Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation International Accreditation *Dept.*

Academic Program Specification Form For The Academic

University: *College :*
Number Of Departments In The College :
Date Of Form Completion :

Dean's Name
Date : / /
Signature

Dean's Assistant For Scientific Affairs
Date : / /
Signature

The College Quality Assurance And University Performance Manager
Date : / /
Signature

Quality Assurance And University Performance Manager
Date : / /
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This program specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Program Title	Civil Engineering Science
4. Title of Final Award	B. Sc. degree in Civil Engineering
5. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time Students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
6. Accreditation	Ministry of Higher Education & Scientific Research
7. Other external influences	---
8. Date of production/revision of this specification	01/09/2019
9. Aims of the Program	
Preparing scientific and professional distinction engineering cadres with an efficiency that qualifies them to provide comprehensive scientific service for the construction process and engineering project management. This included wide range of specializations in construction and bridge engineering, foundations engineering, roads and transportation, engineering management, materials technology, sanitary	

engineering, sewage networks, water networks, filtering and treatment units and complexes.
The Program also prepares consultants and contributing to provide scientific and engineering consultations, through various channels, including the Engineering Consulting Office at the University of Baghdad, and the cooperation mechanism at the College of Engineering, in addition to direct consultative work with all state ministries and for a very large number of construction, service and investment projects in Iraq and its various institutions This includes design, supervision and management work.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Cognitive goals

A1. Establishing a significant knowledge base regarding the mathematics concepts, numerical analysis and computer programming.
A2. Learning the basic analysis and design methods for different types of structures.
A3. Educating the modern adopted construction and management method for different types of projects.
A4. Studying the mechanical properties of different constitutive construction materials.

B. The skills goals special to the program.

The program planning to build and modified the following skills:
B1. Construction materials test methods.
B2. Survey field applications.
B3. Analysis and design software.
B4. Site management's controls.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.
8) Field Trips.
9) Extracurricular Activities.
10) Seminars.
11) In- and Out-Class oral conservations.
12) Reports, Presentations, and Posters.

Assessment methods
1. Examinations, Tests, and Quizzes. 2. Extracurricular Activities. 3. Student Engagement during Lectures. 4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).
C. Affective and value goals C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time. C2. Encouraging the teamwork between the students. C3. Cooperating the universal activities. C4. Supporting the extra-curricular university activities and urging students to participate in them.
Teaching and Learning Methods
1) Homework and Assignments. 2) In-Class Questions and Discussions. 3) Field Trips. 4) Extracurricular Activities. 5) Seminars. 6) In- and Out-Class oral conservations. 7) Reports, Presentations, and Posters.
Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and Transferable Skills (other skills relevant to employability and personal development) D1. Increasing the ability to use the design and analysis software. D2. Enhancing the skill to perform any significant lab test for different engineering purposes. D3. Modifying the engineering drawing aptitude. D4. Improving site investigation skill.
Teaching and Learning Methods
1) Lectures. 2) Tutorials. 3) Homework and Assignments.

4) Lab. Experiments.
5) Connection between Theory and Application.
6) Field Trips.
7) Extracurricular Activities.
8) Seminars.
9) In- and Out-Class oral conservations.
10) Reports, Presentations, and Posters.

Assessment Methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

11. Program Structure

12. Awards and Credits

Level/Year	Course or Module Code	Course or Module Title	Credit rating
First year	**GE101**	**Mathematics**	**6**
First year	**CE102**	**Engineering Mechanics**	**6**
First year	**CE103**	**Engineering Drawing**	**6**
First year	**CE104**	**Engineering Geology**	**4**
First year	**CE105**	**Building Materials**	**4**
First year	**CE108**	**Engineering Statistics**	**2**
First year	**GE109**	**Computer Programming**	**6**
First year	**GE107**	**Workshop**	**2**
First year	**GE111**	**Technical English**	**2**
First year	**GE113**	**Arabic Language**	**2**
Second year	**GE201**	**Mathematics**	6
Second year	**CE201**	**Surveying**	**6**
Second year	**CE203**	**Mechanics of Materials**	**6**
Second year	**GE204**	**Computer Programming**	**6**
Second year	**CE205**	**Fluid Mechanics**	**6**
Second year	**CE206**	**Building Constructions**	**4**
Second year	**CE207**	**Concrete Technology**	**4**

Bachelor Degree Requires (166) credits

Second year	**GE211**	**Technical English**	**2**
Second year	**GE206**	**Freedom & Democracy**	**2**
Third year	**CE301**	**Theory of Structures**	**6**
Third year	**CE302**	**Soil Mechanics**	**6**
Third year	**CE303**	**Reinforced Concrete**	**6**
Third year	**CE304**	**Water Resources**	**4**
Third year	**CE305**	**Engineering Analysis**	**4**
Third year	**CE306**	**Traffic Engineering**	**4**
Third year	**CE307**	**Eng. Management and Economy**	**4**
Third year	**CE308**	**Computer Applications**	**2**
Third year	**CE309**	**Numerical Methods**	**4**
Third year	**GE311**	**Technical English**	**2**
Forth year	**CE401**	**Steel Design**	**4**
Forth year	**CE402**	**Foundation Design**	**4**
Forth year	**CE403**	**Transportation Engineering**	**6**
Forth year	**CE404**	**Sanitary & Environmental Engineering**	**6**
Forth year	**CE405**	**Constructional Methods**	**2**
Forth year	**CE407**	**Quantity Surveying**	**2**
Forth year	**CE406**	**Reinforced Concrete Design**	**4**
Forth year	**CE409**	**Hydrology**	**4**
Forth year	**CE410**	**Selected Topics**	**4**
Forth year	**GE411**	**Technical English**	**2**
Forth year	**CE408**	**Engineering Project**	**4**

13. Personal Development Planning
14. Admission criteria.
Adopting the admission requirements of the Ministry of Higher Education and Scientific Research.
15. Key sources of information about the program
1. Ministry of Higher Education and Scientific Research. 2. Presidency of the University of Baghdad. 3. Deanship of Engineering College. 4. Examination committee in Department of Civil Engineering.

Curriculum Skills Map

please tick in the relevant boxes where individual Program Learning Outcomes are being assessed

				Program Learning Outcomes															
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D1**	**D2**	**D3**	**D4**
First year	**GE101**	**Mathematics**	**C**	√								√	√	√	√				
	CE102	**Engineering Mechanics**	**C**		√							√	√	√	√				
	CE103	**Engineering Drawing**	**C**									√	√	√	√			√	
	CE104	**Engineering Geology**	**C**				√					√	√	√	√				√
	CE105	**Building Materials**	**C**				√	√				√	√	√	√		√		
	CE108	**Engineering Statistics**	**C**	√								√	√	√	√				
	GE109	**Computer Programming**	**C**	√						√		√	√	√	√	√			
	GE107	**Workshop**	**C**									√	√	√	√		√		
	GE111	**Technical English**	**C**									√	√	√	√				
	GE113	**Arabic Language**	**C**									√	√	√	√				

Second year	GE201	Mathematics	C	√								√	√	√	√				
	CE201	Surveying	C			√			√			√	√	√	√				√
	CE203	Mechanics of Materials	C				√					√	√	√	√				
	GE204	Computer Programming	C	√						√		√	√	√	√	√			
	CE205	Fluid Mechanics	C		√							√	√	√	√				
	CE206	Building Constructions	C			√					√	√	√	√	√				√
	CE207	Concrete Technology	C				√	√				√	√	√	√		√		
	GE211	Technical English	C									√	√	√	√				
	GE206	Freedom & Democracy	C									√	√	√	√				
Third year	CE301	Theory of Structures	C		√							√	√	√	√				
	CE302	Soil Mechanics	C		√			√				√	√	√	√		√		√
	CE303	Reinforced Concrete	C		√							√	√	√	√				
	CE304	Water Resources	C		√							√	√	√	√				
	CE305	Engineering Analysis	C	√								√	√	√	√				
	CE306	Traffic Engineering	C		√				√			√	√	√	√				√
	CE307	Eng. Management and Economy	C			√					√	√	√	√	√	√			√

	CE308	Computer Applications	C		√	√				√		√	√	√	√	√			
	CE309	Numerical Methods	C	√								√	√	√	√	√			
	GE311	Technical English	C									√	√	√	√				
Forth year	CE401	Steel Design	C		√							√	√	√	√				
	CE402	Foundation Design	C		√							√	√	√	√				
	CE403	Transportation Engineering	C		√			√				√	√	√	√		√		√
	CE404	Sanitary & Environmental Engineering	C		√			√				√	√	√	√		√		
	CE405	Constructional Methods	C			√					√	√	√	√	√				√
	CE407	Quantity Surveying	C			√					√	√	√	√	√				√
	CE406	Reinforced Concrete Design	C		√							√	√	√	√				
	CE409	Hydrology	C		√							√	√	√	√				
	CE410	Selected Topics	C									√	√	√	√				
	GE411	Technical English	C									√	√	√	√				
	CE408	Engineering Project	C		√	√	√					√	√	√	√	√	√	√	√

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Mathematics/GE 101**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. Introduce basic definition and explain the basic concepts that essential in connection with function and illustrate these concepts by examples. 2. Explain the purpose of function and their application. 3. Enable the student to solve the integration (finite and definite).	

4. Introduce basic definition and explain the basic concepts of complex number. These series are a very powerful tool in connection with various problems.
5. Enable the student to calculate area and volume generated by revolving the area.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. Definition any function.
A2. Graph any function.
A3. Derivative and integration any function.
A4. Integration and application of integration.
A5. Graph a complex number and determinate the roots.
A6. Calculate the value of determinate.
A7. Solved the system of equation using Crammers rule.
A8. Determinate the dot and cross product.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Tests and Exams.
5) Class Questions and Discussions.
6) Connection between Theory and Application.
7) Extracurricular Activities.
8) Seminars.
9) In- and Out-Class oral conservations.
10) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 3the. 1tut.	A1	The interval and equalities	1-10 of article (9)	1 – 4 of article (9)
٢	4 3the. 1tut.	A1, A2	Introduction to function	1-10 of article (9)	1 – 4 of article (9)
٣	4 3the. 1tut.	A1, A2	Trigonometric and invers functions	1-10 of article (9)	1 – 4 of article (9)
٤	4 3the. 1tut.	A1, A2	Domain and range of Trigonometric functions	1-10 of article (9)	1 – 4 of article (9)
٥	4 3the. 1tut.	A1, A2	Graph of Trigonometric functions	1-10 of article (9)	1 – 4 of article (9)
٦	4 3the. 1tut.	A1, A2, A3	Derivative of Trigonometric and functions	1-10 of article (9)	1 – 4 of article (9)
٧	4 3the. 1tut.	A1, A2, A4	Integration of Trigonometric functions	1-10 of article (9)	1 – 4 of article (9)
٨	4 3the. 1tut.	A1, A2	Exponential functions	1-10 of article (9)	1 – 4 of article (9)

٩	4 3the. 1tut.	A1, A2	Domain and range of Exponential function	1-10 of article (9)	1 – 4 of article (9)
١٠	4 3the. 1tut.	A1, A2	Graph of Exponential function	1-10 of article (9)	1 – 4 of article (9)
١١	4 3the. 1tut.	A1, A2, A3	Derivative of Exponential function	1-10 of article (9)	1 – 4 of article (9)
١٢	4 3the. 1tut.	A1, A2, A4	Integration of Exponential function	1-10 of article (9)	1 – 4 of article (9)
١٣	4 3the. 1tut.	A1, A2	Logarithmic functions	1-10 of article (9)	1 – 4 of article (9)
١٤	4 3the. 1tut.	A1, A2	Domain and range of Logarithmic functions	1-10 of article (9)	1 – 4 of article (9)
١٥	4 3the. 1tut.	A1, A2	Graph of Logarithmic functions	1-10 of article (9)	1 – 4 of article (9)
١٦	4 3the. 1tut.	A1, A2, A3	Derivative of Logarithmic functions	1-10 of article (9)	1 – 4 of article (9)
١٧	4 3the. 1tut.	A1, A2, A4	Integration of Logarithmic functions	1-10 of article (9)	1 – 4 of article (9)

١٨	4 3the. 1tut.	A1, A2	Hyperbolic Trigonometric and invers functions	1-10 of article (9)	1 – 4 of article (9)
١٩	4 3the. 1tut.	A1, A2	Domain and range of Hyperbolic functions	1-10 of article (9)	1 – 4 of article (9)
٢٠	4 3the. 1tut.	A1, A2	Graph of Hyperbolic functions	1-10 of article (9)	1 – 4 of article (9)
٢١	4 3the. 1tut.	A1, A2, A3	Derivative of Hyperbolic functions	1-10 of article (9)	1 – 4 of article (9)
٢٢	4 3the. 1tut.	A1, A2, A4	Integration of Hyperbolic functions	1-10 of article (9)	1 – 4 of article (9)
٢٣	4 3the. 1tut.	A3, A4	Method of integration	1-10 of article (9)	1 – 4 of article (9)
٢٤	4 3the. 1tut.	A3, A4	Method of integration	1-10 of article (9)	1 – 4 of article (9)
٢٥	4 3the. 1tut.	A1, A3	Application of derivative	1-10 of article (9)	1 – 4 of article (9)
٢٦	4 3the. 1tut.	A1, A4	The area	1-10 of article (9)	1 – 4 of article (9)

٢٧	4 3the. 1tut.	A1, A4	The volume	1-10 of article (9)	1 – 4 of article (9)
٢٨	4 3the. 1tut.	A1, A6, A7	Complex number	1-10 of article (9)	1 – 4 of article (9)
٢٩	4 3the. 1tut.	A1, A6, A7	The determinate and matrix	1-10 of article (9)	1 – 4 of article (9)
٣٠	4 3the. 1tut	A1, A6, A7, A8	Liner system of equation	1-10 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	**Textbook :** Calculus by Thomas
2. Main references (sources)	----
A- Recommended books and references (scientific journals, reports…).	**Textbook :** Calculus by Thomas
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Engineering Mechanics / CE 102**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd /Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1. Introduce basic definitions and introductory concepts of engineering mechanics/statics
2. Analyze forces and find out the resultant forces in two and three dimension
3. Differentiate between various type of supports and draw free-body-diagram, Compute the reaction force in simple structure (beam, frame, truss)
4. Obtain center of gravity and centroid for deferent engineering shapes & moment of inertia for deferent sections

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. Analyze forces and moments in two and three dimensions,
A2. Find out the resultant forces in two and three dimensions
A3. Draw free-body-diagram, Compute the reaction force in simple structure (beam, frame, truss)
A4. Study Mechanism and laws of friction
A5. Obtain and centroid for deferent engineering shapes.
A6. Obtain moment of inertia for deferent engineering shapes
A7. Understand the engineering applications that evolve dynamics.

A8. Solve engineering problems involving objects moving along a linear path.
A9. Simplify engineering problems involving objects moving along a curved path.
A10. Recognize and deal with projectile problems.
A11. Write the equation of motion of a moving object.
A12. Solve problems involving the force in accelerated bodies.
A13. Apply the theorem of conservation of energy to solve kinetic problems

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Tests and Exams.
5) In-Class Questions and Discussions.
6) Connection between Theory and Application.
7) Extracurricular Activities.
8) Seminars.
9) In- and Out-Class oral conservations.
10) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	**4** ***Statics*** 3the.	A1	Introduction to engineering mechanics: statics	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A7	Introduction to engineering mechanics: Dynamics		
2	**4** ***Statics*** 2the. 1tut	A1	Resolution of forces into components(two dimensions)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A7	General Principles in Engineering Mechanics/ Dynamics		
3	**4** ***Statics*** 3the.	A1	Resolution of forces into components(two dimensions)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A7	Kinematics of a Particle; Introduction		
4	**4** ***Statics*** 2the. 1tut	A1	Principle of Moments and Couples	1-10 of article (9)	1 – 4 of article (9)

	Dyn. 1tut.	A8	Kinematics of a Particle; Introduction		
5	**4** ***Statics*** 3the.	A1	Resolution of forces into components(three dimensions)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A8	Rectilinear Kinematics: Continuous Motion		
6	**4** ***Statics*** 2the. 1tut	A1	Principle of Moments and Couples (three dimensions)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A8	Rectilinear Kinematics: Continuous Motion		
7	**4** ***Statics*** 3the.	A2	Result of coplanar forces system(concurrent, parallel and non-concurrent and non-parallel)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A8	Rectilinear Kinematics: Continuous Motion		
8	**4** ***Statics*** 2the. 1tut	A2	Result of coplanar forces system(concurrent, parallel and non-concurrent and non-parallel)	1-10 of article (9)	1 – 4 of article (9)

	Dyn. 1tut.	A8	Rectilinear Kinematics: Erratic Motion		
9	**4** ***Statics*** 3the.	A2	Result of coplanar forces system(concurrent, parallel and non-concurrent and non-parallel)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A8	Rectilinear Kinematics: Erratic Motion		
10	**4** ***Statics*** 2the. 1tut	A2	Result of Non coplanar forces system (concurrent, parallel and non-concurrent and non-parallel)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A8	Rectilinear Kinematics: Erratic Motion		
11	**4** ***Statics*** 3the.	A2	Result of Non coplanar forces system (concurrent, parallel and non-concurrent and non-parallel)	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A8	Rectilinear Kinematics: Erratic Motion		

12	**4** ***Statics*** 2the. 1tut	A3	Equilibrium and Free-Body Diagram	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A9	Curvilinear Motion: Rectangular Components		
13	**4** ***Statics*** 3the.	A3	Analysis of Frames in the Plane	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A9	Curvilinear Motion: Rectangular Components		
14	**4** ***Statics*** 2the. 1tut	A3	Analysis of Frames in the Plane	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A10	Curvilinear Motion: Motion of a Projectile		
15	**4** ***Statics*** 3the.	A3	Analysis of Frames in the Plane	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A10	Curvilinear Motion: Motion of a Projectile		
16	**4** ***Statics***	A3	Analysis of Trusses in the Plane	1-10 of article (9)	1 – 4 of article (9)

	2the. 1tut				
	Dyn. 1tut.	A10	Curvilinear Motion: Motion of a Projectile		
17	**4** ***Statics*** 3the.	A3	Analysis of Trusses in the Plane	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A10	Curvilinear Motion: Motion of a Projectile		
18	**4** ***Statics*** 2the. 1tut	A3	Analysis of Frames and Truss in the Space	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A11	Kinetics of a Particle Newton's Second Law		
19	**4** ***Statics*** 3the.	A4	Friction	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A11	Kinetics of a Particle The Equation of Motion		
20	**4** ***Statics*** 2the. 1tut	A4	Friction	1-10 of article (9)	1 – 4 of article (9)

	Dyn. 1tut.	A11	Kinetics of a Particle The Equation of Motion		
21	**4** ***Statics*** 3the.	A4	Friction	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A12	Equations of Motion: Rectangular Coordinates		
22	**4** ***Statics*** 2the. 1tut	A5	Centroids by integration	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A12	Equations of Motion: Rectangular Coordinates		
23	**4** ***Statics*** 3the.	A5	Centroids by integration	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A12	Equations of Motion: Force and Acceleration		
24	**4** ***Statics*** 2the. 1tut	A5	Centroids of composite areas bodies	1-10 of article (9)	1 – 4 of article (9)

	Dyn. 1tut.	A12	Equations of Motion: Force and Acceleration		
25	**4** ***Statics*** 3the.	A6	Centroids of composite areas bodies	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A12	Equations of Motion: Force and Acceleration		
26	**4** ***Statics*** 2the. 1tut	A6	Moment of Inertia by integration	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A12	Equations of Motion: Force and Acceleration		
27	**4** ***Statics*** 3the.	A6	Moment of Inertia by integration	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A13	Kinetics of a Particle: the work of a force		
28	**4** ***Statics*** 2the. 1tut	A6	Moment of Inertia of composite areas bodies	1-10 of article (9)	1 – 4 of article (9)

	Dyn. 1tut.	A13	Kinetics of a Particle: Principles of work and energy		
29	**4** ***Statics*** 3the.	A6	Moment of Inertia of composite areas bodies	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1the.	A13	Conservation of Energy		
30	**4** ***Statics*** 2the. 1tut	A6	Polar Moment of Inertia, and Products of Inertia, Mohr circle	1-10 of article (9)	1 – 4 of article (9)
	Dyn. 1tut.	A13	Conservation of Energy		

11. Infrastructure	
1. Books Required reading:	1. Engineering Mechanics: Statics & Dynamics 13th edition. By R. C. Hibbeler, 2015 2. Engineering Mechanics: Statics 6th edition by J.L. Meriam & L.G. Kraige, 2007 3. Engineering Mechanics: Statics & Dynamics 3rd edition. By Archie Highdon & William B. Stiles, 1968
2. Main references (sources)	-----
A- Recommended books and references (scientific journals, reports…).	-----

B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Engineering Drawing / CE 103**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	150 hrs. / 5 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
This unit will enable learners to produce engineering drawings of different components, assemblies and circuits using a variety of sketching, drawing and computer-aided drafting techniques.	

