of the professional engineer in society, including safety, environmental issues, cultural heritage and traditional practices related to Irrigation Engineering subject A4

b.1 Demonstrate competence in identifying, defining and solving Irrigation systems problems

b.2 Choose appropriate mathematical and computer-based methods for analyzing irrigation systems networks problems

b.3 Demonstrate proficiency in the evaluation and integration of information and processes irrigation Engineering subject works.

b.4 Consider the economic, social, and environmental issues as well as management in design of irrigation systems networks elements

c.1 Design an irrigation systems networks, component, and process meeting codes, standards

c.2 Investigate desired needs to solve irrigation systems networks problems.

c.3 Apply engineering techniques, modern tools, and software packages related to irrigation systems networks design and construction practical works.

d.1 Communicate effectively using written, oral and graphical skills to clarify to irrigation systems networks design and construction practical works.

d.2 Work independently and in a team with realization of the importance of leadership of Irrigation Engineering subject group work.

d.3 Commit to professional and ethical responsibility in conducting work

V.Course Content:

- Distribution of Semester Weekly Plan Of course Topics/Items and Activities.

A – Theoretical Aspect:

Order	Topics List		Week Due	Contact Hours
1	Introduction for irrigation engineering and irrigation systems and network	Introduction for irrigation engineering and irrigation systems and network	1	2
2	Water soil and plant relation	Water soil and plant relation	2	2
3	Evapotranspiration and plant water requirements	Evapotranspiration and plant water requirements	3	2
4	Calculate irrigation water requirements and irrigation scheduling	Calculate irrigation water requirements and irrigation scheduling	4	2
5	Traditional irrigation methods	Basin irrigation, strip irrigation, and Farrow irrigation	5,7	6
6	Midterm Exam		8	2
7	Modern irrigation methods	Sprinkler irrigation and localized irrigation (drip irrigation)	9,10,11,12	8
8	Environmental Impact Assessment (EIA) for irrigation systems networks "	Environmental Impact Assessment (EIA) for irrigation systems networks "	13	2
9	Irrigation project to design irrigation networks	Select location and design the irrigation system network	14,15	4
10	Final Exam		16	32
Number of Weeks /and Units Per Semester			**16**	**32**

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

b - Tutorial Aspect:			
Order	**Topics List**	**Week Due**	**Contact Hours**
1	Assignments to calculate the evapotranspiration	1	**4**
2	Assignments to calculate the water requirements and irrigation scheduling	2	**2**
3	Assignments to design and applied basin irrigation	3	**2**
4	Assignments to design and applied strip irrigation	4	**2**
5	Assignments to design and applied farrow irrigation	5,6	**4**
6	Assignments to design and applied sprinkler irrigation	7,8	**4**
7	Assignments to design and applied drip irrigation	9,10,11	**6**
8	Environmental Impact Assessment (EIA) for irrigation systems networks	12	**2**
9	Project design and applying suitable irrigation method group work	13,14	**4**
Number of Weeks /and Units Per Semester		**14**	**28**

VI. Teaching strategies of the course:

Lecture, Tutorial, student's participation, Reading, and assessment, Presentations, Multimedia Presentations, Reading and discussion, Field visit, and small Individual project Lectures for small group, Tutorials & Reading, Interactive class Discussion Exercises and assignment and student's presentation.

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Assignments to calculate the evapotranspiration	a1, a3,b1,b2, c2, c3, d1,d2	2	1
2	Assignments to calculate the water requirements and irrigation scheduling	a1, a3,b1,b2, c2, c3, d1,d2	3	1
3	Assignments to design and applied basin irrigation	a1, a3,b1,b2, c2, c3, d1,d2	4	1
4	Assignments to design and applied strip irrigation	a1, a3,b1,b2, b3, c1, c2, d1,d2	5	1
5	Assignments to design and applied farrow irrigation	a1, a3,b1,b2, b3, c1, c2, d1,d2	6,7	2
6	Assignments to design and applied sprinkler irrigation	a1, a3,b1,b2, b3,c1, c2, d1,d2	8,9	2
7	Assignments to design and applied drip irrigation	a1, a3,b1,b2, b3, c1, c2, d1,d2	10,11	2
8	Project design and applying suitable irrigation method group work	a1, a3,b1,b2,b3,b4 c1, c2, d1,d2,d3	12,13, 14	2

VII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Written assignment and quizzes	2 - 11	12	8%	a1,a2,a3,b1,b1,b2,d1,d2
2	Mid-term exam.	7th	22.5	15%	a1,a2,a3,b1,b2,b3,d1,d2
3	Practical Exam, reports and attendance	12th	10.5	7%	a1,a2,a3,b1,b2,b3,d1,d2
4	Final-exam.	15th	105	70%	a1,a2,a3,b1,b2,b3,d1,d2
	Sum		**150**	**100%**	

Prepared by — Head of Department: Dr. Abdulkareem Yahya Al khattabi

Quality Assurance Unit: Ass. Prof. Dr. Mohammad Algorafi

Dean of the Faculty: Prof. Dr. Mohammed AL-Bukhaiti

Academic Development Center & Quality Assurance: Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

X. Learning Resources:

Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

الكتاب المقرر: محاضرات هندسة الري – اعداد: د. طه محمد طاهر 2003

جزاء من (شبكات الري والصرف " التخطيط والتصميم الهندسي) ا.د. فاروق عبد الله الفتياني واخرين 2006

الري د. محمد عبد الله نجم + د. خالد بدر (2006)

الري اساسيات التصميم د. محمد حنفي (1996)

مقدمة في هندسة الري والصرف د. محمد نصر الدين علام (2003)

2- Essential References.

الكتاب المقرر: محاضرات هندسة الري – اعداد: د. طه محمد طاهر 2003

جزاء من (شبكات الري والصرف " التخطيط والتصميم الهندسي) ا.د. فاروق عبد الله الفتياني واخرين 2006

3- Electronic Materials and Web Sites etc.

Prepared by	Head of Department	Quality Assurance Unit	Dean of the Faculty	Academic Development Center & Quality Assurance
	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas

	XI. Course Policies:
1	**Class Attendance:** The students should have more than 75 % of attendance according to rules and regulations of the faculty.
2	**Tardy:** The students should respect the timing of attending the lectures. They should attend within 10 minutes from starting of the lecture.
3	**Exam Attendance/Punctuality:** The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.
4	**Assignments & Projects:** The assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time.
5	**Cheating:** If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for investigation and punishment according to the faculty rules
6	**Plagiarism:** The student will be terminated from the Faculty, if one student attends the exam on another behalf according to the policy, rules and regulations of the university.
7	**Other policies:** - All the teaching materials should be kept out the examination hall. - The mobile phone is not allowed. - There should be a respect between the student and his teacher.