54-Course Specification of Computer Applications

I. Course Identification and General Information:							
1	**Course Title:**	***Computer Applications***					
2	**Course Code & Number:**	CE313					
3	**Credit hours:**	C.H				**Credit Hours**	
		Th.	Tu.	Pr.	Tr.		
		2		2		3	
4	**Study level/ semester at which this course is offered:**	4th grade/ 2nd semester					
5	**Pre –requisite (if any):**	PR 009 – CE203- CE208					
6	**Co –requisite (if any):**	CE310					
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:**	Class room + Computer Lab.					
11	**Prepared By:**	Ass. Prof. Dr. Abubaker A. Al-Sakkaf					
12	**Date of Approval**						

II. Course Description:

This course is designed to provide students with information about the usages of software in the field of civil engineering. Students are introduced to general purpose programs for using math functions and drawing graphs and also use tolls that are helpful in making presentations. Also, this course is designed to provide students with basic knowledge in using software that are extensively used in civil engineering such as drawing programs, structural analysis and design program, and surveying and road design programs.

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	Dr. Abdulkareem Yahya Al khattabi	Ass. Prof. Dr. Mohammad Algorafi	Prof. Dr. Mohammed AL-Bukhaiti	Ass. Prof. Dr. Huda Al-Emad

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III. Course Intended Learning Outcomes (CILOs) of the Course		Referenced PILOs
a.1	Describe the principles of design techniques and software to model, analyze, design and drawing the structure/element	**A3**
b.1	Demonstrate competence how to model civil engineering structures using software programs	**B1**
b.2	Identify the appropriate modeling of a structure using software programs.	**B2**
b.3	Demonstrate proficiency in using software packages to model, analyze, design and draw structure.	**B3**
c1	Apply software packages to analyze , design , and draw building members (columns, beams, slabs, shear walls, foundation)	**C2**
d.1	Use presentation programs (power point) to make presentations.	**D1**

(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- Describe the principles of design techniques and software to model, analyze, design and drawing the structure/element	Lecture Multimedia Presentations Presentations Reading	Problem set- Written exam- Written assignment

(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 how to model civil engineering structures using software programs	Lecture Multimedia Presentations Computer Lab.	Project - Written exam- Written assignment
b2- Identify the appropriate modeling of a structure using software programs.	Lecture Multimedia Presentations Computer Lab.	Project - Written exam- Written assignment

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b3- Demonstrate proficiency in using software packages to model, analyze, design and draw structure.	Presentations Multimedia Presentations Computer Lab.	Project - Written exam- Written assignment

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- Apply software packages to analyze , design , and draw building members (columns, beams, slabs, shear walls, foundation)	Presentations Multimedia Presentations Computer Lab. Case study	Project

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1- Use presentation programs (power point) to make presentations.	Case study	Assignment

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	Introduction to use Excel and PowerPoint	a1,d1	Introduction to use Excel and PowerPoint	1	2
2	Introduction to Mathcad	a1	Introduction to Mathcad	1	2
3	Introduction to AutoCAD drawing in civil engineering.	a1,b1,b2,b3,c1	-Drawing and modification tools -Drawing lines, polylines, rectangles, polygon, and circles. - Drawing a floor plane of a building.	4	8

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IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
			- Layers in AutoCAD. - View ports and layouts. - thickness and elevation. - Scales and Printing.		
4	Structural analysis program for building element design (Robot Structural Analysis-RSA)	a1,b1,b2,b3,c1	-Benefits of using software programs. - Bar element, shell elements, and solid elements. - toll bars and working area. - modeling and analyzing simple and continuous beams and Viewing the results. - Modeling and design of 2D concrete frame. -Importing AutoCAD drawing of a floor plan of a building and modeling the building that building. - Carry out Analysis and design of a multi- stories building. Design the concrete footings of multi- stories building.	1	2
5	Structural analysis program for building element design (Robot Structural	a1,b1,b2,b3,c1	-Benefits of using software programs. - Bar element, shell elements, and solid elements. - toll bars and working area. - modeling and analyzing simple and continuous beams and Viewing the results. - Modeling and design of 2D concrete frame.	3	6

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
	Analysis-RSA)		-Importing AutoCAD drawing of a floor plan of a building and modeling the building that building. - Carry out Analysis and design of a multi- stories building. Design the concrete footings of multi- stories building.		
6	Autodesk Civil 3D	a1,b1,b2,b3	-Tools bars, working areas -Setup for new project, import points and make surface. - profiles for existed ground add cross sections. -Design road sections	4	8
Number of Weeks /and Units Per Semester				**14**	**28**

B - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Drawing graphs, making slides for a presentation	2	4	a1,d1
2	Drawing lines, polylines, rectangles, polygon, and circles. - Drawing a floor plane of a building.	4	8	a1, b1, b2, b3
3	- Modeling and analyzing simple and continuous beams and Viewing the results. - Modeling and design of 2D concrete frame. - Analysis and design of a multi- stories building. Design the concrete footings of multi- stories building.	4	8	a1, b1, b2, b3,c1
4	-Setup for new project, import points and make surface. -Make profiles for existed ground add cross sections. - Design and draw road sections.	3	6	a1, b1, b2, b3

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B - Practical Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**contact hours**	**Learning Outcomes**
5	Review	1	2	a1, b1, b2, b3,d1,c1
Number of Weeks /and Units Per Semester		**14**	**28**	

V. Teaching strategies of the course:

Lecture
Multimedia Presentations
Computer Lab.
Reading
Small group working project
Independent study

VI. Assignments:

No	Assignments	Aligned CILOs (symbols)	Week Due	Mark
1	-Drawing graphs. -Making slides for a presentation	a1-d1	2	0.5
2	-Drawing a floor plane of a building	a1-b1-b2-b3	5	0.75
3	Modeling and analyzing simple and continuous beams and Viewing the results.	a1-b1-b2-b3	7	0.75
4	Modeling, analyzing, and design of 2D concrete frame.	a1-b1-b2-b3	8	0.75
5	Analysis and design of a multi- stories building. Design the concrete footings of multi- stories building.	a1-b1-b2-b3,c1	12	0.75
6	Make profiles for existed ground add cross sections.	a1-b1-b2-b3	9	0.75

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VI. Assignments:				
No	**Assignments**	**Aligned CILOs (symbols)**	**Week Due**	**Mark**
7	Design and draw road sections.	a1-b1-b2-b3	12	0.75

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	2,5,7,8,9,12	5	5	a1,b1,b2,b3,d1
2	Attendance				
3	Mid-term exam.	7th	20	20	a1,b1,b2,b3
4	Project	12	10	10	a1,b1,b2,b3,c1
5	Final-exam.	---	60	60	a1,b1,b2,b3
	Sum		**100**	**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- Dr. Abubaker A. Al-Sakkaf, 2012, Computer Applications, 1st 2012
2- Foas Alansi, 2013, AutoCAD Civil 3D

2- Essential References.

1- ACI Code 318M-012
2- IBC 2012

3- Electronic Materials and Web Sites etc.

1- Software manuals.

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IX. Course Policies:	
1	**Class Attendance:** The students should have more than 75 % of attendance according to rules and regulations of the engineering faculty.
2	**Tardy:** The students should respect the timing of attending the lectures. They should attend within 1 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 the rules and regulations of the engineering faculty for midterm exam and final exam.
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5	**Cheating:** If any cheating occurred during the examination, the student is not allowed to continue and he/she has to face the examination committee for enquiries.
6	**Plagiarism:** The student will be terminated from the Faculty, if he/she attends the exam on another student behalf according to the policy, rules and regulations of the university.
7	**Other policies:** - All the teaching materials should be kept out of the examination hall. - Cellular phone or alike devices are not allowed into the examination hall. - 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**

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Template for Course Plan (Syllabus) of Computer Applications

I. Information about Faculty Member Responsible for the Course:								
Name of Faculty Member	Dr. Abubaker A. Al-Sakkaf	**Office Hours**					
Location& Telephone No.	Faculty, 777455428	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
E-mail					10-12		

II. Course Identification and General Information:						
1	**Course Title:**	***Computer Application***				
2-	**Course Number & Code:**	CE313				
3-	**Credit hours:**	**C.H**				**Credit Hours**
		Th.	Tu.	Pr.	Tr.	
		2		2		3
4-	**Study level/year at which this course is offered:**	4th grade/ 2nd semester				
5-	**Pre –requisite (if any):**	PR 009 – CE203- CE208				
6-	**Co –requisite (if any):**	CE310				
7-	**Program (s) in which the course is offered**	Civil Engineering				
8-	**Language of teaching the course:**	English+ Arabic				
9-	**System of Study:**	Regular				
10-	**Mode of delivery:**	Lecture				
11-	**Location of teaching the course:**	Class				

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III. Course Description:

This course is designed to provide students with information about the usages of software in the field of civil engineering. Students are introduced to general purpose programs for using math functions and drawing graphs and also use tolls that are helpful in making presentations. Also, this course is designed to provide students with basic knowledge in using software that are extensively used in civil engineering such as drawing programs, structural analysis and design program, and surveying and road design programs.