9· Learning Outcomes, Teaching ,Learning and Assessment Method
A- Cognitive goals. A1. Sketch engineering components. A2. Interpret engineering drawings that comply with drawing standards. A3. Produce engineering drawings.
B. The skills goals special to the course.
Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.
8) Field Trips.
9) Extracurricular Activities.
10) Seminars.
11) In- and Out-Class oral conservations.
12) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Modifying the engineering drawing aptitude.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 1the. 4exp.	A1	Introduction	1-12 of article (9)	1 – 4 of article (9)
٢	5 1the. 4exp	A1	Geometric Typing	1-12 of article (9)	1 – 4 of article (9)
٣	5 1the. 4exp	A1	Lines	1-12 of article (9)	1 – 4 of article (9)
٤	5 1the. 4exp	A1	Lines	1-12 of article (9)	1 – 4 of article (9)
٥	5 1the. 4exp	A1	Geometric Processing	1-12 of article (9)	1 – 4 of article (9)
٦	5 1the. 4exp	A2, A3	Geometric Processing	1-12 of article (9)	1 – 4 of article (9)
٧	5 1the. 4exp	A2, A3	Geometric Processing	1-12 of article (9)	1 – 4 of article (9)
٨	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)

٩	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١٠	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١١	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١٢	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١٣	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١٤	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١٥	5 1the. 4exp	A2, A3	Theory of Projection	1-12 of article (9)	1 – 4 of article (9)
١٦	5 1the. 4exp	A2, A3	Dimensions	1-12 of article (9)	1 – 4 of article (9)
١٧	5 1the. 4exp	A2, A3	Dimensions	1-12 of article (9)	1 – 4 of article (9)

١٨	5 1the. 4exp	A2, A3	Sections	1-12 of article (9)	1 – 4 of article (9)
١٩	5 1the. 4exp	A2, A3	Sections	1-12 of article (9)	1 – 4 of article (9)
٢٠	5 1the. 4exp	A2, A3	Sections	1-12 of article (9)	1 – 4 of article (9)
٢١	5 1the. 4exp	A2, A3	Sections	1-12 of article (9)	1 – 4 of article (9)
٢٢	5 1the. 4exp	A2, A3	Pictorial Drawing	1-12 of article (9)	1 – 4 of article (9)
٢٣	5 1the. 4exp	A2, A3	Pictorial Drawing	1-12 of article (9)	1 – 4 of article (9)
٢٤	5 1the. 4exp	A2, A3	Pictorial Drawing	1-12 of article (9)	1 – 4 of article (9)
٢٥	5 1the. 4exp	A2, A3	Pictorial Drawing	1-12 of article (9)	1 – 4 of article (9)
٢٦	5 1the. 4exp	A2, A3	Pictorial Drawing	1-12 of article (9)	1 – 4 of article (9)

٢٧	5 1the. 4exp	A2, A3	Structural Drawing	1-12 of article (9)	1 – 4 of article (9)
٢٨	5 1the. 4exp	A2, A3	Structural Drawing	1-12 of article (9)	1 – 4 of article (9)
٢٩	5 1the. 4exp	A2, A3	Structural Drawing	1-12 of article (9)	1 – 4 of article (9)
٣٠	5 1the. 4exp	A2, A3	Structural Drawing	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	- "Principle of technical drawing" by Frederick E. Giesecke, Alva Mitchell, Henry Cecil Spencer, Ivan Hill, John Thomas, James E. Novak, 1992. - "Graphics Drawing workbook" by Gray R. Bertoline, 2000
2. Main references (sources)	- Engineering drawing by Abed Alrasul Al Khafaf, 1986.
A- Recommended books and references (scientific journals, reports…).	----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Engineering Geology / CE 104**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hours per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1.Introduce basic definitions and introductory concepts general geology and engineering geology
2.Explain application of geology in civil engineering as well as the different types of geology
3.Define each type of the given minerals as well as their properties
4.Explanation of the factors that affecting the earth crust
5.Identify the different types of rocks with the structural geology of different rocks
6.study the physical and mechanical properties of rocks
7.Identify the different factors that affecting the rock properties
8.Calculating the normal stress and strain of rocks and soil samples
9.Identify soils and explain its physical and mechanical properties (Shear strength)
10.To classify the different soil types according to USCS
11.Identify all factors that affecting the earth crust and its components (internal and external forces)
12. Calculating the effective stresses, internal stresses and external stresses from footings.
13.To understand the concept of earthquakes.
14. To study the different types of waves.
15. To classify earthquake according to Mercalli or Richter scales
16.To understand the concept of geophysical investigations.
17.To understand the concept of geological map.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1.At the end of the class, the student will be able to:
A2.The student would make a separation between general geology and engineering geology
A3. The student will know the application of geology in civil engineering as well as the different types of geology
A4. The student would be able to define each type of the given minerals as well as their properties
A5. The student would be able to calculate the normal stress and strain of rocks and soil samples
A6. The student would be able to identify soils and explain its physical and mechanical properties (Shear strength)
A7. To classify the different soil types according to USCS
A8. Identify all factors that affecting the earth crust and its components (internal and external forces)
A9. Calculating the effective stresses, internal stresses and external stresses from footings.
A10. To understand the concept of ground water
A11. To understand the concept of geophysical investigations
A12. To understand the concept of geological map

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Improving site investigation skills that help the students to distinguish the differences among soils and rocks types and properties.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2 the. 1tut	A2, A3	Introduction to geology	1-12 of article (9)	1 – 4 of article (9)
٢	3 2 the. 1tut	A2, A3	Types of geology	1-12 of article (9)	1 – 4 of article (9)
٣	3 2 the. 1tut	A2, A3	Engineering geology (definition and applications)	1-12 of article (9)	1 – 4 of article (9)
٤	3 2 the. 1tut	A2, A3	Crystallography	1-12 of article (9)	1 – 4 of article (9)
٥	3 2 the. 1tut	A2, A3	Crystallography + types	1-12 of article (9)	1 – 4 of article (9)
٦	3 2 the. 1tut	A2, A3	Minerals (definition and occurrence)	1-12 of article (9)	1 – 4 of article (9)
٧	3 2 the. 1tut	A2, A3	Types of minerals	1-12 of article (9)	1 – 4 of article (9)
٨	3 2 the. 1tut	A2, A3	Types of minerals	1-12 of article (9)	1 – 4 of article (9)

٩	3 2 the. 1tut	A2, A3	Rocks (definition+ rock cycle)	1-12 of article (9)	1 – 4 of article (9)
١٠	3 2 the. 1tut	A2, A3	Igneous rocks (Definition and types)	1-12 of article (9)	1 – 4 of article (9)
١١	3 2 the. 1tut	A2, A3	Igneous rocks(types	1-12 of article (9)	1 – 4 of article (9)
١٢	3 2 the. 1tut	A2, A3	Sedimentary rocks (Definition and types)	1-12 of article (9)	1 – 4 of article (9)
١٣	3 2 the. 1tut	A2, A3	Sedimentary rocks (types)	1-12 of article (9)	1 – 4 of article (9)
١٤	3 2 the. 1tut	A2, A3	Metamorphic rocks (Definition and types)	1-12 of article (9)	1 – 4 of article (9)
١٥	3 2 the. 1tut	A2, A3	Metamorphic rocks (types)	1-12 of article (9)	1 – 4 of article (9)
١٦	3 2 the. 1tut	A2, A3	Structural Geology (Faults)	1-12 of article (9)	1 – 4 of article (9)
١٧	3 2 the. 1tut	A2, A3	Structural Geology (folds)	1-12 of article (9)	1 – 4 of article (9)

١٨	3 2 the. 1tut	A2, A3	Weathering of rocks	1-12 of article (9)	1 – 4 of article (9)
١٩	3 2 the. 1tut	A1, A2, A3	Erosion of rocks	1-12 of article (9)	1 – 4 of article (9)
٢٠	3 2 the. 1tut	A1, A2, A3	Works of rivers and water	1-12 of article (9)	1 – 4 of article (9)
٢١	3 2 the. 1tut	A1, A2, A3	Works of air and glaciers	1-12 of article (9)	1 – 4 of article (9)
٢٢	3 2 the. 1tut	A1, A2, A3	Work of sea and groundwater	1-12 of article (9)	1 – 4 of article (9)
٢٣	3 2 the. 1tut	A1, A2, A3	Work of organics + river	1-12 of article (9)	1 – 4 of article (9)
٢٤	3 2 the. 1tut	A1, A2, A3	Physical properties of rocks (applications)	1-12 of article (9)	1 – 4 of article (9)
٢٥	3 2 the. 1tut	A1, A2, A3	Physical properties of rocks (applications)	1-12 of article (9)	1 – 4 of article (9)
٢٦	3 2 the. 1tut	A1, A2, A3	Mechanical properties of rocks (applications)	1-12 of article (9)	1 – 4 of article (9)

٢٧	3 2 the. 1tut	A1, A2, A3	Soil (formation and types)	1-12 of article (9)	1 – 4 of article (9)
٢٨	3 2 the. 1tut	A1, A2, A3	Stresses within soil media and external stresses (point load)	1-12 of article (9)	1 – 4 of article (9)
٢٩	3 2 the. 1tut	A1, A2, A3	Geotechnical and geological maps	1-12 of article (9)	1 – 4 of article (9)
٣٠	3 2 the. 1tut	A1, A2, A3	Geotechnical and geological maps	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	• K. M. BANGAR (1995) :"A textbook of Geology: General and Engineering". Standard Publisher Distributors,Lumos Offset Press, Delhi, India. • MUNI BUDHU (2011):" Soil Mechanics and Foundations". 3rd edition, John Wily & Sons, Inc., USA.
2. Main references (sources)	----
A- Recommended books and references (scientific journals, reports…).	----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Building Materials / CE 105**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1. Introduce basic definition and explain the basic concepts that essential in connection with materials and illustrate these concepts by examples and tests.
2. Explain the uses of the materials and their applications.
3. Enable the student to analyze the material (chemically and physically).
4. Introduce basic definition and explain the basic concepts of materials available in the local market.
5. Enable the student to perform tests on the studied materials

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. Define any building materials.
A2. Graph basic relationships considering materials properties.
A3. Know the raw and ingredients of the materials.
A4. Tests materials for basic and most important experiments.
A5. Know the standards related to the specifications of the materials.
A6. Calculate the mathematic relations for some materials.
A7. Specify the quality of good material theoretically and practically.

B. The skills goals special to the course.

B1. Construction materials test methods.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.
8) Field Trips.
9) Extracurricular Activities.
10) Seminars.
11) In- and Out-Class oral conservations.
12) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students.
5. preparing reports about the lab tests

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.

7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. General and rehabilitative transferred skills (other skills relevant to employability and

D. personal development)

D1. Enhancing the skills to perform any significant lab test for different engineering purposes.

10. Course Structure					
Week	hours	ILOs	Unit/Module or Topic Title	Teaching method	Assessment method
1	3 1the. 1tut. 1exp.	A1-A7	Introduction of Construction Materials Science 1. Types of building 2. Mechanical properties of materials 3. Materials properties	1-12 of article (9)	1-5 of article (9)
٢	3 1the. 1tut. 1exp.	A1-A7	Bonding Material-Gypsum plaster 1. Introduction of Gypsum plaster 2.Manufacture of gypsum plaster 3.Gypsm products : a. Plaster of Paris b.Ordinary plaster c.Technical plaster d.Anhydrous plaster	1-12 of article (9)	1-5 of article (9)

			e. Keen cement		
٣	3 1the. 1tut. 1exp.	A1-A7	Bonding Material-Lime 1. Definition and classification a. Quick lime b. Hydrated lime 2. Manufacture of lime - Theory of calcinations 3. Properties of quick lime 4. Properties of hydrated lime	1-12 of article (9)	1-5 of article (9)
٤	3 1the. 1tut. 1exp.	A1-A7	Bricks *Classification of bricks according to constituent raw material:* *1. Clay bricks* *1.1 Raw materials* *1.2 Composition of good clay brick* *1-3 Harmful ingredients in clay bricks* *1.4 Manufacture of bricks:* *1.5 Classification of clay bricks in*	1-12 of article (9)	1-5 of article (9)

			accordance with Iraqi standard No. 25/1988		
٥	3 1the. 1tut. 1exp.	A1-A7	*Bricks* *1.6 Properties of bricks:* *1.6.1 Compressive strength* *1.6.2 Water absorption* *1.6.3 Effloresce*	1-12 of article (9)	1-5 of article (9)
٦	3 1the. 1tut. 1exp.	A1-A7	*2. Sand - Lime bricks:* *.2 Mix proportion:* *2.3 Manufacture:* *2.4 Properties of lime sand brick* *3. Concrete bricks* *3.2 Properties of concrete bricks*	1-12 of article (9)	1-5 of article (9)
٧	3 1the. 1tut. 1exp.	b A1-A7	Blocks 1.Introduction	1-12 of article (9)	1-5 of article (9)
٨	3 1the. 1tut. 1exp.	A1-A7	2.Types of blocks	1-12 of article (9)	1-5 of article (9)

٩	3 1the. 1tut. 1exp.	A1-A7	3.Manufactures of blocks	1-12 of article (9)	1-5 of article (9)
١٠	3 1the. 1tut. 1exp.	A1-A7	4.Uses of blocks	1-12 of article (9)	1-5 of article (9)
١١	3 1the. 1tut. 1exp.	A1-A7	-solid blocks -hollow blocks	1-12 of article (9)	1-5 of article (9)
١٢	3 1the. 1tut. 1exp.	A1-A7	-itonic blocks -thermal blocks	1-12 of article (9)	1-5 of article (9)
١٣	3 1the. 1tut. 1exp.	A1-A7	-glass blocks -hourdy blocks	1-12 of article (9)	1-5 of article (9)
14	3 1the. 1tut. 1exp.	A1-A7	Tiles – Introduction Classification	1-12 of article (9)	1-5 of article (9)
15	3 1the. 1tut.	A1-A7	Types & uses of tiles	1-12 of article (9)	1-5 of article (9)

	1exp.				
16	3 1the. 1tut. 1exp.	A1-A7	Manufacture of Tiles	1-12 of article (9)	1-5 of article (9)
17	3 1the. 1tut. 1exp.	A1-A7	Timber Classification of trees	1-12 of article (9)	1-5 of article (9)
18	3 1the. 1tut. 1exp.	A1-A7	Seasoning in wood	1-12 of article (9)	1-5 of article (9)
19	3 1the. 1tut. 1exp.	A1-A7	Methods of wood seasoning	1-12 of article (9)	1-5 of article (9)
20	3 1the. 1tut. 1exp.	A1-A7	Natural defects in timber	1-12 of article (9)	1-5 of article (9)
21	3 1the. 1tut. 1exp.	A1-A7	Artificial defects in timber	1-12 of article (9)	1-5 of article (9)
22	3 1the.	A1-A7	Mechanical properties of woods	1-12 of article (9)	1-5 of article (9)

	1tut. 1exp.				
23	3 1the. 1tut. 1exp.	A1-A7	Strength and moisture in wood	1-12 of article (9)	1-5 of article (9)
24	3 1the. 1tut. 1exp.	A1-A7	Timber defects -Shrinkage in timber - Warping in timber - Cheking in timber	1-12 of article (9)	1-5 of article (9)
25	3 1the. 1tut. 1exp.	A1-A7	Metal Properties of metals	1-12 of article (9)	1-5 of article (9)
26	3 1the. 1tut. 1exp.	A1-A7	-Classification of steel due to carbon content	1-12 of article (9)	1-5 of article (9)
27	3 1the. 1tut. 1exp.	A1-A7	-high carbon steel -properties &uses	1-12 of article (9)	1-5 of article (9)
28	3 1the. 1tut.	A1-A7	-low carbon steel -properties &uses	1-12 of article (9)	1-5 of article (9)

	1exp.				
29	3 1the. 1tut. 1exp.	A1-A7	-factors affecting steel properties	1-12 of article (9)	1-5 of article (9)
30	3 1the. 1tut. 1exp.	A1-A7	-heat treatment of steel	1-12 of article (9)	1-5 of article (9)

11. Infrastructure	
1. Books Required reading:	- Construction materials by zuhair Sakoo - Concrete Technology by Chand - Construction materials by Sersem -Developed reinforced concrete by R.N. Swamy ACI (American concrete institute),ASTM(American standards for testing methods), BS (British standards
2. Main references (sources)	----
A- Recommended books and references (scientific journals, reports…).	-----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan	

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)

3. Course title/code	**FIRST YEAR** **Engineering Statistics /CE 108**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1) Solve some practical problems by statistical methods.
2) Develop their skills in thinking.
3) Analyzing problems from a probabilistic.
4) Statistical point of view.
5) Provide the engineer with both descriptive and analytical methods for dealing with the variability in observed data.
6) How engineers use statistical methodology as part of the engineering problem-solving process.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. Determine measure of central tendency and variation from a data set, and estimate Population parameters.
A2. Identify the distribution of a random variable (discrete or continuous) of interest in an experiment, and calculate the probability that the random variable can take on certain values.
A3. Conduct hypothesis testing and construct confidence intervals for the population mean, variance, or proportion (one sample and two samples).
A4. Apply the principles of linear regression to predict the outcomes of certain experiment parameters.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Tests and Exams.
5) In-Class Questions and Discussions.
6) Connection between Theory and Application.
7) Extracurricular Activities.
8) Seminars.
9) In- and Out-Class oral conservations.
10) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

11. Infrastructure

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 1the. 1tut.	A1	The Nature of Probability and Statistics	1-10 of article (9)	1 – 4 of article (9)
٢	2 1the. 1tut	A1	The Nature of Probability and Statistics	1-10 of article (9)	1 – 4 of article (9)
٣	2 1the. 1tut	A1	Frequency Distribution and Graphs	1-10 of article (9)	1 – 4 of article (9)
٤	2 1the. 1tut	A1	Frequency Distribution and Graphs	1-10 of article (9)	1 – 4 of article (9)
٥	2 1the. 1tut	A1	Frequency Distribution and Graphs	1-10 of article (9)	1 – 4 of article (9)
٦	2 1the. 1tut	A1	Data Description	1-10 of article (9)	1 – 4 of article (9)
٧	2 1the. 1tut	A1	Data Description	1-10 of article (9)	1 – 4 of article (9)
٨	2 1the. 1tut	A1	Probability and Counting Rules	1-10 of article (9)	1 – 4 of article (9)

٩	2 1the. 1tut	A1	Probability and Counting Rules	1-10 of article (9)	1 – 4 of article (9)
١٠	2 1the. 1tut	A1	Discrete Probability Distribution	1-10 of article (9)	1 – 4 of article (9)
١١	2 1the. 1tut	A1	Discrete Probability Distribution	1-10 of article (9)	1 – 4 of article (9)
١٢	2 1the. 1tut	A1	Discrete Probability Distribution	1-10 of article (9)	1 – 4 of article (9)
١٣	2 1the. 1tut	A1	The Normal Distribution	1-10 of article (9)	1 – 4 of article (9)
١٤	2 (1the. 1tut)	A1	The Normal Distribution	1-10 of article (9)	1 – 4 of article (9)
١٥	2 1the. 1tut	A1	The Normal Distribution	1-10 of article (9)	1 – 4 of article (9)
١٦	2 1the. 1tut	A1	Confidence Intervals and Sample Size	1-10 of article (9)	1 – 4 of article (9)
١٧	2 1the. 1tut	A1	Confidence Intervals and Sample Size	1-10 of article (9)	1 – 4 of article (9)
١٨	2	A1	Confidence Intervals and Sample Size	1-10 of article (9)	1 – 4 of article (9)

	1the. 1tut				
١٩	2 1the. 1tut	A1	Hypothesis Testing	1-10 of article (9)	1 – 4 of article (9)
٢٠	2 1the. 1tut	A1	Hypothesis Testing	1-10 of article (9)	1 – 4 of article (9)
٢١	2 1the. 1tut	A1	Testing the Difference between Two Means, Two Proportions, and Two Variances	1-10 of article (9)	1 – 4 of article (9)
٢٢	2 1the. 1tut	A1	Testing the Difference between Two Means, Two Proportions, and Two Variances	1-10 of article (9)	1 – 4 of article (9)
٢٣	2 1the. 1tut	A1	Testing the Difference between Two Means, Two Proportions, and Two Variances	1-10 of article (9)	1 – 4 of article (9)
٢٤	2 1the. 1tut	A1	Testing the Difference between Two Means, Two Proportions, and Two Variances	1-10 of article (9)	1 – 4 of article (9)
٢٥	2 1the. 1tut	A1	Correlation and Regression	1-10 of article (9)	1 – 4 of article (9)
٢٦	2 1the. 1tut	A3	Correlation and Regression	1-10 of article (9)	1 – 4 of article (9)

٢٧	2 1the. 1tut	A3	Correlation and Regression	1-10 of article (9)	1 – 4 of article (9)
٢٨	2 1the. 1tut	A4	Other Chi-Square Tests	1-10 of article (9)	1 – 4 of article (9)
٢٩	2 1the. 1tut	A4	Other Chi-Square Tests	1-10 of article (9)	1 – 4 of article (9)
٣٠	2 1the. 1tut	A4	Other Chi-Square Tests	1-10 of article (9)	1 – 4 of article (9)

1. Books Required reading:	• Elementary Statistics: A step by step approach, by Allan G. Bluman, 6th edition • Statistics for Engineering and Sciences, by William Mendenhall and William Mendenhall, 5th edition. Applied Statistics and Probability for Engineers, 3rd Edition, by Douglas C. Montgomery and George C. Runger.
2. Main references (sources)	-----
A- Recommended books and references (scientific journals, reports…).	-----
B-Electronic references, Internet sites…	-----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Computer Programming /GE 109**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs./4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1. Introduce the History of Computing and Decimal numbering systems and bilateral.
2. Introduce the Algorithms and flowcharts.
3. Explain the Quick Basic programming languages as follows:
   - 3.1 Constant, variable, input, output.
   - 3.2 Mathematical expressions and library functions.
   - 3.3 Control statements (GOTO, ON…GOTO, IF statement).
   - 3.4 Counters, loops and the FOR - NEXT statements.
   - 3.5 Selected case.
   - 3.5 Matrices and Arrays
   - 3.6 Defined Functions, subroutine and subprogram.
   - 3.7 Format statement.
4. Introduce students to the computer's hardware
5. Windows system.
6. Microsoft Word.
7. Microsoft Excel.
8. Microsoft Power Point.

9· Learning Outcomes, Teaching ,Learning and Assessment Methods

A- Cognitive goals.

A1. Learning how to transform the numbers from decimal to binary system and from binary to decimal system.
A2. Learning how to write the algorithms and how to draw the flowchart sketches.
A3. Learning how to deal with the numerical and string constant and variable.
A4. Learning the types of input and output statements
A5. Learning the mathematical expressions and library functions in the Basic Language.
A6. Learning how to use the control statements (GOTO, ON...GOTO, IF statements) to make the conditions in the programs.
A7. Learning how to use the Counters, loops and the FOR - NEXT statements in the series programming.
A9. Learning how to use the (Selected case) in programming.
A10. Learning how to create matrix, the mathematical operation and the properties of matrices.
A11. Learning how to arrange the elements of matrix ascending or descending.
A12. Learning how to change the locations of the matrix elements and Learning how to create two-dimensional matrix, the mathematical operation and the properties of matrices.
A13. Learning how to use the Defined Functions, subroutine and subprogram in the programs.
A14. Learning the types of Format statement.
A15. Introduce students to the computer's hardware
A16. Introducing the student on how to use Microsoft WORD software
A17. Introducing the student on how to use Microsoft EXCIL software
A18. Introducing the student on how to use Microsoft POWER POINT software.

B. The skills goals special to the course.
B1. Analysis and design software.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.

7) Connection between Theory and Application.
8) Extracurricular Activities.
9) Seminars.
10) In- and Out-Class oral conservations.
11) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Increasing the ability to use the design and analysis software.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 2 the. 2tut	A1, A14	History of Computing and Decimal numbering systems and bilateral & computers hardware	1-11of article (9)	1 – 4 of article (9)
٢	4 2 the. 2tut	A2, A14	Algorithms and flowcharts Windows, start menu	1-11of article (9)	1 – 4 of article (9)
٣	4 2 the. 2tut	A3, A14	Basic language programming - variables and constants Desktop, search, screen saver, control panels	1-11of article (9)	1 – 4 of article (9)
٤	4 2 the. 2tut	A1, A2, A3	Mathematical expressions and library functions Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
٥	4 2 the. 2tut	A3, A4	Input statement Quiz Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)

٦	4 2 the. 2tut	A4, A15	Output statements and printing Office-word-starting, tools, format, insert Quiz	1-11of article (9)	1 – 4 of article (9)
٧	4 2 the. 2tut	A5, A15	CLS, REM sentences Office-word-starting, tools, format, insert	1-11of article (9)	1 – 4 of article (9)
٨	4 2 the. 2tut	A6, A15	control statements(GOTO, ON...GOTO, IF statements) Header, footer, border, paragraph	1-11of article (9)	1 – 4 of article (9)
٩	4 2 the. 2tut	A7	Counters Quiz	1-11of article (9)	1 – 4 of article (9)
١٠	4 2 the. 2tut	A12	Quiz Create Pdf, print	1-11of article (9)	1 – 4 of article (9)
١١	4 2 the. 2tut	A7	loops and series Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
١٢	4 2 the.	A7	the FOR - NEXT	1-11of article (9)	1 – 4 of article (9)

	2tut		statements in the series Applications on Quick Basic		
١٣	4 2 the. 2tut	A7	Quiz	1-11of article (9)	1 – 4 of article (9)
١٤	4 2 the. 2tut	A8	Selected case Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
١٥	4 2 the. 2tut	A7	DO …LOOP statement Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
١٦	4 2 the. 2tut	A7	Quiz	1-11of article (9)	1 – 4 of article (9)
١٧	4 2 the. 2tut	A12, A16	Matrices and Arrays Office-Excel-starting, worksheets	1-11of article (9)	1 – 4 of article (9)
١٨	4 2 the. 2tut	A10, A16	Mathematical operation and the properties of matrices. Equations, functions, graphs	1-11of article (9)	1 – 4 of article (9)
١٩	4 2 the. 2tut	A10, A16	Ascending and descending order Tools properties, insert	1-11of article (9)	1 – 4 of article (9)

٢٠	4 2 the. 2tut	A11, A16	Diagonals, row and columns, triangles properties. Tutorials	1-11of article (9)	1 – 4 of article (9)
٢١	4 2 the. 2tut	A11	Change the locations of the matrix elements Quiz	1-11of article (9)	1 – 4 of article (9)
٢٢	4 2 the. 2tut	A11	Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
٢٣	4 2 the. 2tut	A11, A17	Operations on Tow dimensional array Office-Power Point- starting new, slides	1-11of article (9)	1 – 4 of article (9)
٢٤	4 2 the. 2tut	A11, A17	Multiplication on Tow dimensional array View types, insert	1-11of article (9)	1 – 4 of article (9)
٢٥	4 2 the. 2tut	A11, A17	Creating the largest and smallest element Tutorials	1-11of article (9)	1 – 4 of article (9)
٢٦	4 2 the. 2tut	A11, A17	Quiz	1-11of article (9)	1 – 4 of article (9)
٢٧	4 2 the.	A12	Defined Functions Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)

	2tut				
٢٨	4 2 the. 2tut	A12	Subroutine and subprogram in the programs. Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
٢٩	4 2 the. 2tut	A13	Format statement Applications on Quick Basic	1-11of article (9)	1 – 4 of article (9)
٣٠	4 2 the. 2tut	A13	Quiz	1-11of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1-Programming with Quick Basic –Salah R. Hamza 2-Basic language programming - Mehdi Fadel 3- Basic language programming - Salah Messenger Hamza 4- BASIC practical for personal computers - Aladdin Shamsuddin 5-Basic (Robert L. Albercht) 6- An Introduction to Computer Science and Programming with Basic Language-Salam Al-Ammri.
2. Main references (sources)	
A- Recommended books and references (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Technical English / GE 111**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs./2 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

A- A great deal of successful language learning comes from experiences in which the learning is largely unconscious.
B- This course aimed to make the student's interest in the career information presented will increase his or her ability to communicate more easily in English.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals .

A1. This Course is to introduce the student to the particular vocational area in which he or she is involved.
A2. The duties of different kinds of jobs are discussed, as well as the problems that might be encountered at work.
A3. Different phases of the civil engineering filed are discussed, together with some of the methods involved in designing structures for a number of different purposes.
A4. The aptitudes and education that an engineer must have are also discussed, as well as some of the specific job areas in which he or she may work.
A5. This course will be an introduction to the different kinds of work in the field of civil engineering.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 1the. 1tut.	A1, A2	Chapter 1	1-12 of article (9)	1 – 4 of article (9)
٢	2 1the. 1tut	A1, A2	Chapter 1	1-12 of article (9)	1 – 4 of article (9)
٣	2 1the. 1tut	A1, A2	Chapter 2	1-12 of article (9)	1 – 4 of article (9)
٤	2 1the. 1tut	A2, A3, A4, A5	Chapter 2	1-12 of article (9)	1 – 4 of article (9)
٥	2 1the. 1tut	A2, A3, A4, A5	Chapter 3	1-12 of article (9)	1 – 4 of article (9)
٦	2 1the. 1tut	A2, A3, A4, A5	Chapter 3	1-12 of article (9)	1 – 4 of article (9)
٧	2 1the. 1tut	A2, A3, A4, A5	Chapter 4	1-12 of article (9)	1 – 4 of article (9)
٨	2 1the. 1tut	A2, A3, A4, A5	Chapter 4	1-12 of article (9)	1 – 4 of article (9)

٩	2 1the. 1tut	A2, A3, A4, A5	Chapter 5	1-12 of article (9)	1 – 4 of article (9)
١٠	2 1the. 1tut	A2, A3, A4, A5	Chapter 5	1-12 of article (9)	1 – 4 of article (9)
١١	2 1the. 1tut	A2, A3, A4, A5	Chapter 6	1-12 of article (9)	1 – 4 of article (9)
١٢	2 1the. 1tut	A2, A3, A4, A5	Chapter 6	1-12 of article (9)	1 – 4 of article (9)
١٣	2 1the. 1tut	A2, A3, A4, A5	Chapter 7	1-12 of article (9)	1 – 4 of article (9)
١٤	2 1the. 1tut	A2, A3, A4, A5	Chapter 7	1-12 of article (9)	1 – 4 of article (9)
١٥	2 1the. 1tut	A2, A3, A4, A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
١٦	2 1the. 1tut	A2, A3, A4, A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
١٧	2 1the. 1tut	A2, A3, A4, A5	Chapter 8	1-12 of article (9)	1 – 4 of article (9)

١٨	2 1the. 1tut	A2, A3, A4, A5	Chapter 8	1-12 of article (9)	1 – 4 of article (9)
١٩	2 1the. 1tut	A2, A3, A4, A5	Chapter 9	1-12 of article (9)	1 – 4 of article (9)
٢٠	2 1the. 1tut	A2, A3, A4, A5	Chapter 9	1-12 of article (9)	1 – 4 of article (9)
٢١	2 1the. 1tut	A2, A3, A4, A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٢	2 1the. 1tut	A2, A3, A4, A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٣	2 1the. 1tut	A2, A3, A4, A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)
٢٤	2 1the. 1tut	A2, A3, A4, A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)
٢٥	2 1the. 1tut	A2, A3, A4, A5	Chapter 12	1-12 of article (9)	1 – 4 of article (9)
٢٦	2 1the. 1tut	A2, A3, A4, A5	Chapter 12	1-12 of article (9)	1 – 4 of article (9)

٢٧	2 1the. 1tut	A2, A3, A4, A5	Chapter 13	1-12 of article (9)	1 – 4 of article (9)
٢٨	2 1the. 1tut		Chapter 13	1-12 of article (9)	1 – 4 of article (9)
٢٩	2 1the. 1tut		Chapter 14	1-12 of article (9)	1 – 4 of article (9)
٣٠	2 1the. 1tut		Chapter 14	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	New Headway Plus (Beginner Student's Book and Student's Workbook with Key), by Liz and John Soars
2. Main references (sources)	------
A- Recommended books and references (scientific journals, reports…).	-------
B-Electronic references, Internet sites…	------

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**FIRST YEAR** **Arabic Language /GE 113**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	30 hrs./1 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

١- أن ينشأ الطالب على حب اللغة العربية. لغة القرآن الكريم.
٢- أن يكتسب الطالب القدرة على استعمال اللغة استعمالاً صحيحاً في الاتصال بالآخرين عن طريق التحدث والكتابة والاستماع والقراءة. مما ييسر لهم أمورهم ويعينهم على قضاء حوائجهم ومصالحهم.
٣- أن يتزود الطالب بما يساعدهم على الاستفادة من أوقات فراغهم عن طريق القراءة والاطلاع.
٤- أن يكتسب الطلبة القدرة على التعبير عن أنفسهم وما يقع تحت حواسهم نطقاً وكتابةً.
٥- أن يتزود الطالب بثروة لغوية عن طريق تزويدهم ببعض الألفاظ والتراكيب.
٦- أن يكتسب الطلبة القدرة على التعبير عن أنفسهم من خلال المهارات اللغوية المتصلة بـ: التحدث _ القراءة _ الاستماع _ الكتابة.
٧- تنمية الميل إلى القراءة والمطالعة لدى الطلبة.
٨- التعرف على مواطن الجمال في اللغة العربية وآدابها.
٩- أن يكتسب الطالب القدرة على دراسة فروع اللغة العربية: النحو _ القراءة _ الأناشيد (المحفوظات) _ الإملاء _ التعبير _ الخط.
١٠- أن يتدرب الطالب على التعبير الصحيح عن معنى ما يقرأ أو يسمع

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals .

١- تدريب الطلبة على سلامة النطق وحسن الإلقاء والتعبير بنبرات صوتية واضحة.و تعويدهم على مواجهة المواقف بشجاعة ، وبث فيهم الثقة بالنفس.وغرس القدرة على فهم ما يقرؤون وما يسمعون في سرعة ودقة. و تزويدهم بكثير من الألفاظ والتراكيب والجمل والأساليب وتنمي ثروتهم اللغوية وتزيد ثقافتهم.- وتكسب الطلبة عادة حب القراءة ومصاحبة الكتاب. تنمية الحصيلة اللغوية لدى الطالب وذلك بتزويده بالمفردات والتراكيب والعبارات الجديدة.- وتنمية القدرة على تتبع ما يسمع ، مع فهمه فهماً صحيحاً ونقده والانتفاع به.

2- تدريب الطلبة على كتابة الكلمات كتابة صحيحة ، وتثبيت صـــورها في أذهان الطلبة والقدرة على استعادة تلك الصور عند الكتابة. وتعويدهم على الانتباه وقوة الملاحظة والدقة والترتيب والتنسيق. وتدريب حواسهم على الإجادة والإتقان وهذه الحواس هي:_ الأذن التي تسمع واليد التي تكتب والعين التي تبصر الجواب وهذا يساعد على اختبار معلومات الطلبة وتنمية قدراتهم على التعبير وتنمية المهارة الكتابية غير المنظورة لديهم

3- تحقيق التكامل في تدريس اللغة العربية بحيث تخدم الإمـــــــــــلاء فروع اللغة العربية الأخرى وإثراء الثروة المعرفية لديهم التي تزوده بها النصـوص الإملائية الهادفة و تدريبهم على إدراك الفروق الدقيقة بين الحروف المتقاربة المخارج.

4- تقويم ألسنة الطلبة ،ووقايتهم من الخطأ ، وتكوين عادات لغوية سليمة تمكنهم من استعمال الألفاظ والجمل استعمالاً صحيحاً خالياً من الأخطاء النحوية التي تذهب بجمال الكلام وروعته.وتعويدهم على دقة الملاحظة ،والتمييز بين الخطأ والصواب فيما يسمعون أو يقرؤون وإدراك وظائف الكلمات في الجمل مما يساعد على فهم مواقعها المختلفة فضلا عن إيقاف الطلبة على أوضاع اللغة وصيغها ؛ لأن قواعد النحو تعد وصفاً علمياً لتلك الأوضاع والصيغ وتبين التغييرات التي تحدث للألفاظ في مواقعها المختلفة.

5- القدرة على توضيح الأفكار باستخدام الكلمات المناسبة والأسلوب المناسب.و تنمية قدرة الطالب على تنسيق عناصر الفكرة المعبر عنها مما يضفي عليها جمالاً وقوةً تؤثر في السامع والقارئ.و تنمية قدرة الطالب على نقل وجهة نظره إلى غيره.تنمية التفكير وتنشيطه وتنظيمه والعمل على تغذية خيال الطالب بعناصر النمو والابتكار.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Tests and Exams.
5) In-Class Questions and Discussions.
6) Extracurricular Activities.
7) Seminars.
8) In- and Out-Class oral conservations.

9) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2 the. 1tut	١	اللغة العربية منشأها وتطورها-	1-9 of article (9)	1 – 4 of article (9)
٢	3 2 the. 1tut	1, 2	مصطلحات في اللغة العربية	1-9 of article (9)	1 – 4 of article (9)
٣	3 2 the. 1tut	1, 2	بعض الاخطاء الشائعة في اللغة العربية	1-9 of article (9)	1 – 4 of article (9)
٤	3 2 the. 1tut	1, 2	نوادر في اللغة العربية	1-9 of article (9)	1 – 4 of article (9)
٥	3 2 the. 1tut	1, 5	قصائد ادبية	1-9 of article (9)	1 – 4 of article (9)
٦	3 2 the. 1tut	1, 5	قصائد جاهلية	1-9 of article (9)	1 – 4 of article (9)
٧	3 2 the. 1tut	1, 5	قصائد اسلامية	1-9 of article (9)	1 – 4 of article (9)
٨	3 2 the. 1tut	1, 5	قصائد عباسية	1-9 of article (9)	1 – 4 of article (9)

٩	3 2 the. 1tut	1, 5	قصائد اندلسية	1-9 of article (9)	1 – 4 of article (9)
١٠	3 2 the. 1tut	1, 5	قصائد حديثة	1-9 of article (9)	1 – 4 of article (9)
١١	3 2 the. 1tut	2, 3, 4	بعض الدراسات البلاغية والنحوية في القران الكريم	1-9 of article (9)	1 – 4 of article (9)
١٢	3 2 the. 1tut	2, 3, 4	بعض الدراسات البلاغية والنحوية في القران الكريم	1-9 of article (9)	1 – 4 of article (9)
١٣	3 2 the. 1tut	4	مواضع الهمزة في اللغة العربية	1-9 of article (9)	1 – 4 of article (9)
١٤	3 2 the. 1tut	3, 4	الضاد والظاء في اللغة	1-9 of article (9)	1 – 4 of article (9)
١٥	3 2 the. 1tut	4	علامات الترقيم	1-9 of article (9)	1 – 4 of article (9)
١٦	3 2 the. 1tut	4	علامات الترقيم	1-9 of article (9)	1 – 4 of article (9)
١٧	3 2 the. 1tut	5	مستويات النظام اللغوي	1-9 of article (9)	1 – 4 of article (9)

١٨	3 2 the. 1tut	1, 2	اقسام الجملة في اللغة العربية	1-9 of article (9)	1 – 4 of article (9)
١٩	3 2 the. 1tut	5	الاسلوب وأنواعه	1-9 of article (9)	1 – 4 of article (9)
٢٠	3 2 the. 1tut	1, 2	القواعد الصرفية	1-9 of article (9)	1 – 4 of article (9)
٢١	3 2 the. 1tut	1, 2,3	الترادف	1-9 of article (9)	1 – 4 of article (9)
٢٢	3 2 the. 1tut	1, 2,3	الاضداد	1-9 of article (9)	1 – 4 of article (9)
٢٣	3 2 the. 1tut	1, 2, 3	الاشتقاق	1-9 of article (9)	1 – 4 of article (9)
٢٤	3 2 the. 1tut	2, 3		1-9 of article (9)	1 – 4 of article (9)
٢٥	3 2 the. 1tut	2, 3	التعريف بالعدد	1-9 of article (9)	1 – 4 of article (9)
٢٦	3 2 the. 1tut	2, 3	اقسام العدد	1-9 of article (9)	1 – 4 of article (9)

٢٧	3 2 the. 1tut	4	نشأة النحو عند العرب	1-9 of article (9)	1 – 4 of article (9)
٢٨	3 2 the. 1tut	4	تطور النحو	1-9 of article (9)	1 – 4 of article (9)
٢٩	3 2 the. 1tut	1,2,3,4,5	خلاصة عامة	1-9 of article (9)	1 – 4 of article (9)
٣٠	3 2 the. 1tut			1-9 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	محاضرات بالاعتماد على المصادر الاتية 1- مصطفى التوني، الهمزة في اللغة العربية دراسة لغوية. 2- سليم سلامة الروسان، قواعد الكتابة والترقيم والخط. 3- سعد بن على بن محمد ، الفرق بين الضاد والظاء. 4- ابي زيد الانصاري، نوادر في اللغة العربية. 5- صلاح مهدي الفرطوسي، هاشم طه شلاش، المهذب في علم التصريف. 6- د.أ.نيكل، مختارات من الشعر الاندلسي. 7- التبريزي، شرح المتنبي. 8- شرح ابن عقيل، اقسام الجملة. عبد السلام المسدي، الاسلوبية والاسلوب.
2. Main references (sources)	----
A- Recommended books and references (scientific journals, reports…).	----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Mathematics / GE 201**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

a- Introduce basic definitions and introductory concepts of mathematics
b- Understand branches of mathematics you will encounter such as geometry or calculus or teach specific topics such as differential equations, algorithms, or non-linear geometry. mathematics courses are very beneficial for students of engineering that will require the extensive use of applied mathematics

9· Learning Outcomes, Teaching, Learning and Assessment method

A- Cognitive goals.

B- A1. Know and demonstrate understanding of the concepts from the five branches of mathematics (number, algebra, geometry and trigonometry, statistics and probability, and discrete mathematics)

A2.Use appropriate mathematical concepts and skills to solve problems in both familiar and unfamiliar situations including those in real-life contexts.

A3.Select and apply general rules correctly to solve problems including those in real-life contexts.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Tests and Exams.
5) In-Class Questions and Discussions.
6) Connection between Theory and Application.
7) Extracurricular Activities.
8) Seminars.
9) In- and Out-Class oral conservations.
10) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

11. Infrastructure	
1. Books Required reading:	
2. Main references (sources)	-----
A- Recommended books and references (scientific journals, reports…).	--------
B-Electronic references, Internet sites…	-------

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Surveying / CE 201**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
ber of hours tuition (total)	150 hrs. / 5 hrs. per week

7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1-Giving the students fundamental concepts about surveying as science in general then teaching them the concepts of engineering surveying
2-Teaching them how to measure distances using simple instruments then modern ones and how to correct the measurements to get the desired accuracy.
3-explain what elevations are and how to measure them and the importance of elevations to civil engineers, what benchmarks are and how to make them using different types of levels. Correcting elevations, sections both longitudinal and cross sections.
4-how to calculate all kinds of areas and volumes of earthworks by different methods.
5-to teach them about angles, traversing, classifications of north, coordinate systems, using of theodolite and total station.
6-make them learn how to set out works, curves both horizontal & vertical.
7-knowing an introduction in GIS.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1-measuring any distance using different kinds of instruments.
A2-measuring elevations and making bench marks, and all sections.
A3-measuring any needed areas
A4-measuring volumes of earth works
A5- measuring coordinates, angles assigning north, and making GCPS.
A6-using modern surveying instruments like total station and GPS
A7-laying out civil works, curves and foundation elevations.

B. The skills goals special to the course.
B1. Survey field applications.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.

8) Field Trips.
9) Extracurricular Activities.
10) Seminars.
11) In- and Out-Class oral conservations.
12) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Improving site investigation skill.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 2 the. 1 tut. 2 exp.	A1	Fundamental principles	1-12 of article (9)	1 – 4 of article (9)
٢	5 2 the. 1 tut. 2exp.	A1	Fundamental principles	1-12 of article (9)	1 – 4 of article (9)
٣	5 2 the. 1 tut. 2 exp	A1	Dist. measurements	1-12 of article (9)	1 – 4 of article (9)
٤	5 2 the. 1 tut. 2 exp	A1	Measurements corrections	1-12 of article (9)	1 – 4 of article (9)
٥	5 2 the. 1 tut. 2 exp	A1	Quiz and exam	1-12 of article (9)	1 – 4 of article (9)
٦	5 2 the. 1 tut.	A2	leveling	1-12 of article (9)	1 – 4 of article (9)

	2 exp				
٧	5 2 the. 1 tut. 2 exp	A2	Methods of measuring elevations	1-12 of article (9)	1 – 4 of article (9)
٨	5 2 the. 1 tut. 2 exp	A2	benchmarks	1-12 of article (9)	1 – 4 of article (9)
٩	5 2 the. 1 tut. 2 exp	A2	Elevation corrections	1-12 of article (9)	1 – 4 of article (9)
١٠	5 2 the. 1 tut. 2 exp	A2	Longitudinal sections	1-12 of article (9)	1 – 4 of article (9)
١١	5 2 the. 1 tut. 2 exp	A2	Cross sections	1-12 of article (9)	1 – 4 of article (9)
١٢	5 2 the. 1 tut. 2 exp	A2	Topographical maps	1-12 of article (9)	1 – 4 of article (9)

١٣	5 2 the. 1 tut. 2 exp	A2	exam	1-12 of article (9)	1 – 4 of article (9)
١٤	5 2 the. 1 tut. 2 exp	A3	Calculating areas	1-12 of article (9)	1 – 4 of article (9)
١٥	5 2 the. 1 tut. 2 exp	A3	Mathematical and mechanical methods	1-12 of article (9)	1 – 4 of article (9)
١٦	5 2 the. 1 tut. 2 exp	A3	Mathematical and mechanical methods	1-12 of article (9)	1 – 4 of article (9)
١٧	5 2 the. 1 tut. 2 exp	A3	Calculating volumes	1-12 of article (9)	1 – 4 of article (9)
١٨	5 2 the. 1 tut. 2 exp	A4	Calculating volumes	1-12 of article (9)	1 – 4 of article (9)
١٩	5 2 the.	A5	theodolite	1-12 of article (9)	1 – 4 of article (9)

	1 tut. 2 exp				
٢٠	5 2 the. 1 tut. 2 exp	A5	traversing	1-12 of article (9)	1 – 4 of article (9)
٢١	5 2 the. 1 tut. 2 exp	A5	North assessment	1-12 of article (9)	1 – 4 of article (9)
٢٢	5 2 the. 1 tut. 2 exp	A5	coordinate	1-12 of article (9)	1 – 4 of article (9)
٢٣	5 2 the. 1 tut. 2 exp	A5	Azimuth & bearing	1-12 of article (9)	1 – 4 of article (9)
٢٤	5 2 the. 1 tut. 2 exp	A5	angles	1-12 of article (9)	1 – 4 of article (9)
٢٥	5 2 the. 1 tut. 2 exp	f	Total station	1-12 of article (9)	1 – 4 of article (9)

٢٦	5 2 the. 1 tut. 2 exp	A6	exam	1-12 of article (9)	1 – 4 of article (9)
٢٧	5 2 the. 1 tut. 2 exp	A7	Laying out works	1-12 of article (9)	1 – 4 of article (9)
٢٨	5 2 the. 1 tut. 2 exp	A7	curves	1-12 of article (9)	1 – 4 of article (9)
٢٩	5 2 the. 1 tut. 2 exp	A7	curves	1-12 of article (9)	1 – 4 of article (9)
٣٠	5 2 the. 1 tut. 2 exp	A7	GIS	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1-SURVEYING,Bannister,Raymond 2-Engineering surveying, Shepherd 3-Plane Surveying, Chand

2. Main references (sources)	1-ENGINEERING SURVEYING, Al Ani, Naji Tawfeek 2-Engineering Surveying, OBAID, Yaseen
A- Recommended books and references (scientific journals, reports…).	-----
B-Electronic references, Internet sites…	-----

12. The development of the curriculum plan

2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Mechanics of Materials / CE203**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. Introduce basic definitions and introductory concepts of solid mechanics 2. Introduce the description of stresses and strains, Hooks law, and Deflection of axially loaded members. 3. Introduce the description of Statically indeterminate problems of axially loaded members and thermal stresses. 4. Introduce the description of torsion stress and the angle of twist and its deformation. 5. Introduce the principles of Torsion of solid non_ circular members and Torsion thin_ walled hollow members 6. Introduce the principles of Axial force, Shear, and Bending moment,	

7. Enable the student to analyze by using simple bending theory.
8. Enable the student to measure the Shearing Stress in Beams
9. Introduce the principles of deflection of Beams and measuring the deflection by using moment area method.
10. Provide a background to find the Compound Stresses and Principal Stresses, Maximum Shearing Stresses, An Important Transformation of Stress and using Mohr's Circle of Stress to find any stresses in any twisting angle.
11. Introduce the principles of Buckling and Stability of Columns

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. Calculate Normal stresses, Bearing stresses and Searing stresses.
A2. Calculate Strain, Deflection of axially loaded members and find the effect of Thermal stresses.
A3. Calculate the torsional stress and Design of circular members in torsion and the Angle of twist of circular members.
A4. drawing the shear, axial and Bending moment diagrams
A5. Use the simple bending theory to analyses any beam to find the maximum stress and deals with Beams of Two Materials.
A6. Calculate the shear stresses for any section and its distribution with the cross-section.
A7. Calculate the deflection by using Direct integration Method and Moment – Area Method.
A8. Find the stresses of different types and using the Superposition and its Limitation.
A9. Find the Principal Stresses, Maximum Shearing Stresses, An Important Transformation of Stress by using Mohr's Circle of Stress.
A10. Calculate the Buckling and Stability of the columns.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.
8) Field Trips.
9) Extracurricular Activities.
10) Seminars.
11) In- and Out-Class oral conservations.

12)Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 3the. 1tut.	A1	1. Normal tresses. 2. Bearing tresses.	1-12 of article (9)	1 – 4 of article (9)
٢	4 3the. 1tut.	A1	3. Searing tresses. 4. Allowable stresses and factor of safety.	1-12 of article (9)	1 – 4 of article (9)
٣	4 3the. 1tut.	A1	5. Application of above concepts a. Design of Axially loaded Members. b. Riveted and bolted connections. c. Thin_ walled pressure tubes and vessels.	1-12 of article (9)	1 – 4 of article (9)
٤	4 3the. 1tut.	A2	1. Strain 2. Stress_ Strain diagram. 3. Hooks law.	1-12 of article (9)	1 – 4 of article (9)
٥	4 3the. 1tut.	A2	4. Deflection of axially loaded members. 5. Generalized hooks law.	1-12 of article (9)	1 – 4 of article (9)

٦	4 3the. 1tut.	A2	6. Statically indeterminate problems of axially loaded members. 7. Thermal stresses.	1-12 of article (9)	1 – 4 of article (9)
٧	4 3the. 1tut.	A3	1. Application of method of section. 2.Basic assumptions. 3.Torsion formula.	1-12 of article (9)	1 – 4 of article (9)
٨	4 3the. 1tut.	A3	4. Design of circular members in torsion. 5. Angle of twist of circular members.	1-12 of article (9)	1 – 4 of article (9)
٩	4 3the. 1tut.	A3	6. Statically indeterminate torsional members. 7. Torsion of solid non_ circular members. 8. Torsion thin_ walled hollow members	1-12 of article (9)	1 – 4 of article (9)
١٠	4 3the. 1tut.	A4	1. Sign convention	1-12 of article (9)	1 – 4 of article (9)

١١	4 3the. 1tut.	A4	2. Axial_ force, shear, and moment diagrams: A direct approach.	1-12 of article (9)	1 – 4 of article (9)
١٢	4 3the. 1tut.	A4	3. Shear and moment diagrams: A summation approach.	1-12 of article (9)	1 – 4 of article (9)
١٣	4 3the. 1tut.	A5	1. Limitations of theory. 2. Basic kinematic assumption.	1-12 of article (9)	1 – 4 of article (9)
١٤	4 3the. 1tut.	A5	3. Flexure formula.	1-12 of article (9)	1 – 4 of article (9)
١٥	4 3the. 1tut.	A5	4. Economic Sections.	1-12 of article (9)	1 – 4 of article (9)
١٦	4 3the. 1tut.	A5	5. Beams of Two Materials	1-12 of article (9)	1 – 4 of article (9)
١٧	4 3the. 1tut.	A6	1. Some Preliminaries	1-12 of article (9)	1 – 4 of article (9)
١٨	4 3the. 1tut.	A6	2. Shear Flow	1-12 of article (9)	1 – 4 of article (9)
١٩	4 3the.	A6	3. The Shearing Stress Formula for Beams	1-12 of article (9)	1 – 4 of article (9)

	1tut.				
٢٠	4 3the. 1tut.	A6	4. Limitations of Shearing Stress Formula.	1-12 of article (9)	1 – 4 of article (9)
٢١	4 3the. 1tut.	A7	1. Strain – Curvature and Moment – Curvature Relations	1-12 of article (9)	1 – 4 of article (9)
٢٢	4 3the. 1tut.	A7	2. Direct integration Method.	1-12 of article (9)	1 – 4 of article (9)
٢٣	4 3the. 1tut.	A7	3. Moment – Area Method.	1-12 of article (9)	1 – 4 of article (9)
٢٤	4 3the. 1tut.	A8	1. Superposition and its Limitation. 2. Skew Bending.	1-12 of article (9)	1 – 4 of article (9)
٢٥	4 3the. 1tut.	A8	3. Eccentrically Loaded Members. 4. Superposition of Shearing Stresses.	1-12 of article (9)	1 – 4 of article (9)
٢٦	4 3the. 1tut.	A8	1. The Basic Problem 2. Equation for the Transformation of Plan Stress.	1-12 of article (9)	1 – 4 of article (9)

٢٧	4 3the. 1tut.	A9	3. Principal Stresses. 4. Maximum Shearing Stresses.	1-12 of article (9)	1 – 4 of article (9)
٢٨	4 3the. 1tut.	A9	5. An Important Transformation of Stress. 6. Mohr's Circle of Stress.	1-12 of article (9)	1 – 4 of article (9)
٢٩	4 3the. 1tut.	A9	1. Buckling and Stability	1-12 of article (9)	1 – 4 of article (9)
٣٠	4 3the. 1tut	A10	2. Columns with Pinned Ends. 3. Columns with Eccentric Axial Loads.	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1- Mechanics of materials "SECOND EDETION 1979"BY E.P. Popov. 2- Mechanics of materials "fifth Edition 2001" By J.M. Geer 3- Strength of material by F.L. Singer 4- Elements of strength of materials By S. Timoshenko and Young.
2. Main references (sources)	-----

A- Recommended books and references (scientific journals, reports…).	--------
B-Electronic references, Internet sites…	--------

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Computer Programming /GE 204**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. Graduate Civil engineers to serve in building and construction, project management and other sectors of the Civil engineering market. 2. Improving the teaching and administrative activities to meet international accreditations standards and the mission of the department. 3. Improving the academic abilities of the faculty and attracting highly skilled personnel. 4. Improve the abilities of management and technical support staff and attract the highly skilled for employment. 5. Optimum use of resources and potentials of the department. 6. Cooperation, academic exchange programs, partnerships with other universities and academic centers in developed countries.	