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

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

a1- Describe the principles of design techniques and software to model, analyze, design and drawing the structure/element A3
b1- Demonstrate competence how to model civil engineering structures using software programs B1
b2- Identify the appropriate modeling of a structure using software programs. B2
b3- Demonstrate proficiency in using software packages to model, analyze, design and draw structure. B3
c1- Apply software packages to analyze, design, and draw building members (columns, beams, slabs, shear walls, foundation) C2
d1- Use presentation programs (power point) to make presentations. D1

V. Course Content:

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

A – Theoretical Aspect:

Order	Topics List	Sub Topics List	Week Due	Contact Hours
1	Introduction to use Excel and PowerPoint	Introduction to use Excel and PowerPoint	1	2
2	Introduction to Mathcad	Introduction to Mathcad	2	2
3	Introduction to AutoCAD drawing	-Drawing and modification tools -Drawing lines, polylines, rectangles, polygon, and circles.	3,4,5, 6	8

V. Course Content:

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

A – Theoretical Aspect:

Order	Topics List	Sub Topics List	Week Due	Contact Hours
	in civil engineering.	- Drawing a floor plane of a building. - Layers in AutoCAD. - View ports and layouts. - thickness and elevation. - Scales and Printing.		
4	Structural analysis program for building element design (Robot Structural Analysis-RSA)	-Benefits of using software programs. - Bar element, shell elements, and solid elements. - toll bars and working area. - modeling and analyzing simple and continuous beams and Viewing the results. - Modeling and design of 2D concrete frame. -Importing AutoCAD drawing of a floor plan of a building and modeling the building that building. - Carry out Analysis and design of a multi-stories building. Design the concrete footings of multi- stories building.	7	8
5	Midterm Exam		8	2
6	Structural analysis program for building element design (Robot Structural Analysis-RSA)	-Benefits of using software programs. - Bar element, shell elements, and solid elements. - toll bars and working area. - modeling and analyzing simple and continuous beams and Viewing the results. - Modeling and design of 2D concrete frame. -Importing AutoCAD drawing of a floor plan of a building and modeling the building that building. - Carry out Analysis and design of a multi-stories building.	9,10,11	

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V. Course Content:

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

A – Theoretical Aspect:

Order	Topics List	Sub Topics List	Week Due	Contact Hours
		Design the concrete footings of multi- stories building.		
7	Autodesk Civil 3D	-Tools bars, working areas -Setup for new project, import points and make surface. - profiles for existed ground add cross sections. -Design road sections	12,13, 14,15	6
8	Final Exam		16	32
Number of Weeks /and Units Per Semester			**16**	**32**

B – Practical Aspect:

Order	Topics List	Week Due	Contact Hours
1	Drawing graphs, making slides for a presentation	1,2	4
2	Drawing lines, polylines, rectangles, polygon, and circles. - Drawing a floor plane of a building	3,4,5, 6	8
3	Modeling and analyzing simple and continuous beams and Viewing the results. - Modeling and design of 2D concrete frame. - Analysis and design of a multi- stories building. Design the concrete footings of multi- stories building.	7,8,9, 10	8
4	-Setup for new project, import points and make surface. -Make profiles for existed ground add cross sections. - Design and draw road sections.	11,12, 13	6
7	Review	14	2
Number of Weeks /and Units Per Semester		**14**	**28**

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VI. Teaching strategies of the course:

Lecture
Multimedia Presentations
Presentations
Computer Lab tutorial
Reading
Small working group
Independent study

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	-Drawing graphs. -Making slides for a presentation	a1-d1	2	0.5
2	-Drawing a floor plane of a building	a1-b1-b2-b3	5	0.75
3	Modeling and analyzing simple and continuous beams and Viewing the results.	a1-b1-b2-b3	7	0.75
4	Modeling, analyzing, and design of 2D concrete frame.	a1-b1-b2-b3	8	0.75
5	Analysis and design of a multi- stories building. Design the concrete footings of multi- stories building.	a1-b1-b2-b3,c1	12	0.75
6	Make profiles for existed ground add cross sections.	a1-b1-b2-b3	9	0.75
7	Design and draw road sections.	a1-b1-b2-b3	12	0.75

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

Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Written assignment	2,5,7,8,9,12	10	10
2	Attendance			
3	Mid-term exam.	7th	20	20
4	Project	12	10	10
5	Final-exam.	14	60	60

IX. Learning Resources:

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

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

1- Dr. Abubaker A. Al-Sakkaf, 2012, Computer Applications, 1st 2012
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2- Essential References.

1- ACI Code 318M-012 , 2- IBC 2012

3- Electronic Materials and Web Sites *etc*.

1- Software manuals.

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X. Course Policies:	
Unless otherwise stated, the normal course administration policies and rules of the Faculty of Engineering apply. For the policy, see: ----------	
1	**Class Attendance:** The students should have more than 75 % of attendance according to rules and regulations of the engineering faculty.
2	**Tardy:** The students should respect the timing of attending the lectures. They should attend within 1 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 the rules and regulations of the engineering faculty for midterm 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.
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