7. Establishing viable applied research that generates knowledge for local and foreign markets.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. make computer programs using visual basic 6 programming language using each of the individual components with review of popular algorithm.
A2. Learn to use the events to run subroutines that may alter or use the properties or methods of other components.
A3. To use the Label and textbox components.
A4. To use the button component.
A5. To use the list component.
A6. To use the combo component.
A7. To use the image box and multiline textbox.
A8. To use the option button and check box.
A9. To use the scroll bar component.
A10. To use the picture box.
A11. To use user defined functions and subroutines.
A12. Introduce MatLab programming Language.
A13. Define variables, vectors, and matrices.
A14. Polynomial integration, differentiation, and evaluation.
A15. Ordinary differentiation and integration and limits.
A16. 2-D x-y plots.
A17. Subplots.
A18. Polar Plots
A19. For loops.
A20. Conditional if statements.

B. The skills goals special to the course.

B1. Analysis and design software.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.
8) Extracurricular Activities.
9) Seminars.
10) I n- and Out-Class oral conservations.

Assessment methods
1. Examinations, Tests, and Quizzes. 2. Extracurricular Activities. 3. Student Engagement during Lectures. 4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).
C. Affective and value goals C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time. C2. Encouraging the teamwork between the students. C3. Cooperating the universal activities. C4. Supporting the extra-curricular university activities and urging students to participate in them.
Teaching and Learning Methods
1. Homework and Assignments. 2. In-Class Questions and Discussions. 3. Field Trips. 4. Extracurricular Activities. 5. Seminars. 6. In- and Out-Class oral conservations. 7. Reports, Presentations, and Posters.
Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development) D1. Increasing the ability to use the design and analysis software.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 2the. 2exp.	A1	Introduction to computer programming using visual basic 6 programming language.	1-10 of article (9)	1 – 4 of article (9)
٢	4 2the. 2exp.	A1	Review to important computer algorithms	1-10 of article (9)	1 – 4 of article (9)
٣	4 2the. 2exp.	A1	Review to important computer algorithms	1-10 of article (9)	1 – 4 of article (9)
٤	4 2the. 2exp.	A2	Introduction to Visual Basic 6 programming	1-10 of article (9)	1 – 4 of article (9)
٥	4 2the. 2exp.	A2	Description of the events, properties and methods of components	1-10 of article (9)	1 – 4 of article (9)
٦	4 2the. 2exp.	A2	Quick review of the components used in the visual basic programming language	1-10 of article (9)	1 – 4 of article (9)
٧	4 2the. 2exp.	A3	Learn to use labels and textboxes	1-10 of article (9)	1 – 4 of article (9)

٨	4 2the. 2exp.	A6	To use the combo component.	1-10 of article (9)	1 – 4 of article (9)
٩	4 2the. 2exp.	A7	To use the image box and multiline textbox	1-10 of article (9)	1 – 4 of article (9)
١٠	4 2the. 2exp.	A8	To use the option button and check box	1-10 of article (9)	1 – 4 of article (9)
١١	4 2the. 2exp.	A9	To use the scroll bar component	1-10 of article (9)	1 – 4 of article (9)
١٢	4 2the. 2exp.	A10	To use the picture box.	1-10 of article (9)	1 – 4 of article (9)
١٣	4 2the. 2exp.	A11	To use user defined functions and subroutines	1-10 of article (9)	1 – 4 of article (9)
١٤	4 2the. 2exp.	A11	To use user defined functions and subroutines	1-10 of article (9)	1 – 4 of article (9)
١٥	4 2the. 2exp.	A12	Introduce MatLab programming Language.	1-10 of article (9)	1 – 4 of article (9)
١٦	4 2the. 2exp.	A12	Introduce MatLab programming Language.	1-10 of article (9)	1 – 4 of article (9)

١٧	4 2the. 2exp.	A13	Define variables, vectors, and matrices.	1-10 of article (9)	1 – 4 of article (9)
١٨	4 2the. 2exp.	A13	Define variables, vectors, and matrices.	1-10 of article (9)	1 – 4 of article (9)
١٩	4 2the. 2exp.	A14	Polynomial integration, differentiation, and evaluation.	1-10 of article (9)	1 – 4 of article (9)
٢٠	4 2the. 2exp.	A14	Polynomial integration, differentiation, and evaluation.	1-10 of article (9)	1 – 4 of article (9)
٢١	4 2the. 2exp.	A15	Ordinary differentiation and integration and limits.	1-10 of article (9)	1 – 4 of article (9)
٢٢	4 2the. 2exp.	A15	Ordinary differentiation and integration and limits.	1-10 of article (9)	1 – 4 of article (9)
٢٣	4 2the. 2exp.	A16	2-D x-y plots.	1-10 of article (9)	1 – 4 of article (9)
٢٤	4 2the. 2exp.	A16	2-D x-y plots.	1-10 of article (9)	1 – 4 of article (9)
٢٥	4 2the. 2exp.	A16	Axis + legend + data marker + line type	1-10 of article (9)	1 – 4 of article (9)

٢٦	4 2the. 2exp.	A16	Step plot + pie chart	1-10 of article (9)	1 – 4 of article (9)
٢٧	4 2the. 2exp.	A17	Subplots.	1-10 of article (9)	1 – 4 of article (9)
٢٨	4 2the. 2exp.	A18	Polar Plots	1-10 of article (9)	1 – 4 of article (9)
٢٩	4 2the. 2exp.	A19	For loops.	1-10 of article (9)	1 – 4 of article (9)
٣٠	4 2the. 2exp.	A20	conditional if statements.	1-10 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	Learn Visual Basic 6.0 by Lou Tylee, 1998. MICROSOFT VISUAL BASIC PROGRAMS TO ACCOMPANY PROGRAMMING LOGIC AND DESIGN by JO ANN SMITH, 2011. فجوال بيسك للجميع نحو برمجة كائنية التوجه ٢٠٠٢ Essential MATLAB® for Engineers and Scientists, by Brian D. Hahn And Daniel T. Valentine, 2007 INTRODUCTION TO MATLAB By ENG. MAHDI AL-HOUSANI
2. Main references (sources)	“Programming Microsoft Visual Basic 6.0”; by Francesco Balena, 1988. PUBLISHED BY

	Microsoft Press A Division of Microsoft Corporation
A- Recommended books and references (scientific journals, reports…).	-------
B-Electronic references, Internet sites…	------

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Fluid Mechanics / CE 205**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	150 hrs. / 5 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. Introduce basic definitions and introductory concepts of fluid mechanics in static and dynamic cases and its applications in civil engineering. 2. Improving the teaching and administrative activities to meet international accreditations standards and the mission of the department. 3. Improving the academic abilities of the faculty and attracting highly skilled personnel. 4. Improve the abilities of management and technical support staff and attract the highly skilled for employment. 5. Optimum use of resources and potentials of the department.	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. The graduate student will be able to apply knowledge of fluid mechanics in static and dynamic cases and its applications in civil engineering.
A2. The graduate student will be able to function on multi-disciplinary teams (Our interpretation of multidisciplinary teams includes teams of individuals with similar educational backgrounds focusing on different aspects of a project as well as teams of individuals with different educational backgrounds).
A3. The graduate student will be able to identify, formulates, and solves engineering problems, understanding of professional and ethical responsibility and ability to communicate effectively.
A4. The broad education necessary to understand the impact of engineering solutions in a global and societal context.
A5. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
A6. Develop the ability to conduct experiments, and critically analyze and interpret data.
A7. An ability to design close system (pressure pipes) with all application and open channel to meet desired needs.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. 1n-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods
1. Examinations, Tests, and Quizzes. 2. Extracurricular Activities. 3. Student Engagement during Lectures. 4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).
C. Affective and value goals C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time. C2. Encouraging the teamwork between the students. C3. Cooperating the universal activities. C4. Supporting the extra-curricular university activities and urging students to participate in them.
Teaching and Learning Methods
1. Homework and Assignments. 2. In-Class Questions and Discussions. 3. Field Trips. 4. Extracurricular Activities. 5. Seminars. 6. In- and Out-Class oral conservations. 7. Reports, Presentations, and Posters.
Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 2the. 1tut. 2exp.	A1, A2	Fluid static: Fluid properties and flow characteristics	1-12 of article (9)	1 – 4 of article (9)
٢	5 2the. 1tut. 2exp.	A1, A2	Fluid static: Fluid properties and flow characteristics	1-12 of article (9)	1 – 4 of article (9)
٣	5 2the. 1tut. 2exp.	A1, A2, A3	Fluid static: Fluid properties and flow characteristics	1-12 of article (9)	1 – 4 of article (9)
٤	5 2the. 1tut. 2exp.	A1, A2, A3	Hydrostatics force on plane surface	1-12 of article (9)	1 – 4 of article (9)
٥	5 2the. 1tut. 2exp.	A1, A2, A3	Hydrostatics force on plane surface	1-12 of article (9)	1 – 4 of article (9)
٦	5 2the. 1tut. 2exp.	A1, A2, A3	Hydrostatic pressure forces on curved surfaces	1-12 of article (9)	1 – 4 of article (9)

٧	5 2the. 1tut. 2exp.	A1, A2, A3	Buoyancy and accelerated fluid masses	1-12 of article (9)	1 – 4 of article (9)
٨	5 2the. 1tut. 2exp.	A4, A5, A6, A7	Fluid dynamic: Kinematics of fluid motion	1-12 of article (9)	1 – 4 of article (9)
٩	5 2the. 1tut. 2exp.	A4, A5, A6, A7	Bernoulli's equation	1-12 of article (9)	1 – 4 of article (9)
١٠	5 2the. 1tut. 2exp.	A4, A5, A6, A7	Applications of energy equations	1-12 of article (9)	1 – 4 of article (9)
١١	5 2the. 1tut. 2exp.	A4, A5, A6, A7	Applications of energy equations	1-12 of article (9)	1 – 4 of article (9)
١٢	5 2the. 1tut. 2exp.	A3, A6, A7	Momentum equations	1-12 of article (9)	1 – 4 of article (9)
١٣	5 2the. 1tut.		**Course Examination**	1-12 of article (9)	1 – 4 of article (9)

	2exp.				
١٤	5 2the. 1tut. 2exp.	A3, A5, A6	Dimensional analysis hydraulic simulation	1-12 of article (9)	1 – 4 of article (9)
١٥	5 2the. 1tut. 2exp.	A3, A5, A6	Dimensional analysis hydraulic simulation	1-12 of article (9)	1 – 4 of article (9)
١٦	5 2the. 1tut. 2exp.	A3, A5, A6, A7	Flow of real fluid, energy equation with friction losses, correction of velocity and momentum	1-12 of article (9)	1 – 4 of article (9)
١٧	5 2the. 1tut. 2exp.	A3, A5, A6, A7	Flow of real fluid, energy equation with friction losses, correction of velocity and momentum	1-12 of article (9)	1 – 4 of article (9)
١٨	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Fluid flow in pipes, major friction losses, minor friction losses (Exam 1)	1-12 of article (9)	1 – 4 of article (9)
١٩	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Fluid flow in pipes, major friction losses, minor friction losses	1-12 of article (9)	1 – 4 of article (9)
٢٠	5	A1, A2,	Pipe in series and pipes in parallel	1-12 of article (9)	1 – 4 of article (9)

	2the. 1tut. 2exp.	A5, A6, A7			
٢١	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Pipe in series and pipes in parallel	1-12 of article (9)	1 – 4 of article (9)
٢٢	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Network and junctions	1-12 of article (9)	1 – 4 of article (9)
٢٣	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Network and junctions (Exam 2)	1-12 of article (9)	1 – 4 of article (9)
٢٤	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Fluid flow in open channels, critical flow	1-12 of article (9)	1 – 4 of article (9)
٢٥	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Fluid flow in open channels, critical flow	1-12 of article (9)	1 – 4 of article (9)
٢٦	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Specific energy and transitions	1-12 of article (9)	1 – 4 of article (9)

٢٧	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Hydraulic jump	1-12 of article (9)	1 – 4 of article (9)
٢٨	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Weirs	1-12 of article (9)	1 – 4 of article (9)
٢٩	5 2the. 1tut. 2exp.	A1, A2, A5, A6, A7	Weirs	1-12 of article (9)	1 – 4 of article (9)
٣٠	5 2the. 1tut. 2exp.		Exam 3	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1. Dr. R. K. Bansal, (2008) “A Textbook of Fluid Mechanics” First Edition, Laxmi Publications (P) Ltd. 2. Madan Mohan Das, (2009) “Open Channel Flow” Second Edition, PHI Learning Private Limited, New Delhi.
2. Main references (sources)	Bruce R. Munson, Donald F. Young, and Theodore H. Okiishi (2002) “Fundamentals of Fluid Mechanics” Fourth edition, John Wiley & Sons, Inc.

A- Recommended books and references (scientific journals, reports…).	----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Building Constructions / CE 206**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1 1- helping students develop knowledge of professions in construction of buildings and houses. 2- Painting and sheet paper, as well as other specialist professions. Students should also be given opportunities to develop basic skills in construction, building of houses, painting and sheet paper work, as well as an understanding of work in the building and construction industry.	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. The ability to search for information and plan, organize and carry out common tasks.
A2. Knowledge of different methods, materials, tools and machines.
A3. Knowledge of laws and other regulations in the professional area.
A4. The ability to carry out risk assessments of tasks.
A5. Skills in following task descriptions and using drawings.
A6. The ability to assess work processes and results and document their work.
A7. Knowledge of common professions and work processes in the building and construction industry, and what sustainable development means in the industry

B. The skills goals special to the course.
B1. Site management's controls.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods
8. Homework and Assignments. 9. In-Class Questions and Discussions. 10. Field Trips. 11. Extracurricular Activities. 12. Seminars. 13. In- and Out-Class oral conservations. 14. Reports, Presentations, and Posters.
Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)
D1. Improving site investigation skill.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	Types of buildings	1-12 of article (9)	1 – 4 of article (9)
٢	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	Earthworks and Excavations	1-12 of article (9)	1 – 4 of article (9)
٣	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	Types of foundation	1-12 of article (9)	1 – 4 of article (9)
٤	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	Piles, introductions, types	1-12 of article (9)	1 – 4 of article (9)
٥	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	Concrete works	1-12 of article (9)	1 – 4 of article (9)
٦	4 1the. 1tut. 2exp.	A1, A2, A3, A4,	Bricks unites and the work with Bricks	1-12 of article (9)	1 – 4 of article (9)

		A5, A6, A7			
٧	4 1the. 1tut. 2exp.		First exam	1-12 of article (9)	1 – 4 of article (9)
٨	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	Def. of stone, types and the work in stone	1-12 of article (9)	1 – 4 of article (9)
٩	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	Templates & scaffolds, *Introduction *Site work and create templates	1-12 of article (9)	1 – 4 of article (9)
١٠	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	*Loads and the forces of design templates contracting and suspenders *Specifications and design factors templates thresholds and beams and columns	1-12 of article (9)	1 – 4 of article (9)
١١	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	*The def.,Types of thresholds by lengths *Stresses in the thresholds and	1-12 of article (9)	1 – 4 of article (9)

			their cross sections drawing. *Types of thresholds by materials *Classification thresholds reinforced concrete Columns *Sort columns The end of the piles cases &Sort columns by materials		
١٢	4 1the. 1tut. 2exp.		2Exam	1-12 of article (9)	1 – 4 of article (9)
١٣	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	floors and ceilings Def. types, Loads	1-12 of article (9)	1 – 4 of article (9)
١٤	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	upper and lower thresholds Def., types, loads	1-12 of article (9)	1 – 4 of article (9)
١٥	4 1the. 1tut.	A1, A2, A3, A4,	humidity blocker Moisture damage Moisture to leak outlets buildings	1-12 of article (9)	1 – 4 of article (9)

	2exp.	A5, A6, A7	Moisture compounds The methods used in cutting humidity		
١٦	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	transportation between levels And types of ladders Dimensions of peace and grades and the way the longitudinal cut fee And types of elevators	1-12 of article (9)	1 – 4 of article (9)
١٧	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	fireplaces and chimneys Full sections burner Basic things for the good work of the fireplace and heating good	1-12 of article (9)	1 – 4 of article (9)
١٨	4 1the. 1tut. 2exp.		3exam	1-12 of article (9)	1 – 4 of article (9)
١٩	4 1the. 1tut.	A1, A2, A3, A4,	joints in buildings Define and determine the kinds of joints	1-12 of article (9)	1 – 4 of article (9)

	2exp.	A5, A6, A7	The first type - construction and types of joints Type II - the extended joints		
٢٠	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	walls and ceilings Is recognized on the vocabulary of this chapter briefly and streamlined. End walls from the inside	1-12 of article (9)	1 – 4 of article (9)
٢١	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	Working methods of the internal walls of whiteness	1-12 of article (9)	1 – 4 of article (9)
٢٢	4 1the. 1tut. 2exp.		4Exam	1-12 of article (9)	1 – 4 of article (9)
٢٣	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5	General observations on the work of whiteness An end to the internal ceilings End walls and ceilings from abroad	1-12 of article (9)	1 – 4 of article (9)
٢٤	4 1the.	A1, A2, A3, A4,	Desiccation and review	1-12 of article (9)	1 – 4 of article (9)

	1tut. 2exp.	A5, A6, A7			
٢٥	4 1the. 1tut. 2exp.	A1, A2	Wallpaper	1-12 of article (9)	1 – 4 of article (9)
٢٦	4 1the. 1tut. 2exp.	A1, A2, A3, A4	Windows and Doors Is recognized on the vocabulary of this chapter a simplified manner. Drying timber Qualities of wood	1-12 of article (9)	1 – 4 of article (9)
٢٧	4 1the. 1tut. 2exp.	A1, A2, A3, A4	disadvantages Types of wood Doors definitions and kinds Doors by its materials	1-12 of article (9)	1 – 4 of article (9)
٢٨	4 1the. 1tut. 2exp.		4Exam	1-12 of article (9)	1 – 4 of article (9)
٢٩	4 1the. 1tut. 2exp.	A1, A2, A3, A4, A5, A6, A7	Review and desiccation	1-12 of article (9)	1 – 4 of article (9)

٣٠	4 1the. 1tut. 2exp.		Final exam	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	
2. Main references (sources)	Construction of Buildings, Zuhair Sacco and Artin Levon
A- Recommended books and references (scientific journals, reports…).	-------
B-Electronic references, Internet sites…	---------

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Concrete Technology / CE 207**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a “Day Program”. The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020

6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

- Graduate civil engineers to serve in construction and other sectors of civil engineering labor market
- Improving the teaching and administrative activities to meet international accreditations standards and the mission of the department
- Improving the academic abilities of the faculty and attracting highly skilled personal
- Improve the abilities and management and technical support staff and attract the highly skilled for employment
- Optimum use of resources and potentials of the department
- Cooperation, academic exchange, program partnerships with other universities and academic centers in developed countries
- Establishing viable applied research that generates knowledge for local and foreign markets.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. An ability to apply knowledge of mathematics, science, and engineering.
A2. An ability to design and conduct experiments, as well as to analyze and interpret data.
A3. An ability to design a system, component, or process to meet desired needs.
A4. Explain the application of material to a concrete ceiling
A5. An ability to identify, formulates, and solves engineering problems.
A6. Engage in effectively interpersonal, oral, visual, and in written communication
A7. Demonstrate basic drafting proficiency, including the ability to use industry-standard computer software to generate 2D and 3D drawings
A8. Demonstrate fundamental knowledge of the systems and processes used to construct the built environment, including an understanding of industry terminology
A9. Estimate the costs for labor, materials, and equipment for a construction project using industry-standard software and procedures.
A10. Develop a schedule of activities for a construction project, determine the critical path, and identify methods of compressing the completion time.
A11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

B. The skills goals special to the course.
B1. Construction materials test methods.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals
C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Enhancing the skill to perform any significant lab test for different engineering purposes.

10. Course Structure					
Week	hours	ILOs	Unit/Module or Topic Title	Teaching method	Assessment method
1	4 1the. 1tut. 2exp.	A1, A2, A5, A6, A7, A11	1-Portland cement definition	1-12 of article (9)	1-4 of article (9)
٢	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	2-Manufacture of cement -raw materials -method of manufacture -grinding of clinker	1-12 of article (9)	1-4 of article (9)
٣	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	3-Chemical composition of p.c. -minor compounds -major compounds -loss on ignition -soluble salts	1-12 of article (9)	1-4 of article (9)
٤	4 1the. 1tut. 2exp.	A1, A3, A4, A5, A12, A11	4-Hydration of cement -C3S hydrate -C2S hydrate -setting &factors affecting -false setting -flash setting	1-12 of article (9)	1-4 of article (9)

٥	4 1the. 1tut. 2exp.	a,b,f,g, I,k A1, A2, A6, A7, A12, A11	5-Types of cement -rapid hardening cement -low heat cement	1-12 of article (9)	1-4 of article (9)
٦	4 1the. 1tut. 2exp.	A1, A2, A5, A6, A7, A11	-sulfate resistance cement -colored cement -white cement	1-12 of article (9)	1-4 of article (9)
٧	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	6-Aggregate -types of aggregate -specifications of aggregate	1-12 of article (9)	1-4 of article (9)
٨	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	-factors affecting limitation of cemen	1-12 of article (9)	1-4 of article (9)
٩	4 1the. 1tut. 2exp.	A1, A3, A4, A5, A12, A11	7-Design of concrete mix -ASTM mix design	1-12 of article (9)	1-4 of article (9)
١٠	4 1the. 1tut.	A1, A2, A6, A7,	- BS mix design	1-12 of article (9)	1-4 of article (9)

	2exp.	A12, A11			
١١	4 1the. 1tut. 2exp.	A1, A2, A5, A6, A7, A11	8-Fresh concrete -properties	1-12 of article (9)	1-4 of article (9)
١٢	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	-specifications -tests of fresh concret	1-12 of article (9)	1-4 of article (9)
١٣	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	9-Hardened concrete -properties	1-12 of article (9)	1-4 of article (9)
١٤	4 1the. 1tut. 2exp.	A1, A3, A4, A5, A12, A11	-specifications -tests of hardened concrete	1-12 of article (9)	1-4 of article (9)
15	4 1the. 1tut. 2exp.	A1, A2, A6, A8, A12, A11	-compressive strength -tensile strength -factors affecting comp. str.	1-12 of article (9)	1-4 of article (9)
16	4 1the. 1tut. 2exp.	A1, A2, A5, A6, A7, A11	-shear strength -fatigue strength	1-12 of article (9)	1-4 of article (9)

17	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	10-shrinkage of concrete -types of shrinkage	1-12 of article (9)	1-4 of article (9)
18	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	11- creep in concrete -factors affecting creep	1-12 of article (9)	1-4 of article (9)
19	4 1the. 1tut. 2exp.	A1, A3, A4, A5, A12, A11	12-consistency of concrete -factors affecting consistency	1-12 of article (9)	1-4 of article (9)
20	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	13- workability of concrete -factors affecting workability	1-12 of article (9)	1-4 of article (9)
21	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	14-effect of w/c ratio on concrete strength	1-12 of article (9)	1-4 of article (9)
22	4 1the. 1tut. 2exp.	A1, A3, A4, A5, A12, A11	Effect of w/c ratio on concrete workability	1-12 of article (9)	1-4 of article (9)

23	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	Tests of workability -slump test -kelly ball test	1-12 of article (9)	1-4 of article (9)
24	4 1the. 1tut. 2exp.	A2, A3, A7, A8, A12, A11	- Compaction factor test - Ve be time test	1-12 of article (9)	1-4 of article (9)
25	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	-factor affecting workabilty	1-12 of article (9)	1-4 of article (9)
26	4 1the. 1tut. 2exp.	A2,A3, A7, A8, A12, A11	15- segregation in concrete -causes of segregation	1-12 of article (9)	1-4 of article (9)
27	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	-factors affect concrete segregation -suitable condition for segregation	1-12 of article (9)	1-4 of article (9)
28	4 1the. 1tut. 2exp.	A1, A3, A4, A5, A12, A11	16-concrete segregation improvement	1-12 of article (9)	1-4 of article (9)

29	4 1the. 1tut. 2exp.	A, A3, A7, A8, A12, A11	18-enhance concrete bleeding -factors affecting concrete bleeding	1-12 of article (9)	1-4 of article (9)
30	4 1the. 1tut. 2exp.	A2, A4, A5, A6, A10	19-light weight concrete -properties of L.W.C. -types and specification of l.w.c aggregate -no fine concrete	1-12 of article (9)	1-4 of article (9)

11. Infrastructure	
1. Books Required reading:	Concrete Technology by Chand -Developed Reinforced Concrete by R. N. Swamy ACI (American concrete institute), ASTM (American standards for testing methods), BS (British standards)
2. Main references (sources)	------
A- Recommended books and references (scientific journals, reports…).	---------
B-Electronic references, Internet sites…	--------

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **English Languages/GE 211**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs./2 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

A- A great deal of successful language learning comes from experiences in which the learning is largely unconscious.
B- This course aimed to make the student's interest in the career information presented will increase his or her ability to communicate more easily in English.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Cognitive goals.

A1. This Course is to introduce the student to the particular vocational area in which he or she is involved.
A2. The duties of different kinds of jobs are discussed, as well as the problems that might be encountered at work.
A3. Different phases of the civil engineering filed are discussed, together with some of the methods involved in designing structures for a number of different purposes.
A4. The aptitudes and education that an engineer must have are also discussed, as well as some of the specific job areas in which he or she may work.
A5. This course will be an introduction to the different kinds of work in the field of civil engineering.

B. The skills goals special to the course.

Teaching and Learning Methods
1. Lectures. 2. Tutorials. 3. Homework and Assignments. 4. Lab. Experiments. 5. Tests and Exams. 6. In-Class Questions and Discussions. 7. Connection between Theory and Application. 8. Field Trips. 9. Extracurricular Activities. 10. Seminars. 11. In- and Out-Class oral conservations. 12. Reports, Presentations, and Posters.
Assessment methods
1. Examinations, Tests, and Quizzes. 2. Extracurricular Activities. 3. Student Engagement during Lectures. 4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).
C. Affective and value goals C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time. C2. Encouraging the teamwork between the students. C3. Cooperating the universal activities. C4. Supporting the extra-curricular university activities and urging students to participate in them.
Teaching and Learning Methods
1. Homework and Assignments. 2. In-Class Questions and Discussions. 3. Field Trips. 4. Extracurricular Activities. 5. Seminars. 6. In- and Out-Class oral conservations. 7. Reports, Presentations, and Posters.
Assessment methods

1. Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 1the. 1tut.	A1, A2	Chapter 1	1-12 of article (9)	1 – 4 of article (9)
٢	2 1the. 1tut	A1, A2	Chapter 1	1-12 of article (9)	1 – 4 of article (9)
٣	2 1the. 1tut	A1, A2	Chapter 2	1-12 of article (9)	1 – 4 of article (9)
٤	2 1the. 1tut	A2, A3, A4, A5	Chapter 2	1-12 of article (9)	1 – 4 of article (9)
٥	2 1the. 1tut	A2, A3, A4, A5	Chapter 3	1-12 of article (9)	1 – 4 of article (9)
٦	2 1the. 1tut	A2, A3, A4, A5	Chapter 3	1-12 of article (9)	1 – 4 of article (9)
٧	2 1the. 1tut	A2, A3, A4, A5	Chapter 4	1-12 of article (9)	1 – 4 of article (9)
٨	2 1the. 1tut	A2, A3, A4, A5	Chapter 4	1-12 of article (9)	1 – 4 of article (9)

٩	2 1the. 1tut	A2, A3, A4, A5	Chapter 5	1-12 of article (9)	1 – 4 of article (9)
١٠	2 1the. 1tut	A2, A3, A4, A5	Chapter 5	1-12 of article (9)	1 – 4 of article (9)
١١	2 1the. 1tut	A2, A3, A4, A5	Chapter 6	1-12 of article (9)	1 – 4 of article (9)
١٢	2 1the. 1tut	A2, A3, A4, A5	Chapter 6	1-12 of article (9)	1 – 4 of article (9)
١٣	2 1the. 1tut	A2, A3, A4, A5	Chapter 7	1-12 of article (9)	1 – 4 of article (9)
١٤	2 1the. 1tut	A2, A3, A4, A5	Chapter 7	1-12 of article (9)	1 – 4 of article (9)
١٥	2 1the. 1tut	A2, A3, A4, A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
١٦	2 1the. 1tut	A2, A3, A4, A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
١٧	2 1the. 1tut	A2, A3, A4, A5	Chapter 8	1-12 of article (9)	1 – 4 of article (9)

١٨	2 1the. 1tut	A2, A3, A4, A5	Chapter 8	1-12 of article (9)	1 – 4 of article (9)
١٩	2 1the. 1tut	A2, A3, A4, A5	Chapter 9	1-12 of article (9)	1 – 4 of article (9)
٢٠	2 1the. 1tut	A2, A3, A4, A5	Chapter 9	1-12 of article (9)	1 – 4 of article (9)
٢١	2 1the. 1tut	A2, A3, A4, A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٢	2 1the. 1tut	A2, A3, A4, A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٣	2 1the. 1tut	A2, A3, A4, A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
٢٤	2 1the. 1tut	A2, A3, A4, A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
٢٥	2 1the. 1tut	A2, A3, A4, A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)
٢٦	2 1the. 1tut	A2, A3, A4, A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)

٢٧	2 1the. 1tut	A2, A3, A4, A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)
٢٨	2 1the. 1tut		Chapter 12	1-12 of article (9)	1 – 4 of article (9)
٢٩	2 1the. 1tut		Chapter 12	1-12 of article (9)	1 – 4 of article (9)
٣٠	2 1the. 1tut		Chapter 12	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	New Headway Plus (Pre-Intermediate Student's Book and Student's Workbook with Key), by John and Liz Soars
2. Main references (sources)	-----
A- Recommended books and references (scientific journals, reports…).	----
B-Electronic references, Internet sites…	-----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**SECOND YEAR** **Freedom & Democracy / GE 208**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1 - To stand scholars and researchers on Islam superior care and sponsorship distinct and unique human rights, which include all aspects of his life and all stages of life. 2 - refute the claim of the Western world, which claims that they sponsor human rights, and supporting them, and defending them and claim that human rights did not know her, but since the French Revolution in 1798, the Universal Declaration of Human Rights of all for the UN in 1948 3 - to prove that the human rights and the duties it from a humanitarian necessity, and human encroachment, and the imposition of religious 4 - to prove that the human rights, and duties may be prescribed by God Almighty since the creation of Adam, peace be upon him and not as claimed by the West during the concepts of European civilization, and culture, and regulations 5 - rooting the rights of God, and the rights of the subjects that characterized Islam, pushing the nation to the correct understanding and application of good because of their rights and her duties 6 - The objective of this study was not to stay the students, and intellectuals, and intellectuals untouched, and isolation from the human rights issues in the world and should intubation each contravention of faith and morals, and threatens their cultural identity 7 - evidenced by this decision universality of rights in Islam it is not interested in one side of human life, as do Western civilization but also include the law of	

Islam, and was organized by the culture of human rights in all stages of his life, and all aspects of his life, and after his death, but beyond these rights of human beings to include the world animal, plant

9· Learning Outcomes, Teaching ,Learning and Assessment Methode

A- Cognitive goals .

A1. Contextual: human rights are discussed in social contexts relevant to the learners.
A2. Skills-oriented: human rights education develops skills, and is linked with literacy, numeracy and decision making skills.
A3. Cross-curricular: human rights, as human experience, are relevant to all aspects of learning.
A4. Discursive: learning is based on discussion, exchanging ideas and values, understanding human communication.
A5. Inclusive: allow all students, regardless of their learning styles/abilities, to participate.
A6. an understanding of what human rights are and an understanding of the origins of modern human rights
A7. an appreciation of the meaning and significance of the Universal Declaration of Human Rights and other human rights instruments
A8.an understanding of the role of the Australian Human Rights Commission and its complaints process
A9. an ability to apply the concepts of human rights to their daily lives
A10. research and fact-sourcing, and an ability to think creatively and to communicate information to others
A11. decision making skills, within an individual, group and class context
literacy skills, including critical literacy, code breaking and comprehension skills, through reading and responding to a variety of texts, both orally and through writing skills in describing, reflecting, interpreting, analyzing, evaluating and higher order thinking.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Extracurricular Activities.
7. Seminars.
8. In- and Out-Class oral conservations.

9. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills(other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 1the. 1tut.	A1, A2	the concept of democracy	1-9 of article (9)	1 – 4 of article (9)
٢	2 1the. 1tut.	A1, A2, A4	the historical development of democracy	1-9 of article (9)	1 – 4 of article (9)
٣	2 1the. 1tut.	A2, A5	democracy in ancient civilizations	1-9 of article (9)	1 – 4 of article (9)
٤	2 1the. 1tut.	A1, A2, A3, A4	Democracy in Islam	1-9 of article (9)	1 – 4 of article (9)
٥	2 1the. 1tut.	A4, A5, A7	democracy in the Middle Ages	1-9 of article (9)	1 – 4 of article (9)
٦	2 1the. 1tut.	A, A7	democracy in the twentieth century	1-9 of article (9)	1 – 4 of article (9)
٧	2 1the. 1tut.	A5, A6	types of democracy	1-9 of article (9)	1 – 4 of article (9)
٨	2 1the. 1tut.	A5, A6, A7	types of democracy	1-9 of article (9)	1 – 4 of article (9)

٩	2 1the. 1tut.	A5, A7, A8	election	1-9 of article (9)	1 – 4 of article (9)
١٠	2 1the. 1tut.	A8, A9	Terms of election	1-9 of article (9)	1 – 4 of article (9)
١١	2 1the. 1tut.	A4, A8, A9	Terms of election	1-9 of article (9)	1 – 4 of article (9)
١٢	2 1the. 1tut.	A10, A11	Methods of election	1-9 of article (9)	1 – 4 of article (9)
١٣	2 1the. 1tut.	A1, A2, A3	The concept of human rights	1-9 of article (9)	1 – 4 of article (9)
١٤	2 1the. 1tut.	A4, A5, A6	Human Rights in Islam	1-9 of article (9)	1 – 4 of article (9)
١٥	2 1the. 1tut.	A3, A4, A5, A6	the international covenants on human rights	1-9 of article (9)	1 – 4 of article (9)
١٦	2 1the. 1tut.	A7, A8	International Law of Human Rights	1-9 of article (9)	1 – 4 of article (9)
١٧	2 1the.	A7,A8, A9	non-governmental human rights advocacy	1-9 of article (9)	1 – 4 of article (9)

	1tut.				
١٨	2 1the. 1tut.	A7,A8, A9	non-governmental human rights advocacy	1-9 of article (9)	1 – 4 of article (9)
١٩	2 1the. 1tut.	A11, A12	guarantees human rights	1-9 of article (9)	1 – 4 of article (9)
٢٠	2 1the. 1tut.	A7,A8, A9	protection of human rights	1-9 of article (9)	1 – 4 of article (9)
٢١	2 1the. 1tut.	A7, A8	The difference between international humanitarian law and international law, human rights	1-9 of article (9)	1 – 4 of article (9)
٢٢	2 1the. 1tut.	A1, A2	A look at the Iraqi Constitution	1-9 of article (9)	1 – 4 of article (9)
٢٣	2 1the. 1tut.	A1, A2	Human Rights in Iraqi Constitution	1-9 of article (9)	1 – 4 of article (9)
٢٤	2 1the. 1tut.	A4, A5, A9	Integration Democracy and the Human Rights	1-9 of article (9)	1 – 4 of article (9)
٢٥	2 1the. 1tut.	A3, A8	Selected models of some of the world democracies	1-9 of article (9)	1 – 4 of article (9)

٢٦	2 1the. 1tut.	A4, A7, A8	France	1-9 of article (9)	1 – 4 of article (9)
٢٧	2 1the. 1tut.	A4, A6, A8	Britain	1-9 of article (9)	1 – 4 of article (9)
٢٨	2 1the. 1tut.	A4, A6, A8	America	1-9 of article (9)	1 – 4 of article (9)
٢٩	2 1the. 1tut.	A4, A6, A8	Switzerland	1-9 of article (9)	1 – 4 of article (9)
٣٠	2 1the. 1tut.	A1, A2, A12	General Summary	1-9 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1- رياض عزيز هادي، الديمقراطية دراسة في تطورها، مفاهيمها، ابعادها، كلية العلوم السياسية، جامعة بغداد، بغداد، ٢٠١٠. 2- صالح جواد كاظم، علي غالب العاني، الانظمة السياسية، جامعة بغداد، كلية القانون، بغداد، ط٢، ٢٠٠٧. 3- ماهر صبري كاظم، حقوق الانسان والديمقراطية، والحريات العامة، بغداد، ٢٠١٠. 4- هاشم مرتضى، الديمقراطية، وجهات نظر اسلامية، بغداد ٢٠٠٨. صادق مكي، حرية الانسان بين الواقع والشريعة، بيروت،١٩٩٢.
2. Main references (sources)	----

A- Recommended books and references (scientific journals, reports…).	----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Theory of Structures / CE 301**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time Students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd / Academic Year 2019 – 2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2020
8. Aims of the Course	
1. Introduce basic definitions and introductory concepts of theory of structures 2. Introduce the basic concepts to classify structures into stable and unstable structures. 3. Introduce the description of Statically determinate and indeterminate structures. 4. Introduce the principles of axial force, shear force and bending moment for frames and arches. 5. Introduce the principles and types of trusses. 6. Enable the student to analyze statically determinate trusses. 7. Introduce the principles of influence lines and moving loads.	

8. Enable the student to evaluate the elastic deformations of statically determinate structures.
9. Enable the student to analyze statically indeterminate structures.
10. Introduce the principles of structural analysis for statically indeterminate structures using approximate methods.
11. Introduce the principles of structural analysis for statically determinate and indeterminate structures using stiffness matrix method.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. Classify structures into stable and unstable structures
A2. Classify structures into determinate and indeterminate structures.
A3. Analyze statically determinate trusses.
A4. Drawing shear, axial and Bending moment diagrams for frames and arches.
A5. Evaluating deformations for statically determinate frames, arches and trusses.
A6. Analyze statically indeterminate frames and arches.
A7. Analyze statically indeterminate trusses.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Extracurricular Activities.
8. Seminars.
9. In- and Out-Class oral conservations.
10. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to

participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 3the. 1tut.	A1	Introduction	1-10 of article (9)	1 – 4 of article (9)
٢	4 3the. 1tut.	A1	Stability and Determinacy of Structures 2.1 Beams 2.2 Frames	1-10 of article (9)	1 – 4 of article (9)
٣	4 3the. 1tut.	A1	2.3 Arches 2.4 Trusses 2.5 Composite Structures	1-10 of article (9)	1 – 4 of article (9)

٤	4 3the. 1tut.	A2	3. Axial Force, Shear Force and Bending Moment 1-10 of article (9)Diagrams 3.1 Beams 3.2 Frames	1-10 of article (9)	1 – 4 of article (9)
٥	4 3the. 1tut.	A2	3.3 Arches 3.4 Composite Structures	1-10 of article (9)	1 – 4 of article (9)
٦	4 3the. 1tut.	A2	4. Analysis of Statically Determinate Trusses 3.1 Simple Trusses	1-10 of article (9)	1 – 4 of article (9)
٧	4 3the. 1tut.	A3	3.2 Combined Trusses 3.3 Complex Trusses	1-10 of article (9)	1 – 4 of article (9)
٨	4 3the. 1tut.	A3	5. Influence Lines and Moving Loads 5.1 Influence Lines for Beams	1-10 of article (9)	1 – 4 of article (9)
٩	4 3the. 1tut.	A3	5.2 Influence Lines for Girder Floor Beams Stringers System	1-10 of article (9)	1 – 4 of article (9)
١٠	4 3the. 1tut.	A4	5.3 Influence Lines for Trusses 5.4 Influence Lines for Composite Structures	1-10 of article (9)	1 – 4 of article (9)
١١	4 3the. 1tut.	A4	5.5 Absolute Max. Bending Moment in Simply Supported Beams due to Series of Moving Loads	1-10 of article (9)	1 – 4 of article (9)

١٢	4 3the. 1tut.	A4	6. Elastic Deformation of Statically Determinate Structures 6.1 Unit Load Method	1-10 of article (9)	1 – 4 of article (9)
١٣	4 3the. 1tut.	A5	Continue for unit load method	1-10 of article (9)	1 – 4 of article (9)
١٤	4 3the. 1tut.	A5	6.2 Least Work Method (Castigiliano's First Theorem)	1-10 of article (9)	1 – 4 of article (9)
١٥	4 3the. 1tut.	A5	6.3 Conjugate Beam Method	1-10 of article (9)	1 – 4 of article (9)
١٦	4 3the. 1tut.	A5	7. Approximate Analysis of Indeterminate Structures 7.1 Portal Frames	1-10 of article (9)	1 – 4 of article (9)
١٧	4 3the. 1tut.	A6	7.2 Trusses	1-10 of article (9)	1 – 4 of article (9)
١٨	4 3the. 1tut.	A6	8. Analysis of Statically Indeterminate Structures 8.1 Consistent Deformation Method 8.1.1 Beams	1-10 of article (9)	1 – 4 of article (9)
١٩	4 3the. 1tut.	A6	8.1.2 Frames 8.1.3 Arches	1-10 of article (9)	1 – 4 of article (9)
٢٠	4 3the. 1tut.	A6	8.1.4 Trusses	1-10 of article (9)	1 – 4 of article (9)
٢١	4 3the. 1tut.	A7	8.1.5 Composite Structures	1-10 of article (9)	1 – 4 of article (9)

٢٢	4 3the. 1tut.	A7	8.2 Least Work Method (Castigiliano's Second Theorem) 8.2.1 Beams	1-10 of article (9)	1 – 4 of article (9)
٢٣	4 3the. 1tut.	A7	8.2.2 Frames 8.2.3 Arches	1-10 of article (9)	1 – 4 of article (9)
٢٤	4 3the. 1tut.	A7	8.2.4 Trusses	1-10 of article (9)	1 – 4 of article (9)
٢٥	4 3the. 1tut.	A7	8.2.5 Composite Structures	1-10 of article (9)	1 – 4 of article (9)
٢٦	4 3the. 1tut.	A7	8.3 Slope Deflection Method 8.3.1 Beams	1-10 of article (9)	1 – 4 of article (9)
٢٧	4 3the. 1tut.	A7	8.3.2 Frames.	1-10 of article (9)	1 – 4 of article (9)
٢٨	4 3the. 1tut.	A7	8.4 Moment Distribution Method 8.4.1 Beams	1-10 of article (9)	1 – 4 of article (9)
٢٩	4 3the. 1tut.	A7	8.4.2 Frames	1-10 of article (9)	1 – 4 of article (9)
٣٠	4 3the. 1tut	A7	9. Stiffness matrix method	1-10 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	- Elementary Structural Analysis, by Norris, Wilbur and utku. - Statically Indeterminate Structures by Chu-kia Wang. - Analysis of Structural system, Jobn F. Fleming. - Elementary Theory of Structures, Yuan Yu Hsieh.

	- Structural Analysis, Hibbeler. Indeterminate Structural Analysis, Kinney.
2. Main references (sources)	- Analysis of Structural system by Jobn F. Fleming. - Elementary Theory of Structures by Yuan Yu Hsieh. - Structural Analysis by Hibbeler. - Indeterminate Structural Analysis by Kinney.
A- Recommended books and References (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Soil Mechanics/CE 302**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	150 hrs. / 5 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	

1. Understanding of the basic concepts of soil mechanics is essential in the design of foundations for structures, retaining walls, tunnels, excavations, earth fills, stability of earth slopes, sanitary landfill, and environmental remediation projects. Specifically, a student completing this course will:
2. Understanding the basic principles of soil mechanics and geotechnical engineering.
3. Learn the relevant terms and soil tests needed to describe and predict the behavior of a soil, permitting the student to work effectively with specialist in geotechnical engineering.
4. Solve fundamentals problems related to the flow of pore water, compression and consolidation, and shear strength of soil as required in geotechnical design.
5. Acquire the background knowledge needed to complete more advanced courses in geotechnical engineering (Foundation Eng., Advance soil mechanics and modeling).
6. Provide a strong physical and analytical understanding of soil mechanics in order to function in the capacity of civil engineer in an engineering company dealing with soil investigation and civil works.
7. Provide a background to higher level courses involving soil mechanics, seepage and soil testing.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

At the end of the class, the student will be able to:

A1. Define soil and soil mechanics and distinguish between soil and rock, and understand and define the basic soil properties; especially particle-size, density and specific gravity.

A2. Understanding the weight-volume relations defining the soil properties.

A3. Be familiar with engineering soil classification systems such as unified soil classification system used by civil engineers and AASHTO classification system which is used in the roads design.

A4. Understand the concept of soil compaction and factors affecting compaction which help civil engineer to evaluate the compaction works in the field. Also, learning about field and laboratory measurement of density and compaction techniques used in large projects.

A5. Solving the problems related to the permeability of soil, vertical flow and horizontal flow and flow in stratified soil.

A6.Know how to measure groundwater flow properties (pressure, velocity, discharge)

A7. Solving the continuity equation analytically and graphically by using flow net to calculate the quantity of seepage in soil.

A8. Analyze and calculate the overburden pressure and pore water pressure in soil.

A9. Analyze and calculate the stresses in soil mass at different depths which resulting from the application of external loads to soil (foundations) taking into consideration the shape of foundation and type of loading.

A10. Calculate the total settlement in soil, elastic settlement, primary consolidation settlement and secondary consolidation settlement.
A11. Solving the one dimensional consolidation theory by Terzaghi to estimate the time rate of consolidation.
A12. Studying the failure mechanism of soil, Mohr-Coulomb failure criteria, and shear strength tests.
A13. Be able to analyze the stresses variation in soil, the settlement in soil and shear strength parameters of soil.
A14. Be able to apply modern knowledge and to apply mathematics, science, engineering and technology to soil mechanics problems and applications.
A15. Design and conduct experiments of soil mechanics, as well as analyze, interpret data and apply the experimental results for the services.
A16. Work in groups and function on multi-disciplinary teams.
A17. Identify, formulate and solve engineering soil mechanics problems.
A18. Understand professional, social and ethical responsibilities.
A19. Communicate effectively.
A20. Use the techniques, skills, and modern engineering tools necessary for engineering practice in fluid mechanics applications.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Lab. Experiments.
5) Tests and Exams.
6) In-Class Questions and Discussions.
7) Connection between Theory and Application.
8) Field Trips.
9) Extracurricular Activities.
10) Seminars.
11) In- and Out-Class oral conservations.
12) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.

C2. Encouraging the teamwork between the students.

C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Enhancing the skill to perform any significant lab test for different engineering

D2. Improving site investigation skill.

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 2the. 1tut. 2exp.	a,l,m,n, o,p,q,r	Origin and Formation of soil and Rock Origins of soils Soil particle size Clay Minerals	1-12 of article (9)	1 – 4 of article (9)

٢	5 2the. 1tut. 2exp.	A1,A12-A18	Origin and Formation of soil and Rock Specific Gravity Mechanical analysis of soil Gradation of soil	1-12 of article (9)	1 – 4 of article (9)
٣	5 2the. 1tut. 2exp.	A2,A12-A18	Soil Composition Weight-volume relations Relative density	1-12 of article (9)	1 – 4 of article (9)
٤	5 2the. 1tut. 2exp.	A2,A12-A18	Soil Composition Consistency of soil Liquidity index Plasticity chart Soil Structure	1-12 of article (9)	1 – 4 of article (9)
٥	5 2the. 1tut. 2exp.	A2,A12-A18	Classification of Soil Textural Classification Classification by Engineering Behavior	1-12 of article (9)	1 – 4 of article (9)
٦	5 2the. 1tut. 2exp.	A2,A12-A18	Classification of Soil AASHTO and USCS classifications	1-12 of article (9)	1 – 4 of article (9)
٧	5 2the. 1tut. 2exp.	A2,A12-A18	Soil Compaction General Principals Standard and Modified Proctor Factors affecting compaction	1-12 of article (9)	1 – 4 of article (9)
٨	5 2the. 1tut. 2exp.	A2,A12-A18	Soil Compaction Field compaction Specification for field compactions	1-12 of article (9)	1 – 4 of article (9)
٩	5 2the. 1tut. 2exp.	A2,A12-A18	Soil Compaction Determinations of field unit weight of compaction	1-12 of article (9)	1 – 4 of article (9)

			Special compaction techniques		
١٠	5 2the. 1tut. 2exp.	A2,A12-A18	Effective stress concept Stress in saturated soils without seepage Stress in saturated soils with seepage	1-12 of article (9)	1 – 4 of article (9)
١١	5 2the. 1tut. 2exp.	A3,A12-A18	Effective stress concept Seepage forces Heaving in soil caused by flow around sheet piles	1-12 of article (9)	1 – 4 of article (9)
١٢	5 2the. 1tut. 2exp.	A3,A12-A18	Effective stress concept Effective stress in partially saturated soils Capillary rise in soils Effective stress in the zone of Capillary rise	1-12 of article (9)	1 – 4 of article (9)
١٣	5 2the. 1tut. 2exp.	A3,A12-A18	Stress in soil mass Normal and shear stress on a plane The pole method of finding stress along a plane Stress caused by a point load	1-12 of article (9)	1 – 4 of article (9)
١٤	5 2the. 1tut. 2exp.	A3,A12-A18	Stress in soil mass Vertical Stress caused by 1- a point load 2- a line load 3- a strip load 4- due to embankment loading	1-12 of article (9)	1 – 4 of article (9)

			Vertical stress below the center of a uniformly loaded circular area		
١٥	5 2the. 1tut. 2exp.	A3,A12-A18	Stress in soil mass Vertical stress caused by a rectangular loaded area Influence chart for vertical loads Average vertical stress increase caused by rectangular loaded area	1-12 of article (9)	1 – 4 of article (9)
١٦	5 2the. 1tut. 2exp.	A4,A12-A18	Flow in one and two dimensions Introduction Hydraulic gradient Darcy's law	1-12 of article (9)	1 – 4 of article (9)
١٧	5 2the. 1tut. 2exp.	A4,A12-A17	Flow in one and two dimensions Coefficient of permeability Laboratory determination of hydraulic conductivity Empirical relations Equivalent permeability in stratified soils	1-12 of article (9)	1 – 4 of article (9)
١٨	5 2the. 1tut. 2exp.	A4,A12-A17	Flow in one and two dimensions Permeability tests in field Continuity Equation	1-12 of article (9)	1 – 4 of article (9)

			Mathematical solution Flow nets Uplift pressure Seepage through an earth dam		
١٩	5 2the. 1tut. 2exp.	A4,A12-A17	Compressibility of soil Introduction Elastic settlement	1-12 of article (9)	1 – 4 of article (9)
٢٠	5 2the. 1tut. 2exp.	A5,A12-A17	Compressibility of soil Consolidation settlement One-dimensional consolidation test	1-12 of article (9)	1 – 4 of article (9)
٢١	5 2the. 1tut. 2exp.	A5,A12-A17	Compressibility of soil Void ratio-pressure plot NC and OC soils Calculation of consolidation Settlement	1-12 of article (9)	1 – 4 of article (9)
٢٢	5 2the. 1tut. 2exp.	A5,A12-A17	Compressibility of soil Calculation of consolidation Settlement	1-12 of article (9)	1 – 4 of article (9)
٢٣	5 2the. 1tut. 2exp.	A6, A7,A12-A18	Compressibility of soil Compression index Cc Swell index Cs Secondary consolidation settlement	1-12 of article (9)	1 – 4 of article (9)
٢٤	5 2the. 1tut. 2exp.	A8, A9,A12-A17	Compressibility of soil Time rate of consolidation	1-12 of article (9)	1 – 4 of article (9)

٢٥	5 2the. 1tut. 2exp.	A8, A9,A12-A18	Compressibility of soil Coefficient of consolidation Calculation of consolidation settlement under a foundation Total Foundation settlement	1-12 of article (9)	1 – 4 of article (9)
٢٦	5 2the. 1tut. 2exp.	A10,A12-A17	Shear strength of soil Introduction	1-12 of article (9)	1 – 4 of article (9)
٢٧	5 2the. 1tut. 2exp.	A10,A12-A17	Shear strength of soil Mohr-coulomb failure criteria Determination of shear strength parameters for soils in the laboratory	1-12 of article (9)	1 – 4 of article (9)
٢٨	5 2the. 1tut. 2exp.	A10,A12-A18	Shear strength of soil Direct shear test Triaxial shear test	1-12 of article (9)	1 – 4 of article (9)
٢٩	5 2the. 1tut. 2exp.	A11,A12-A17	Shear strength of soil Unconfined compression test of saturated clay General comments on triaxial tests	1-12 of article (9)	1 – 4 of article (9)
٣٠	5 2the. 1tut. 2exp.	A11,A12-A18	Shear strength of soil Stress Path	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure

1. Books Required reading:	Principle of Geotechnical Engineering, By B. M. Das, 6th edition, PWS Publishing Co., 2006
2. Main references (sources)	1. Craig's Soil Mechanics, By R. F Craig, 7th edition, Spon Press, 2004. 2. Soil Mechanics, Basic Concepts and Engineering Applications, By A. Aysen, 2002, A. A. Balkema Publishers.
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	Soil Mechanics, By Arnold Verruijt, 2006, http://geo.verruijt.net.

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Reinforced Concrete / CE 303**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020

6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1. Introduce students in to modern design theory and its applications to reinforced concrete structures. This include introduce students to definition of structural design, load estimations, structural systems, deterministic and non-deterministic design issues and role of codes and specifications in design process.
2. Brief review of material properties for concrete and reinforcing rebars.
3. Showing drawbacks of conventional flexure formula and derived more sophisticated relations that could be used in analysis and design of singly, doubly, T-shaped, and irregular shapes reinforced concrete sections. All derivations are based on basic principles of structural engineering, namely compatibility, equilibrium, and constitutive relations. ACI code regulations related to flexure are presented thoroughly.
4. Presentations of theoretical and empirical relations related to shear and diagonal tensions. Many examples are presented to show how ACI shear regulations could be applied to practical problems.
5. Introducing students in basic concepts and code regulations related to:
    a. Development of tensions rebars based on embedded length.
    b. Development of tension rebars based on standard hooks.
    c. Development of compression rebars.
    d. Development of bundled rebars.
    e. Anchorage requirement for web reinforcement.
    f. Development length and cutoff points for flexure reinforcement.
    g. Lap splices.
6. Presenting theoretical and code regulations related to design for torsions including:
    a. Reviewing torsional behavior of homogenous beams.
    b. Introducing basic concepts of torsional behavior of reinforced concrete beams.
    c. Discussing difference between equilibrium and compatibility torsion from ACI code point of view.
    d. Presenting many examples to show how ACI pertains regulations could be applied to practical problems.
7. Presenting student for:
    a. Definition of one-way and two-way edged supported slabs and to a criterion to distinguish between them.
    b. ACI regulations related to deflection control, bending moments and shear forces determinations, and reinforcement selections for one-way and two-way edge supported slabs.

c. Determination of load sharing of supporting beams
d. Many practical examples.

8. Introducing student for:
   a. ACI definition of RC columns.
   b. Analysis and design of axially loaded columns.
   c. Analysis of design of columns that subjected to an axial load and a uniaxial moment.
   d. Analysis of columns that subjected an axial load and biaxial moments.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. Proposed a suitable structural system for a reinforced concrete building. This system will be compatible with architectural and functional requirements of the building.
A2. Predicate service loads with good accuracy and predicate factored loads according to ACI code requirements.
A3. Assess or propose adequate slab thickness for deflection control according provisions of ACI code.
A4. Determine internal forces, bending moments and shear forces, in edge supported concrete slab with a level of accuracy that is accepted by ACI code.
A5. Assess or select suitable slab reinforcements for a specified moments in edge supported RC slabs.
A6. Assess a proposed slab thickness for one-way shear requirements.
A7. Estimate accurately load shares that transfer from supported slabs to the supporting beams.
A8. Estimate accurately resulting bending moments and shear forces in the supporting beams.
A9. Assess or design of beams for flexure.
A10. Assess or design of beams for shear and diagonal tension.
A11. Assess or design of beams for torsion.
A12. Check adequacy or design of reinforcement details related to development length, splice, and cutoff points.
A13. Assess or design of short columns.
A14. Assess or design of slender columns.

B. The skills goals special to the course.

Teaching and Learning Methods

1) Lectures.
2) Tutorials.
3) Homework and Assignments.
4) Tests and Exams.
5) In-Class Questions and Discussions.
6) Connection between Theory and Application.
7) Extracurricular Activities.
8) Seminars.
9) In- and Out-Class oral conservations.
10) Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 3the. 1tut.	A1 & A2	Introduction	1-10 of article (9)	1 – 4 of article (9)
٢	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٣	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٤	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٥	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٦	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٧	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٨	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
٩	4 3the. 1tut.	A9	Flexure Analysis and Design of Beams	1-10 of article (9)	1 – 4 of article (9)
١٠	4 3the. 1tut.	A10	Shear and Diagonal Tension.	1-10 of article (9)	1 – 4 of article (9)

١١	4 3the. 1tut.	A10	Shear and Diagonal Tension.	1-10 of article (9)	1 – 4 of article (9)
١٢	4 3the. 1tut.	A10	Shear and Diagonal Tension.	1-10 of article (9)	1 – 4 of article (9)
١٣	4 3the. 1tut.	A10	Shear and Diagonal Tension.	1-10 of article (9)	1 – 4 of article (9)
١٤	4 3the. 1tut.	A10	Shear and Diagonal Tension.	1-10 of article (9)	1 – 4 of article (9)
١٥	4 3the. 1tut.	A10	Shear and Diagonal Tension.	1-10 of article (9)	1 – 4 of article (9)
١٦	4 3the. 1tut.	A12	Bond, Development Length, and Anchorage.	1-10 of article (9)	1 – 4 of article (9)
١٧	4 3the. 1tut.	A12	Bond, Development Length, and Anchorage.	1-10 of article (9)	1 – 4 of article (9)
١٨	4 3the. 1tut.	A12	Bond, Development Length, and Anchorage.	1-10 of article (9)	1 – 4 of article (9)
١٩	4 3the. 1tut.	A11	Analysis and Design for Torsion	1-10 of article (9)	1 – 4 of article (9)
٢٠	4 3the. 1tut.	A3-A8	One-way Slabs and Approximate Analysis of Continuous Beams	1-10 of article (9)	1 – 4 of article (9)
٢١	4 3the. 1tut.	A3-A8	One-way Slabs and Approximate Analysis of Continuous Beams	1-10 of article (9)	1 – 4 of article (9)
٢٢	4 3the.	A3-A8	Edge Supported Two-way Slabs	1-10 of article (9)	1 – 4 of article (9)

	1tut.				
٢٣	4 3the. 1tut.	A3-A8	Edge Supported Two-way Slabs	1-10 of article (9)	1 – 4 of article (9)
٢٤	4 3the. 1tut.	A13	Short Columns	1-10 of article (9)	1 – 4 of article (9)
٢٥	4 3the. 1tut.	A13	Short Columns	1-10 of article (9)	1 – 4 of article (9)
٢٦	4 3the. 1tut.	A13	Short Columns	1-10 of article (9)	1 – 4 of article (9)
٢٧	4 3the. 1tut.	A13	Short Columns	1-10 of article (9)	1 – 4 of article (9)
٢٨	4 3the. 1tut.	A13	Short Columns	1-10 of article (9)	1 – 4 of article (9)
٢٩	4 3the. 1tut.	A14	Slender Columns	1-10 of article (9)	1 – 4 of article (9)
٣٠	4 3the. 1tut	A14	Slender Columns	1-10 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1. A. H. Nilson, D. Darwin, and C. W. Dolan, Design of Concrete Structures, 14th Edition, McGraw Hill, 2010 (Metric Edition). 2. Building Code Requirements for Structural Concrete (ACI318M- 2008).
2. Main references (sources)	1. . K. Wight and J. G. MacGregor, Reinforced Concrete: Mechanics and Design, 5th Edition, Person/Prentice Hall, 2009. 2. E. G. Nawy, Reinforced Concrete: A Fundamental Approach, 6th Edition, Prentice Hall, 2009.

	3. C.K. Wang, C.G. Salmon and J. A. Pincheira, Reinforced Concrete Design, 7th Edition, John Wiley & Sons, 2007. 4. J.C. McCormac and R. H. Brown, Design of Reinforced Concrete, 8th Edition, John Wiley & Sons, 2009. 5. M. N. Hassoun, A. Al-Manaseer, Structural Concrete: Theory and Design, 3rd Edition, Addison–Wesley, 2005. 6. G.F. Limbrunner and A.O. Aghayere, Reinforced Concrete Design, 7th Edition, Prentice Hall, 2010. 7. M. Setareh, and R. Darvas, Concrete Structure, Prentice Hall, 2007. 8. M. E. Kamara, B. G. Rabbat, Notes on ACI 318-05, 9th Edition, 2005.
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Water Resources Engineering / CE 304**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a “Day Program”. The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020

6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1. Understand the key drivers on water resources, both for drinking water and food production;
2. Understand the individual hydrological processes and their integrated behavior in catchments;
3. Appreciate the use of modeling techniques for water resources management;
4. Have an ability to construct and design of hydrological irrigation and drainage
5. canals And groundwater problems.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. After teaching, students acquire the knowledge necessary for the design and the technical-economic management of irrigation and drainage..

A2. In particular, the student is able to design the plant components of irrigation is under pressure to free surface flow and managing the water resource with the most appropriate criteria and with the most appropriate irrigation methods and systems drainage, including the assessment of their economic costs.

A3. Understand the key drivers on water resources, and water quality.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods
1. Examinations, Tests, and Quizzes. 2. Extracurricular Activities. 3. Student Engagement during Lectures. 4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).
C. Affective and value goals C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time. C2. Encouraging the teamwork between the students. C3. Cooperating the universal activities. C4. Supporting the extra-curricular university activities and urging students to participate in them.
Teaching and Learning Methods.
1) Homework and Assignments. 2) In-Class Questions and Discussions. 3) Field Trips. 4) Extracurricular Activities. 5) Seminars. 6) In- and Out-Class oral conservations. 7) Reports, Presentations, and Posters.
Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2the.		Introduction.	1-12 of article (9)	1 – 4 of article (9)

	1tut.				
٢	3 2the. 1tut.	A1 & A2	Hydraulic design of canals-lined & unlined by several methods such as Manning method, section factor method,Lacy's method	1-12 of article (9)	1 – 4 of article (9)
٣	3 2the. 1tut.	A1 & A2	Hydraulic design of canals-lined & unlined by several methods such as Manning method, section factor method,Lacy's method	1-12 of article (9)	1 – 4 of article (9)
٤	3 2the. 1tut.	A1 & A2	Hydraulic design of canals-lined & unlined by several methods such as Manning method, section factor method,Lacy's method	1-12 of article (9)	1 – 4 of article (9)
٥	3 2the. 1tut.	A1 & A2	Hydraulic design of canals-lined & unlined by several methods such as Manning method, section factor method, Lacy's method	1-12 of article (9)	1 – 4 of article (9)
٦	3 2the. 1tut.	A1 & A2	Hydraulic design of canals-lined & unlined by several methods such as Manning method, section factor method, Lacy's method	1-12 of article (9)	1 – 4 of article (9)

٧	3 2the. 1tut.	A1 & A2	Hydraulic design of canals-lined & unlined by several methods such as Manning method, section factor method, Lacy's method	1-12 of article (9)	1 – 4 of article (9)
٨	3 2the. 1tut.	A1 & A2	Introduction to lining -types, advantages, disadvantages.	1-12 of article (9)	1 – 4 of article (9)
٩	3 2the. 1tut.	A1 & A2	Introduction to lining -types, advantages, disadvantages.	1-12 of article (9)	1 – 4 of article (9)
١٠	3 2the. 1tut.	A3	Water quality of rivers-stream sampling, pollution index	1-12 of article (9)	1 – 4 of article (9)
١١	3 2the. 1tut.	A3	Water quality of rivers-stream sampling, pollution index	1-12 of article (9)	1 – 4 of article (9)
١٢		A3	Water quality of rivers-stream sampling, pollution index	1-12 of article (9)	1 – 4 of article (9)
١٣	3 2the. 1tut.	A1	Infiltration	1-12 of article (9)	1 – 4 of article (9)
١٤	3 2the. 1tut.	A1 & A2	Ground water movement	1-12 of article (9)	1 – 4 of article (9)
١٥	3 2the. 1tut.	A1 & A2	Ground water movement	1-12 of article (9)	1 – 4 of article (9)

١٦	3 2the. 1tut.	A1 & A2	Ground water movement	1-12 of article (9)	1 – 4 of article (9)
١٧	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
١٨	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
١٩	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
٢٠	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
٢١	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
٢٢	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
٢٣	3 2the. 1tut.	A1 & A2	Drainage system-surface drainage-open drains-closed drains-drainage wells.	1-12 of article (9)	1 – 4 of article (9)
٢٤	3 2the. 1tut.	A1 & A2	Dams-earth dams, gravity dams.	1-12 of article (9)	1 – 4 of article (9)

٢٥	3 2the. 1tut.	A1 & A2	Dams-earth dams, gravity dams.	1-12 of article (9)	1 – 4 of article (9)
٢٦	3 2the. 1tut.	A1 & A2	Dams-earth dams, gravity dams.	1-12 of article (9)	1 – 4 of article (9)
٢٧	3 2the. 1tut.	A1, A2 & A3	Seminars	1-12 of article (9)	1 – 4 of article (9)
٢٨	3 2the. 1tut.	A1, A2 & A3	Seminars	1-12 of article (9)	1 – 4 of article (9)
٢٩	3 2the. 1tut.	A1, A2 & A3	Seminars	1-12 of article (9)	1 – 4 of article (9)
٣٠	3 2the. 1tut.	A1, A2 & A3	Seminars	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	- Irrigation engineering by:R.K.Sharma2009 Water resources engineering by: Larry W. Mays 2010. - Irrigation& water resources engineering by:G.L.Asawa2008
2. Main references (sources)	
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**HIRD YEAR** **Engineering Analysis / CE 305**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. Introduce basic definition and explain the basic concepts that essential in connection with differential equations and illustrate these concepts by examples. 2. Explain the purpose of differential equations and their application. 3. Enable the student to solve the differential equations (ordinary and partial). 4. Introduce basic definition and explain the basic concepts of Fourier series. These series are a very powerful tool in connection with various problems involving ordinary and partial differential equations. 5. Enable the student to solve examples and some important engineering applications will be included. 6. Provide a background to higher level courses involving mathematics.	
9· Learning Outcomes, Teaching ,Learning and Assessment Method	

A- Cognitive goals.

A1. Classified any differential equation.
A2. solved any differential equation.
A3 Translation of the given physical information into a mathematical form (modeling). This model may be a differential equation, a system of linear equations, or some other mathematical expression.
A4. Treatment of the model by mathematical methods. This will lead to the solution of the given problem in mathematical form.
A5. solved Fourier series
A6. solved any partial differential equation.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Extracurricular Activities.
8. Seminars.
9. In- and Out-Class oral conservations.
10. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2the. 1tut.	A1	Classified differential equation	1-10 of article (9)	1 – 4 of article (9)
٢	3 2the. 1tut.	A1 & A2	The solution of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
٣	3 2the. 1tut.	A1 & A2	The solution of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
٤	3 2the. 1tut.	A1 & A2	The solution of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
٥	3 2the. 1tut.	A1 – A4	The solution of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)

٦	3 2the. 1tut.	A1 – A4	The solution of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
٧	3 2the. 1tut.	A1 – A4	The solution of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
٨	3 2the. 1tut.	A1 & A2	The solution of 2nd order D.E	1-10 of article (9)	1 – 4 of article (9)
٩	3 2the. 1tut.	A1 & A2	The solution of 2nd order D.E	1-10 of article (9)	1 – 4 of article (9)
١٠	3 2the. 1tut.	A1 & A2	The solution of 2nd order D.E	1-10 of article (9)	1 – 4 of article (9)
١١	3 2the. 1tut.	A1 – A4	Application of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
١٢		A1 – A4	Application of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
١٣	3 2the. 1tut.	A1 – A4	Application of 1st order D.E	1-10 of article (9)	1 – 4 of article (9)
١٤	3 2the. 1tut.	A1 & A2	The solution of higher order D.E	1-10 of article (9)	1 – 4 of article (9)
١٥	3 2the. 1tut.	A1 & A2	The solution of higher order D.E	1-10 of article (9)	1 – 4 of article (9)
١٦	3 2the. 1tut.	A1 – A4	The solution of higher order D.E	1-10 of article (9)	1 – 4 of article (9)

١٧	3 2the. 1tut.	A1 – A4	The solution of higher order D.E	1-10 of article (9)	1 – 4 of article (9)
١٨	3 2the. 1tut.	A1 & A2	The solution of simultaneous D.E	1-10 of article (9)	1 – 4 of article (9)
١٩	3 2the. 1tut.	A1 & A2	The solution of simultaneous D.E	1-10 of article (9)	1 – 4 of article (9)
٢٠	3 2the. 1tut.	A1 – A4	The solution of simultaneous D.E	1-10 of article (9)	1 – 4 of article (9)
٢١	3 2the. 1tut.	A1 & A5	Fourier series	1-10 of article (9)	1 – 4 of article (9)
٢٢	3 2the. 1tut.	A1 & A5	Fourier series	1-10 of article (9)	1 – 4 of article (9)
٢٣	3 2the. 1tut.	A1 & A5	Fourier series	1-10 of article (9)	1 – 4 of article (9)
٢٤	3 2the. 1tut.	A1, A2 & A6	Application of Fourier series	1-10 of article (9)	1 – 4 of article (9)
٢٥	3 2the. 1tut.	A1 & A1	Partial differential equations	1-10 of article (9)	1 – 4 of article (9)
٢٦	3 2the. 1tut.	A1 & A1	Partial differential equations	1-10 of article (9)	1 – 4 of article (9)

٢٧	3 2the. 1tut.	A1,A2, A5 & A6	Application of P.D.ES	1-10 of article (9)	1 – 4 of article (9)
٢٨	3 2the. 1tut.	A1,A2, A5 & A6	Application of P.D.ES	1-10 of article (9)	1 – 4 of article (9)
٢٩	3 2the. 1tut.	A1,A2, A5 & A6	Application of P.D.ES	1-10 of article (9)	1 – 4 of article (9)
٣٠	3 2the. 1tut.	A1,A2, A5 & A6	Application of P.D.ES	1-10 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	- Advanced engineering analysis by Wylie - Advance engineering analysis by Grizeg
2. Main references (sources)	
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad

2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Traffic Engineering / CE 306**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

This course deals with the technical aspects of traffic engineering. It covers the analytical procedures and computational methods employed in a wide variety of tasks related to traffic operations and control. A person who completes this course will be able to identify operational problems to carry out traffic engineering studies and evaluate alternative solutions.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. Understand critical components of the traffic system that are drivers, vehicles, roads and highways, physical environment, and control devices interact to form traffic streams.

A2. Know how to conduct basic traffic engineering studies and apply proper statistical tests to test hypotheses

A3. Understand the capacity and level of service concepts and use them to evaluate the performance of highways and streets

A4. Know how to select proper control devices and place them to positively guide the motorists

A5. Know how to apply the traffic signal warrants

A6. Understand the principles of traffic signal timing and the process of determining proper phasing and phase sequence

A7. Know how to properly analyze the performance of signalized intersections

A8. Know how to properly analyze the performance of two way-two lane highway

A9. Know how to design the cross section (No. of lanes) of highway.

B. The skills goals special to the course.

The program planning to build and modified the following skills:

B1. Survey field applications.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.

C2. Encouraging the teamwork between the students.

C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)
D1. Improving site investigation skill.

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2the. 1exp.	A1	Introduction to traffic engineering	1-12 of article (9)	1 – 4 of article (9)
٢	3 2the. 1exp.	A1	Traffic stream components 1- Roadway characteristics	1-12 of article (9)	1 – 4 of article (9)
٣	3 2the. 1exp.	A1	2- Road user characteristics	1-12 of article (9)	1 – 4 of article (9)
٤	3 2the. 1exp. 3 2the. 1exp.	A1	3- Vehicle characteristics	1-12 of article (9)	1 – 4 of article (9)
٥	3 2the. 1exp.	A2	Traffic Volume characteristics	1-12 of article (9)	1 – 4 of article (9)
٦	3 2the. 1exp.	A2	Speed types and characteristics	1-12 of article (9)	1 – 4 of article (9)

٧	3 2the. 1exp.	A3	Traffic Density Definition and characteristics	1-12 of article (9)	1 – 4 of article (9)
٨	3 2the. 1exp.	A3	1-Relationship among volume, speed and density, 2-The Greenshields linear model	1-12 of article (9)	1 – 4 of article (9)
٩	3 2the. 1exp.	A3	3- Greenberg's logarithmic model,	1-12 of article (9)	1 – 4 of article (9)
١٠	3 2the. 1exp.	A3	Bottleneck and shockwave	1-12 of article (9)	1 – 4 of article (9)
١١	3 2the. 1exp.	A3	Spot speed, travel time, and delay studies	1-12 of article (9)	1 – 4 of article (9)
١٢	3 2the. 1exp.	A3	Statistics and application in traffic engineering 1- Normal distribution	1-12 of article (9)	1 – 4 of article (9)
١٣	3 2the. 1exp.	A2	2- Poisson distribution	1-12 of article (9)	1 – 4 of article (9)
١٤	3 2the. 1exp.	A2	3. Negative exponential distribution.	1-12 of article (9)	1 – 4 of article (9)
١٥	3 2the. 1exp.	A1	4. Car Parking	1-12 of article (9)	1 – 4 of article (9)
١٦	3 2the. 1exp.	A4	Traffic Control Device (Signal, Sign, Marking)	1-12 of article (9)	1 – 4 of article (9)
١٧	3 2the. 1exp.	A4, A5	Intersection 1-(Basic types, Requirements,	1-12 of article (9)	1 – 4 of article (9)

١٨	3 2the. 1exp.	A5	2. Control types and warrants	1-12 of article (9)	1 – 4 of article (9)
١٩	3 2the. 1exp.	A6	3. Signal timing (Webster model)	1-12 of article (9)	1 – 4 of article (9)
٢٠	3 2the. 1exp.	A7	Traffic capacity analysis (HCM method)	1-12 of article (9)	1 – 4 of article (9)
٢١	3 2the. 1exp.	A8	1. operational analysis and design of multi lanes highway	1-12 of article (9)	1 – 4 of article (9)
٢٢	3 2the. 1exp.	A8	Examples for operational analysis and design of multi lanes highway	1-12 of article (9)	1 – 4 of article (9)
٢٣	3 2the. 1exp.	A8	2. operational analysis and design of two lanes highway	1-12 of article (9)	1 – 4 of article (9)
٢٤	3 2the. 1exp.	A8	Examples for operational analysis and design of two lanes highway	1-12 of article (9)	1 – 4 of article (9)
٢٥	3 2the. 1exp.	A8	Interchang Interchanges (definition and typeses (definition and types	1-12 of article (9)	1 – 4 of article (9)
٢٦	3 2the. 1exp.	A1	Design of lighting poles for highway and streets	1-12 of article (9)	1 – 4 of article (9)
٢٧	3 2the. 1exp.	A9	Visiting guest lecture	1-12 of article (9)	1 – 4 of article (9)
٢٨	3 2the.	A9	Seminars	1-12 of article (9)	1 – 4 of article (9)

	1exp.				
٢٩	3 2the. 1exp.	A7	Seminars	1-12 of article (9)	1 – 4 of article (9)
٣٠	3 2the. 1exp.	A8	Seminars	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1-Traffic Engineering, by Roger P. Roess, Elena S. Prassas and William R. McShane 2- Highway Capacity Manual (HCM) 3- Garber, Nicholas, J. and Lester A. Hoel. Traffic and Highway Engineering. PWS Publishing, New York, 1999 4-Banks, James H. Introduction to Transportation Engineering. Second Edition, McGraw-Hill, New York, NY, 2001. 5-American Association of State Highway and Transportation Officials (2004), A Policy on Geometric Design of Highways and Streets, AASHTO, Washington, DC.
2. Main references (sources)	Laboratory experiments in the (traffic engineering) as well as computer lab. in the department.
A- Recommended books and References (scientific journals, reports…).	Available websites related to the subject. www.ITE.org
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Engineering Management and Economy / CE 307**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

Engineering Economy :

1. Understand the types of questions engineering economy can answer.
2. Determine the role of engineering economy in the decision-making process.
3. Identify what is needed to successfully perform an engineering economy study.
4. Perform calculations about interest rates and rate of return.
5. Understand what equivalence means in economic terms.
6. Calculate simple interest and compound interest for one or more interest periods.
7. Identify and use engineering economy terminology and symbols.
8. Understand cash flows, their estimation, and how to graphically represent them.

Construction Management :

1. Students will learn primary construction systems.
2. Students will learn primary construction methods and materials.
3. Students will develop construction cost accounting, management and control knowledge and skills.
4. Students will learn construction project management and control systems.
5. Students will understand professional ethical responsibility.
6. Students will learn to function as a member of a team.

7. Students will learn computer skills and applications common to the construction industry.
8. Students will learn to communicate effectively.
9. Students will learn to apply mathematic skills to solve construction problems.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. An ability to select and apply the knowledge, technique, skills, and modern tools of the discipline to broadly-defined construction management activities;
A2. an ability to select and apply knowledge of mathematics, science, business, management, construction and construction science to problems that require the application of construction management principles and applied procedures or methodologies;
A3. an ability to identify, sequence, schedule, and estimate the costs of critical construction activities as associated with successful construction proposals;
A4. the ability to display fundamental knowledge of critical aspects of the body of knowledge expected of constructors entering the construction management profession;
A5. an ability to function effectively as a member or leader on a construction team;
A6. an ability to identify, analyze and solve broadly-defined construction problems;
A7. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
A8. an understanding of the need for an ability to engage in self-directed continuing professional development;
A9. an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
A10. a knowledge of the impact of construction in a societal and global context; and
A11. a commitment to cost-effectiveness, quality, timeliness and continuous improvement.

B. The skills goals special to the course.

The program planning to build and modified the following skills:

B1. Site management's controls.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development.)

D1. Increasing the ability to use the design and analysis software.

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2the. 1tut.	A1	Definitions	1-11 of article (9)	1 – 4 of article (9)
٢	3 2the. 1tut.	A2 & A3	Management Duties during Construction of Project, Requirements of Successful Project Planning	1-11 of article (9)	1 – 4 of article (9)
٣	3 2the. 1tut.	A1-A3	Project Planning Methods (Bar-Chart)	1-11 of article (9)	1 – 4 of article (9)
٤	3 2the. 1tut.	A1-A3	Project Planning Methods (Bar-Chart)	1-11 of article (9)	1 – 4 of article (9)
٥	3 2the. 1tut.	A1-A3 & A7	Net-Work Analysis	1-11 of article (9)	1 – 4 of article (9)
٦	3 2the. 1tut.	A1-A3 & A7	Net-Work Analysis	1-11 of article (9)	1 – 4 of article (9)
٧	3 2the. 1tut.	A1-A3 & A7	Net-Work Analysis	1-11 of article (9)	1 – 4 of article (9)
٨	3 2the.	A1-A3 & A7	Net-Work Analysis	1-11 of article (9)	1 – 4 of article (9)

	1tut.				
٩	3 2the. 1tut.	A1-A3 & A7	Grid Methods	1-11 of article (9)	1 – 4 of article (9)
١٠	3 2the. 1tut.	A1-A3 & A7	Program updating	1-11 of article (9)	1 – 4 of article (9)
١١	3 2the. 1tut.	A1-A3 & A7	Program updating	1-11 of article (9)	1 – 4 of article (9)
١٢		A1-A3 & A7	Precedence diagram	1-11 of article (9)	1 – 4 of article (9)
١٣	3 2the. 1tut.	A1-A3 & A7	Precedence diagram	1-11 of article (9)	1 – 4 of article (9)
١٤	3 2the. 1tut.	A4-A6	Crashed program	1-11 of article (9)	1 – 4 of article (9)
١٥	3 2the. 1tut.	A4-A6	Crashed program	1-11 of article (9)	1 – 4 of article (9)
١٦	3 2the. 1tut.	A4-A6 & A9	Resources Allocation	1-11 of article (9)	1 – 4 of article (9)
١٧	3 2the. 1tut.	A4-A6 & A9	Resources Allocation	1-11 of article (9)	1 – 4 of article (9)
١٨	3 2the. 1tut.	A7-A10	Introduction to Science of Economy, kind of interest	1-11 of article (9)	1 – 4 of article (9)

١٩	3 2the. 1tut.	A7-A10	Simple & compound interest	1-11 of article (9)	1 – 4 of article (9)
٢٠	3 2the. 1tut.	A7-A10	Simple & compound interest	1-11 of article (9)	1 – 4 of article (9)
٢١	3 2the. 1tut.	A7-A10	Nominal & effective interest rate	1-11 of article (9)	1 – 4 of article (9)
٢٢	3 2the. 1tut.	A7-A10	Uniform series of payments (Annuities)	1-11 of article (9)	1 – 4 of article (9)
٢٣	3 2the. 1tut.	A7-A10	Uniform series of payments (Annuities)	1-11 of article (9)	1 – 4 of article (9)
٢٤	3 2the. 1tut.	A7-A10	Depreciation	1-11 of article (9)	1 – 4 of article (9)
٢٥	3 2the. 1tut.	A7-A10	Depreciation	1-11 of article (9)	1 – 4 of article (9)
٢٦	3 2the. 1tut.	A7-A10	Depreciation	1-11 of article (9)	1 – 4 of article (9)
٢٧	3 2the. 1tut.	A7-A10	Alternatives, Economical Studies	1-11 of article (9)	1 – 4 of article (9)
٢٨	3 2the. 1tut.	A7-A10	Alternatives, Economical Studies	1-11 of article (9)	1 – 4 of article (9)
٢٩	3 2the.	A7-A10	Using of Statistical	1-11 of article (9)	1 – 4 of article (9)

	1tut.		Methods in Engineering Economy.		
٣٠	3 2the. 1tut.	A7-A10	Using of Statistical Methods in Engineering Economy.	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	Engineering Economy by Degarmo 2. Construction planning, Equipment and methods by Peurifoy
2. Main references (sources)	Construction Management Principles of construction management By: Roy Pitlcher Modern Construction management By: F. Harrris Critical path methods in construction practice By: Antill
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad

2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR Computer Applications / CE 308**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

This course deals with the Staad Pro and MS Project Programs.
The STAAD Pro is a Graphical User Interface (GUI) is normally used to create all input specifications and all output reports and displays. These structural modeling and analysis input specifications are stored in a text file with extension ".STD. A user may edit/create this STD file and have the GUI and the analysis engine both reflect the changes. A STRUCTURE can be defined as an assemblage of elements.
STAAD is capable of analyzing and designing structures consisting of frame, plate/shell and solid elements. These structures types are Space, Plane, Floor and Truss.
MS Project is software used to schedule the tasks of a project in a simplified manner and provide completed reports about time scheduling, costs, and resources (human, material, and equipment). These reports are graphic and tables forms which helps the engineers and top management to understand the sequence of project activities, the relationships between them, the costs associated to each activity, the holidays and stopped days, percent of completion, resources allocation, and other features.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A1. Analysis of 2D Frames by Staad Pro program.
A2. Analysis of 2D Trusses by Staad Pro program.
A3. Analysis of Space Frames by Staad Pro program.
A4. Analysis of Space Trusses by Staad Pro program.
A5. Design of R.C. Frames (According to ACI Code) by Staad Pro. program.
A6. Design of Steel Frames (According to AISC) by Staad Pro. program.
A7. Analysis & Design of Structures subjected Lateral & Environmental Loadings (Wind & Earthquake Loadings) by Staad Pro program.

A8. Embarking new Project: learning how can you schedule the project.
A9. Gantt Chart: learning how can enter information of all the activities.
A10. Grouping Tasks in Logical Order: Outlining helps organize your tasks into more manageable chunks.
A11. MS Project Views: MS project consist of many views such as Bar (Gantt) Chart, Network (CPM) view, Task Usage, Gantt Tracking, Resource Graph Resource Usage, Resource.
A12. Resource Sheet: create a list of the people, equipment, and material resources.
A13. Find Critical Path: helps you to lay out all tasks that must be completed as part of a project.

B. The skills goals special to the course.

The program planning to build and modified the following skills:

B1. Analysis and design software.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.

C2. Encouraging the teamwork between the students.

C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1 Improving site investigation skill.

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2the. 1exp.	A1	Introduction	1-11 of article (9)	1 – 4 of article (9)
٢	3 2the. 1exp.	A1 & A2	Type of structures and used units	1-11 of article (9)	1 – 4 of article (9)
٣	3 2the. 1exp.	A1 & A2	Types of used coordinate systems and Types of Elements	1-11 of article (9)	1 – 4 of article (9)
٤	3 2the.	A1 & A2	Control page	1-11 of article (9)	1 – 4 of article (9)

	1exp.				
٥	3 2the. 1exp.	A1, A2 & A3	Create elements	1-11 of article (9)	1 – 4 of article (9)
٦	3 2the. 1exp.	A1, A2 & A3	Create properties	1-11 of article (9)	1 – 4 of article (9)
٧	3 2the. 1exp.	A1, A2 & A3	Specifications in control page	1-11 of article (9)	1 – 4 of article (9)
٨	3 2the. 1exp.	A1, A2 & A3	Supports in control page	1-11 of article (9)	1 – 4 of article (9)
٩	3 2the. 1exp.	A1, A2 & A3	Load in control page	1-11 of article (9)	1 – 4 of article (9)
١٠	3 2the. 1exp.	A1, A2 & A3	Load in control page	1-11 of article (9)	1 – 4 of article (9)
١١	3 2the. 1exp.	A1, A2 & A3	Create materials in control page	1-11 of article (9)	1 – 4 of article (9)
١٢	3 2the. 1exp.	A1, A2 & A3	Analysis/Print in control page	1-11 of article (9)	1 – 4 of article (9)
١٣	3 2the. 1exp.	A4, A5 & A6	Post-processing	1-11 of article (9)	1 – 4 of article (9)
١٤	3 2the. 1exp.	A4, A5 & A6	Post-processing	1-11 of article (9)	1 – 4 of article (9)
١٥	3 2the. 1exp.	A1, A2 & A3	Staad Editor	1-11 of article (9)	1 – 4 of article (9)
١٦	3 2the. 1exp.	A1, A2 & A3	Staad Editor	1-11 of article (9)	1 – 4 of article (9)
١٧	3 2the. 1exp.	A4, A5 & A6	Staad Editor	1-11 of article (9)	1 – 4 of article (9)

١٨	3 2the. 1exp.	A4, A5 & A6	Staad Editor	1-11 of article (9)	1 – 4 of article (9)
١٩	3 2the. 1exp.	A7	Staad Editor	1-11 of article (9)	1 – 4 of article (9)
٢٠	3 2the. 1exp.	A8	Introduction	1-11 of article (9)	1 – 4 of article (9)
٢١	3 2the. 1exp.	A8	Embarking new Project	1-11 of article (9)	1 – 4 of article (9)
٢٢	3 2the. 1exp.	A8	Embarking new Project	1-11 of article (9)	1 – 4 of article (9)
٢٣	3 2the. 1exp.	A9	Gantt Chart	1-11 of article (9)	1 – 4 of article (9)
٢٤	3 2the. 1exp.	A9	Gantt Chart	1-11 of article (9)	1 – 4 of article (9)
٢٥	3 2the. 1exp.	A10	Grouping Tasks in Logical Order (WBS Outline)	1-11 of article (9)	1 – 4 of article (9)
٢٦	3 2the. 1exp.	A10	Grouping Tasks in Logical Order (WBS Outline)	1-11 of article (9)	1 – 4 of article (9)
٢٧	3 2the. 1exp.	A11	MS Project Views	1-11 of article (9)	1 – 4 of article (9)
٢٨	3 2the. 1exp.	A11	MS Project Views	1-11 of article (9)	1 – 4 of article (9)
٢٩	3 2the. 1exp.	A12	Resource Sheet	1-11 of article (9)	1 – 4 of article (9)
٣٠	3 2the. 1exp.	A13	Find Critical Path	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	Technical reference in Staad Pro. 2007 Help Internet for MS Project
2. Main references (sources)	Computer lab. in the department. Available websites related to the subject.
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Numerical Methods / CE 309**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. Deriving appropriate numerical methods to solve algebraic and transcendental equations.	

2. Developing appropriate numerical methods to approximate a function.
3. Developing appropriate numerical methods to solve a differential equation.
4. Deriving appropriate numerical methods to evaluate a derivative at a value.
5. Deriving appropriate numerical methods to solve a linear system of equations.
6. Performing an error analysis for various numerical methods.
7. Proving results for various numerical root finding methods.
8. Deriving appropriate numerical methods to calculate a definite integral.
9. Coding various numerical methods in a modern computer language.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A1. Be aware of the use of numerical methods in modern scientific computing,
A2. Be familiar with finite precision computation,
A3. Be familiar with numerical solutions of nonlinear equations in a single variable,
A4. Be familiar with numerical solutions of system of linear equations in a single variable,
A5. Be familiar with numerical interpolation and approximation of functions.
A6. Be familiar with numerical integration and differentiation.
A7. Be familiar with numerical solution of ordinary differential equations.
A8. Be familiar with calculation and interpretation of errors in numerical methods.
A9. Be familiar with programming with numerical packages like MATLAB.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods.

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2the. 1exp.	A2	Introduction	1-11 of article (9)	1 – 4 of article (9)

٢	3 2the. 1exp.	A8	Approximation And Errors	1-11 of article (9)	1 – 4 of article (9)
٣	3 2the. 1exp.	A3	Solution of nonlinear Equations : 1- Bisection Method	1-11 of article (9)	1 – 4 of article (9)
٤	3 2the. 1exp.	A3	2- Newton's Method	1-11 of article (9)	1 – 4 of article (9)
٥	3 2the. 1exp.	A3	3- Method of False - Position	1-11 of article (9)	1 – 4 of article (9)
٦	3 2the. 1exp.	A3	4- Fixed – Point Method	1-11 of article (9)	1 – 4 of article (9)
٧	3 2the. 1exp.	A3	Applications in Civil Engineering	1-11 of article (9)	1 – 4 of article (9)
٨	3 2the. 1exp.	A4	Solution of System of Linear Eq.s: 1- Gauss – Elimination method	1-11 of article (9)	1 – 4 of article (9)
٩	3 2the. 1exp.	A4	2- solution by Iteration: a- Jacobi’s method	1-11 of article (9)	1 – 4 of article (9)
١٠	3 2the. 1exp.	A4	b- Gauss - Seidel Method	1-11 of article (9)	1 – 4 of article (9)
١١	3 2the. 1exp.	A4	Applications in Civil Engineering	1-11 of article (9)	1 – 4 of article (9)
١٢	3 2the. 1exp.	A5	Curve Fitting : 1- Interpolation :	1-11 of article (9)	1 – 4 of article (9)
١٣	3 2the. 1exp.	A5	a- Lagrange's Interpolating	1-11 of article (9)	1 – 4 of article (9)

١٤	3 2the. 1exp.	A5	b- Newton's Divided - Difference	1-11 of article (9)	1 – 4 of article (9)
١٥	3 2the. 1exp.	A5	c- Gregory - Newton's Divided - Difference	1-11 of article (9)	1 – 4 of article (9)
١٦	3 2the. 1exp.	A5	Curve Fitting : 2- Least Square a- Linear Regression	1-11 of article (9)	1 – 4 of article (9)
١٧	3 2the. 1exp.	A5	b- Polynomial Regression	1-11 of article (9)	1 – 4 of article (9)
١٨	3 2the. 1exp.	A5	Applications in Civil Engineering	1-11 of article (9)	1 – 4 of article (9)
١٩	3 2the. 1exp.	A6	Numerical Integration: 1- Newton-Cotes Formulas: a- Rectangles Rule	1-11 of article (9)	1 – 4 of article (9)
٢٠	3 2the. 1exp.	A6	b- Trapezoidal Rule	1-11 of article (9)	1 – 4 of article (9)
٢١	3 2the. 1exp.	A6	c-Simpson’s Rule	1-11 of article (9)	1 – 4 of article (9)
٢٢	3 2the. 1exp.	A6	Numerical Integration: 2- Gauss Quadrature: a- Method of Undetermined Coefficients	1-11 of article (9)	1 – 4 of article (9)
٢٣	3 2the. 1exp.	A6	b- Two, Three and higher- points Gaussian Formulas	1-11 of article (9)	1 – 4 of article (9)

٢٤	3 2the. 1exp.	A7	Numerical Solution of Ordinary Differential Eqs.: Initial Value Problem 1- Taylor's Expansion Method	1-11 of article (9)	1 – 4 of article (9)
٢٥	3 2the. 1exp.	A7	2-Euler's Method 3- Modified Euler's Method	1-11 of article (9)	1 – 4 of article (9)
٢٦	3 2the. 1exp.	A7	4- Runge Kutta Method	1-11 of article (9)	1 – 4 of article (9)
٢٧	3 2the. 1exp.	A7	The Finite Difference Method For Boundary-Value problems	1-11 of article (9)	1 – 4 of article (9)
٢٨	3 2the. 1exp.	A7	Numerical Solution of Partial Differential Eqs: 1- Finite Difference :Elliptic Equation	1-11 of article (9)	1 – 4 of article (9)
٢٩	3 2the. 1exp.	A7	2- Finite Difference :Parabolic Equation	1-11 of article (9)	1 – 4 of article (9)
٣٠	3 2the. 1exp.	A7	3- Finite Difference :Hyperbolic Equation	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	- Chapra, Steven C, and Canale, Raymond P (2009)"Numerical Methods for Engineers", Mc Graw-Hill, New York

	2- Chapra, Steven C (2011)"Applied Numerical Methods with MATLAB for Engineers and Scientists", Mc Graw-Hill, New York
2. Main references (sources)	----
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering Department (CED)
3. Course title/code	**THIRD YEAR** **Technical Engilish / GE 311**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
A- A great deal of successful language learning comes from experiences in which the learning is largely unconscious. B- This course aimed to make the student's interest in the career information presented will increase his or her ability to communicate more easily in English.	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A1. This Course is to introduce the student to the particular vocational area in which he or she is involved.
A2. The duties of different kinds of jobs are discussed, as well as the problems that might be encountered at work.
A3. Different phases of the civil engineering filed are discussed, together with some of the methods involved in designing structures for a number of different purposes.
A4. The aptitudes and education that an engineer must have are also discussed, as well as some of the specific job areas in which he or she may work.
A5. This course will be an introduction to the different kinds of work in the field of civil engineering.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Extracurricular Activities.
8. Seminars.
9. In- and Out-Class oral conservations.
10. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.
Teaching and Learning Methods.
1) Homework and Assignments. 2) In-Class Questions and Discussions. 3) Field Trips. 4) Extracurricular Activities. 5) Seminars. 6) In- and Out-Class oral conservations. 7) Reports, Presentations, and Posters.
Assessment methods
1. Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 the.	A1 & A2	Chapter 1	1-10 of article (9)	1 – 4 of article (9)
٢	2 the.	A1 & A2	Chapter 1	1-10 of article (9)	1 – 4 of article (9)
٣	2 the.	A1 & A2	Chapter 2	1-10 of article (9)	1 – 4 of article (9)
٤	2 the.	A2- A5	Chapter 2	1-10 of article (9)	1 – 4 of article (9)
٥	2 the.	A2- A5	Chapter 3	1-10 of article (9)	1 – 4 of article (9)
٦	2 the.	A2- A5	Chapter 3	1-10 of article (9)	1 – 4 of article (9)

٧	2 the.	A2- A5	Chapter 4	1-10 of article (9)	1 – 4 of article (9)
٨	2 the.	A2- A5	Chapter 4	1-10 of article (9)	1 – 4 of article (9)
٩	2 the.	A2- A5	Chapter 5	1-10 of article (9)	1 – 4 of article (9)
١٠	2 the.	A2- A5	Chapter 5	1-10 of article (9)	1 – 4 of article (9)
١١	2 the.	A2- A5	Chapter 6	1-10 of article (9)	1 – 4 of article (9)
١٢	2 the.	A2- A5	Chapter 6	1-10 of article (9)	1 – 4 of article (9)
١٣	2 the.	A2- A5	Chapter 7	1-10 of article (9)	1 – 4 of article (9)
١٤	2 the.	A2- A5	Chapter 7	1-10 of article (9)	1 – 4 of article (9)
١٥	2 the.	A2- A5	Presentations	1-10 of article (9)	1 – 4 of article (9)
١٦	2 the.	A2- A5	Presentations	1-10 of article (9)	1 – 4 of article (9)
١٧	2 the.	A2- A5	Chapter 8	1-10 of article (9)	1 – 4 of article (9)
١٨	2 the.	A2- A5	Chapter 8	1-10 of article (9)	1 – 4 of article (9)
١٩	2 the.	A2- A5	Chapter 9	1-10 of article (9)	1 – 4 of article (9)
٢٠	2 the.	A2- A5	Chapter 9	1-10 of article (9)	1 – 4 of article (9)
٢١	2 the.	A2- A5	Chapter 10	1-10 of article (9)	1 – 4 of article (9)
٢٢	2 the.	A2- A5	Chapter 10	1-10 of article (9)	1 – 4 of article (9)
٢٣	2 the.	A2- A5	Chapter 11	1-10 of article (9)	1 – 4 of article (9)
٢٤	2 the.	A2- A5	Chapter 11	1-10 of article (9)	1 – 4 of article (9)
٢٥	2 the.	A2- A5	Chapter 11	1-10 of article (9)	1 – 4 of article (9)
٢٦	2 the.	A2- A5	Presentations	1-10 of article (9)	1 – 4 of article (9)

٢٧	2 the.	A2- A5	Presentations	1-10 of article (9)	1 – 4 of article (9)
٢٨	2 the.	A2- A5	Chapter 12	1-10 of article (9)	1 – 4 of article (9)
٢٩	2 the.	A2- A5	Chapter 12	1-10 of article (9)	1 – 4 of article (9)
٣٠	2 the.	A2- A5	Chapter 12	1-10 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	New Headway Plus (Intermediate Student's Book and Student's Workbook with Key), by Liz and John Soars
2. Main references (sources)	----
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	---

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Steel Design / CE 401**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

- Graduate civil engineers to serve in structural steel constructions and other sectors of civil engineering labor market.
- Improving the teaching and administrative activities to meet international accreditations standards and the mission of the department.
- Improving the academic abilities of the faculty and attracting highly skilled personal.
- Improve the abilities and management of technical support staff and attract the highly skilled for employment.
- Optimum use of resources and potentials of the department.
- Cooperation, academic exchange, program partnerships with other universities and academic centers in developed countries.
- Establishing viable applied research that generates knowledge for local and foreign markets.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. Materials Science program develop the knowledge and skills that will enable students to apply basic mathematical and scientific concepts for the description and solution of engineering problems,

A2. develop initial proficiency in civil engineering disciplines,

A3. develop the ability to conduct experiments, and critically analyze and interpret data,

A4. perform civil engineering integrated design of mixes, structures, or processes by means of practical experiences (group projects),

A5. identify, formulate, and solve civil engineering problems using modern engineering tools, techniques, and skills,

A6. Collaborate in group projects.

A7. develop their written and oral communication skills through presentations of project results,

A8. acquire an appreciation for some of the ethical problems that arise in the exercise of the profession

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.

C2. Encouraging the teamwork between the students.

C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1) Homework and Assignments.
2) In-Class Questions and Discussions.
3) Field Trips.
4) Extracurricular Activities.
5) Seminars.
6) In- and Out-Class oral conservations.
7) Reports, Presentations, and Posters.

Assessment methods

Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 2 the. 2tut	A1	1-Introduction: - About the AISC Manual, -Units & General Properties, -Structural Steel Shapes and, -Stress-Strain Diagram.	1-11 of article (9)	1 – 4 of article (9)
٢	4 2 the. 2tut	A2	1-Introduction: - Types of Structural Steel -Design Methods. 2- Tension Members: - Types of Tension Members, -Area of Section	1-11 of article (9)	1 – 4 of article (9)
٣	4 2 the. 2tut	A3	2- Tension Members: -Allowable Stresses, -Bolted Connections, - The Standard Hole.	1-11 of article (9)	1 – 4 of article (9)
٤	4 2 the.	A4	2- Tension Members:	1-11 of article (9)	1 – 4 of article (9)

	2tut		-Bearing strength -Block shear strength -Examples		
٥	4 2 the. 2tut	A5	2- Tension Members: -Weld connections - Check and design examples	1-11 of article (9)	1 – 4 of article (9)
٦	4 2 the. 2tut	A5	2- Tension Members: - Check and design examples	1-11 of article (9)	1 – 4 of article (9)
٧	4 2 the. 2tut	A5	2- Tension Members: - Check and design examples	1-11 of article (9)	1 – 4 of article (9)
٨	4 2 the. 2tut	A5	2- Tension Members: - design of eye bars 3- Compression Members: - Introduction	1-11 of article (9)	1 – 4 of article (9)
٩	4 2 the. 2tut	A5	3- Compression Members: - Buckling of columns - AISC charts	1-11 of article (9)	1 – 4 of article (9)

١٠	4 2 the. 2tut	A5	3- Compression Members: - Design of columns using AISC equations. - Design of columns using AISC charts.	1-11 of article (9)	1 – 4 of article (9)
١١	4 2 the. 2tut	A6	3- Compression Members: - Analysis and design of other than I-shaped members - design of single angle members	1-11 of article (9)	1 – 4 of article (9)
١٢	4 2 the. 2tut	A7	3- Compression Members: - design of truss members - design of end connections (Base plates)	1-11 of article (9)	1 – 4 of article (9)
١٣	4 2 the. 2tut	A7	4- Flexural Members: - Actual flexural stress - Major axis of bending	1-11 of article (9)	1 – 4 of article (9)
١٤	4 2 the. 2tut	A8	4- Flexural Members: - Coefficient of bending	1-11 of article (9)	1 – 4 of article (9)

			- AISC limitations		
١٥	4 2 the. 2tut	A8	4- Flexural Members: - Check and design examples of beam section using AISC equations	1-11 of article (9)	1 – 4 of article (9)
١٦	4 2 the. 2tut	A8	4- Flexural Members: - Check and design examples of beam section using AISC equations	1-11 of article (9)	1 – 4 of article (9)
١٧	4 2 the. 2tut	A8	4- Flexural Members: - Check and design examples of beam section using AISC charts	1-11 of article (9)	1 – 4 of article (9)
١٨	4 2 the. 2tut	A9	4- Flexural Members: - Check and design examples of rectangular and round bar sections	1-11 of article (9)	1 – 4 of article (9)
١٩	4 2 the. 2tut	A9	4- Flexural Members: - Plate girder	1-11 of article (9)	1 – 4 of article (9)
٢٠	4 2 the. 2tut	A9	4- Flexural Members: -Design examples of Plate girders	1-11 of article (9)	1 – 4 of article (9)

٢١	4 2 the. 2tut	A10	5- Combined Stress: - AISC formula and its limitations	1-11 of article (9)	1 – 4 of article (9)
٢٢	4 2 the. 2tut	A11	5- Combined Stress: - Beam-Column check problems	1-11 of article (9)	1 – 4 of article (9)
٢٣	4 2 the. 2tut	A12	5- Combined Stress: - Beam-column check problems	1-11 of article (9)	1 – 4 of article (12)
٢٤	4 2 the. 2tut	A13	5- Combined Stress: - Beam-column check problems using AISC modified equations	1-11 of article (9)	1 – 4 of article (9)
٢٥	4 2 the. 2tut	A14	5- Combined Stress: - Beam-column Design problems using equivalent load method	1-11 of article (9)	1 – 4 of article (9)
٢٦	4 2 the. 2tut	A14	6- Connection: - Analysis and design of bolted bracket connection	1-11 of article (9)	1 – 4 of article (9)

٢٧	4 2 the. 2tut	A15	6- Connection: - Analysis and design of welded bracket connection	1-11 of article (9)	1 – 4 of article (9)
٢٨	4 2 the. 2tut	A16	6- Connection: - Analysis and design of seated connection	1-11 of article (9)	1 – 4 of article (9)
٢٩	4 2 the. 2tut	A17	6- Connection: - Analysis and design of shear connection	1-11 of article (9)	1 – 4 of article (12)
٣٠	4 2 the. 2tut	A18	Review and comprehensive exam.	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1- Structural steel design, "FOURTH EDITION 2008" By: Jack C. McCormac. 2- Steel construction manual, American Institute of Steel Construction (AISC) THIRTEEN EDITION 2005 3- Steel design "FIFTH EDITION" 2015, By: William T. Segui. 4- Structural steel design A practice-Oriented Approach "PEARSON INTERNATIONAL EDITION" 2009, "By: Abi Aghayere and janson vigil. 5- Structural steel design and behavior "PEARSON INTERNATIONAL EDITION" 2009, By: Charles E. Johnson and A. Malhas

	Applied structural steel design "FOURTH EDITION" 2002, By: Leonard Spiegel and George F. Limbrunner.
2. Main references (sources)	• Solutions to the problems of Steel design book "FIFTH EDITION" 2015, By: William T. Segui Available websites related to the subject.
A- Recommended books and References (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Foundation Design / CE 402**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week

7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

1. Introduce basic definitions and introductory concepts of lateral earth pressure computations.

2. Introduce the description some retaining structures such as retaining walls and sheet piles.

3. Introduce the calculations and checking of retaining walls stability.

4. Explain and derive the bearing capacity equations of shallow foundations.

5. Enable the student to calculate the bearing capacity of shallow footings.

6. Enable the student to estimate the total settlement of buildings(Immediate and consolidation settlement)

7. Introduce the principles of slope stability analysis.

8. Introduce the basic steps that may followed in construction design of spread footings, combined footings, mat foundations.

9. Enable the student to analyze and design shallow footings.

10. Introduce the types of deep foundations and its classifications.

11. Provide a complete derivation of ultimate bearing capacity of single pile (Static Method), introduce the dynamic formula too.

12. Enable the student to calculate the distribution of load on each pile within a group of piles.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals.

A1. At the end of the class, the student will be able to:

A2. Define the lateral earth pressure and retaining structures, the types of lateral earth pressure, and calculate the total thrust on the retaining structures.

A3. Checking the stability of both rigid and flexible retaining walls.

A4. Be familiar with retaining structures problems.

A5. Estimate the ultimate bearing capacity of shallow footing problems.

A6 . Checking the stability of finite and infinite slopes with and without seepage through the infinite slope.

A7.Estimation of allowable settlement of buildings, and calculation of settlement under rigid and flexible loaded areas (footings).
A8. Choose the suitable type of shallow footing for buildings.
A9. Make a complete construction design for the chosen type of shallow footing.
A10. Introduce the classification of piles and types.
A11. Estimate the ultimate bearing capacity of single pile using static methods.
A12. Estimate the ultimate bearing capacity of single pile using dynamic formula.
A13. Introduce the different patterns of pile groups and estimate the bearing capacity of pile group.
A14. Estimation of efficiency of pile group in different types of soil.
A15. Distribute the load on each pile within pile group.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 2 the. 2tut	A1,A2, A3	Lateral Earth Pressure Computations	1-11 of article (9)	1 – 4 of article (9)
٢	4 2 the. 2tut	A1,A2, A3	Lateral Earth Pressure Computations	1-11 of article (9)	1 – 4 of article (9)
٣	4 2 the. 2tut	A1,A2, A3	Retaining Walls and Sheet Piles	1-11 of article (9)	1 – 4 of article (9)
٤	4 2 the. 2tut	A1,A2, A3	Retaining Walls and Sheet Piles	1-11 of article (9)	1 – 4 of article (9)
٥	4 2 the. 2tut	A4	Bearing Capacity of Shallow Footings	1-11 of article (9)	1 – 4 of article (9)
٦	4 2 the. 2tut	A4	Bearing Capacity of Shallow Footings	1-11 of article (9)	1 – 4 of article (9)

٧	4 2 the. 2tut	A5	Slope Stability Analysis	1-11 of article (9)	1 – 4 of article (9)
٨	4 2 the. 2tut	A5	Slope Stability Analysis	1-11 of article (9)	1 – 4 of article (9)
٩	4 2 the. 2tut	A6	Settlement of Buildings	1-11 of article (9)	1 – 4 of article (9)
١٠	4 2 the. 2tut	A6	Settlement of Buildings	1-11 of article (9)	1 – 4 of article (9)
١١	4 2 the. 2tut	A7,A8	Construction Design of Shallow Footings	1-11 of article (9)	1 – 4 of article (9)
١٢	4 2 the. 2tut	A7,A8	Construction Design of Shallow Footings	1-11 of article (9)	1 – 4 of article (9)
١٣	4 2 the. 2tut	A7,A8	Construction Design of Shallow Footings	1-11 of article (9)	1 – 4 of article (9)

١٤	4 2 the. 2tut	A7,A8	Construction Design of Shallow Footings	1-11 of article (9)	1 – 4 of article (9)
١٥	4 2 the. 2tut	A9,A10,A11	Deep Foundation (Piles)	1-11 of article (9)	1 – 4 of article (9)
١٦	4 2 the. 2tut	A9,A10,A11	Deep Foundation (Piles)	1-11 of article (9)	1 – 4 of article (9)
١٧	4 2 the. 2tut	A9,A10,A11	Deep Foundation (Piles)	1-11 of article (9)	1 – 4 of article (9)
١٨	4 2 the. 2tut	A9,A10,A11	Deep Foundation (Piles)	1-11 of article (9)	1 – 4 of article (9)
١٩	4 2 the. 2tut	A9,A10,A11, A12	Pile Groups	1-11 of article (9)	1 – 4 of article (9)
٢٠	4 2 the.	A9,A10,A11, A12	Pile Groups	1-11 of article (9)	1 – 4 of article (9)

	2tut				
٢١	4 2 the. 2tut	A9,A10,A11,A12	Pile Groups	1-11 of article (9)	1 – 4 of article (9)
٢٢	4 2 the. 2tut	A9,A10,A11,A12	Pile Groups	1-11 of article (9)	1 – 4 of article (9)
٢٣	4 2 the. 2tut	A9,A10,A11,A12	Pile Groups	1-11 of article (9)	1 – 4 of article (9)
٢٤	4 2 the. 2tut	A13,A14	Efficiency of Pile Group	1-11 of article (9)	1 – 4 of article (9)
٢٥	4 2 the. 2tut	A13,A14	Efficiency of Pile Group	1-11 of article (9)	1 – 4 of article (9)
٢٦	4 2 the. 2tut	A13,A14	Efficiency of Pile Group	1-11 of article (9)	1 – 4 of article (9)
٢٧	4	A13,A14,A15	Efficiency of Pile Group	1-11 of	1 – 4 of article (19)

	2 the. 2tut			article (9)	
٢٨	4 2 the. 2tut	A13,A 14,A15	Efficiency of Pile Group	1-11 of article (9)	1 – 4 of article (9)
٢٩	4 2 the. 2tut	A13,A 14,A15	Efficiency of Pile Group	1-11 of article (9)	1 – 4 of article (9)
٣٠	4 2 the. 2tut	A13,A 14,A15	Efficiency of Pile Group	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	Al-Shakarchi, Y. & N. Al-Mohamadi, (1985) "Foundation Engineering", (in Arabic)"
2. Main references (sources)	• Bowles, J. E. (1996), "Foundation Analysis and Design", 5th edition Mc Graw-Hill Book Company Inc. New York. • Das,B.,M. (2003),"Principle of foundation Engineering"
A- Recommended books and References (scientific journals, reports…).	**Others:** 1. Notebook prepared by the instructor of the course 2. Collection of sheets of solved and unsolved problems and Exams questions
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Transportation Engineering / CE403**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

The main objective of this course is to prepare a civil engineer with ability to work in highway project. This ability achieved by obtaining potentials in highway planning, traffic system analysis, geometric design, earthwork quantities calculation, paving materials types and specifications, asphalt mix design and structural design of flexible pavement. This course intended to deliver the information's by a theoretical demonstration as well as an applicable practicing in the lab by conducting several testing.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A- Cognitive goals. At the end of the complete course, the student will be able to:

A1. Classifying the different types of highways according to their functions;
A2. Preparing an preliminary report of route location
A3. Define the types of sight distances
A4. Design the vertical alignment (sag and crest
A5. Design the horizontal alignment
A6 . Design the transition curve, super elevation, and pavement widening;

A7. Design the cross section elements,
A8. Classifying the types of interchange and intersections
A9. Design the speed change lanes
A10. Calculating the earthwork quantities using mass haul diagram
A11. Define the types of pavement(flexible and rigid)
A12. Define the types of asphalt binder used in paving construction
A13. Define the types of aggregate (coarse, fine and filler)
A14. Preparing Job-Mix- Formula for asphalt concrete mixtures
A15. Density-voids analysis of asphalt mixtures
A16. Designing the layers of asphalt flexible pavement
A17. Design the thickness of concrete course for rigid pavement.

B. The skills goals special to the course.
B1. Construction materials test methods

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. . Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals
C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods
1. Homework and Assignments. 2. In-Class Questions and Discussions. 3. Field Trips. 4. Extracurricular Activities. 5. Seminars. 6. In- and Out-Class oral conservations. 7. Reports, Presentations, and Posters.
Assessment methods
Extracurricular Activities. 2. Student Engagement during Lectures. 3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)
D1. Enhancing the skill to perform any significant lab test for different engineering purposes. D2. Improving site investigation skill.

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 2the. 2exp.	A1	Functional Classification of Highways	1-11 of article (9)	1 – 4 of article (9)
٢	4 2the. 2exp.	A2	Location Surveys	1-11 of article (9)	1 – 4 of article (9)
٣	4 2the. 2exp.	A3	Design Control and Criteria	1-11 of article (9)	1 – 4 of article (9)
٤	4 2the. 2exp.	A3	Passing, decision and stopping sight distance	1-11 of article (9)	1 – 4 of article (9)
٥	4 2the. 2exp.	A4	Vertical alignment, crest	1-11 of article (9)	1 – 4 of article (9)
٦	4 2the. 2exp.	A4	Vertical alignment, sag	1-11 of article (9)	1 – 4 of article (9)
٧	4 2the. 2exp.	A4	Vertical alignment, combination	1-11 of article (9)	1 – 4 of article (9)
٨	4 2the. 2exp.	A5	Horizontal alignment	1-11 of article (9)	1 – 4 of article (9)

٩	4 2the. 2exp.	A6	Transition curve	1-11 of article (9)	1 – 4 of article (9)
١٠	4 2the. 2exp.	A6	Super elevation rate and runoff	1-11 of article (9)	1 – 4 of article (9)
١١	4 2the. 2exp.	A6	Widening of pavement	1-11 of article (9)	1 – 4 of article (9)
١٢	4 2the. 2exp.	A7	travel lanes (numbers and width), roadway cross slope, types of roadway surfaces, shoulders and sidewalk, curb and gutter, medians, highway roadside right-of way, vertical clearance.	1-11 of article (9)	1 – 4 of article (9)
١٣	4 2the. 2exp.	A8	types of at-grade intersections, three-leg intersections, four-leg intersections,	1-11 of article (9)	1 – 4 of article (9)
11. Infrastructure					

			channelization at intersections		
١٤	4 2the. 2exp.	A9	Acceleration and deceleration lanes	1-11 of article (9)	1 – 4 of article (9)
١٥	4 2the. 2exp.	A10	Mass – haul diagram	1-11 of article (9)	1 – 4 of article (9)
١٦	4 2the. 2exp.	A10	Mass – haul diagram	1-11 of article (9)	1 – 4 of article (9)
١٧	4 2the. 2exp.	A11	Types of pavement Flexible Rigid	1-11 of article (9)	1 – 4 of article (9)
١٨	4 2the. 2exp.	A12	- asphalt concrete -desirable properties of asphalt cement	1-11 of article (9)	1 – 4 of article (9)
١٩	4 2the. 2exp.	A12	asphalt types and testing	1-11 of article (9)	1 – 4 of article (9)
٢٠	4 2the. 2exp.	A12	-prime and tack coats -fractional components of asphalt cement	1-11 of article (9)	1 – 4 of article (9)
٢١	4 2the. 2exp.	A13	rheological behavior	1-11 of article (9)	1 – 4 of article (9)

٢٢	4 2the. 2exp.	A14	aggregate and mineral filler	1-11 of article (9)	1 – 4 of article (9)
٢٣	4 2the. 2exp.	A15	job-mix formula	1-11 of article (9)	1 – 4 of article (9)
٢٤	4 2the. 2exp.	A16	asphalt mix design by Marshall test	1-11 of article (9)	1 – 4 of article (9)
٢٥	4 2the. 2exp.	A16	asphalt mix design by Marshall test	1-11 of article (9)	1 – 4 of article (9)
٢٦	4 2the. 2exp.	A17	layers of flexible pavement AASHTO design method for flexible pavements traffic loads	1-11 of article (9)	1 – 4 of article (9)
٢٧	4 2the. 2exp.	A18	subgrade support for flexible pavements flexible-pavement material	1-11 of article (9)	1 – 4 of article (9)
٢٨	4 2the. 2exp.	A18	structural numbers for flexible pavements determination of course thicknesses	1-11 of article (9)	1 – 4 of article (9)
٢٩	4 2the.	A19	bbase for a rigid vement	1-11 of article (9)	1 – 4 of article (9)

	2exp.		types of concrete pavements jointed reinforced concrete pavement continuously reinforced concrete pavement reinforcing steel for concrete pavement		
٣٠	4 2the. 2exp.	A20	nforced concrete vement slabs bars ad-transfer devices nts in concrete vement transverse expansion joints longitudinal joints construction joints	1-11 of article (9)	1 – 4 of article (9)

1. Books Required reading:	1) "Principles of Highway Engineering and Traffic Analysis" by "Fred L. Mannering and Scott S. Washburn", Fifth Edition, 2015. 2) "Traffic and Highway Engineering" by "Nicholas J. Garber and Lester A. Hoel", Fourth Edition, 2010. 3) "Transportation Infrastructure Engineering" by "Lester A. Hoel, Nicholas J. Garber and Adel W. Sadek" International Student Edition, 2008. 4) 'Highways: The Location, Design, Construction and Maintenance of Pavements" by "C. A. O'Flaherty", Fourth Edition, 2007.

	5) "Highway Engineering" by "Paul H. Wright and Karen K. Dixon", Seventh Edition, 2004. 6) 'Pavement Analysis and Design" by "Yang H. Huang", Second Edition, 2004. 7) AASHTO. A Policy on Geometric Design of Highways and Streets, American Association State Highway and Transportation Officials, Washington, D.C.: 2004. 8) American Association of State Highways and Transportation Officials (1993), AASHTO Guide for Design of Pavement Structure, AASHTO, Washington, D.C. 9) ASTM (2003), American Society for Testing and Materials, vol. 04:03. 10) TRB. Highway Capacity Manual, Transportation Research Board, Washington D.C. 2000. 11) SCRB, (2003), "Standard Specification for Roads and Bridges." Republic of Iraq, Ministry of Housing and Construction. 12) SCRB, (2005), "Highway Design Manual" Republic of Iraq, Ministry of Housing and Construction.
2. Main references (sources)	
A- Recommended books and References (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Sanitary and Environmental Engineering / CE 404**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	150 hrs. / 5 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

Introduce basic definitions and introductory concepts of Sanitary and Environmental Engineering.
2. Introduce water quantities for different uses and consumptions.
3. Explain water impurities and treatment methods according to these impurities
4. Design of water distribution and sewer systems.
5. Explain waste water treatment methods.
6. Environmental strategies to avoid sewage pollution.
7. Provide a background to higher level courses involving water and waste water treatment

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A1- Define water properties, quality and quantity for different demands.
A2. Understand and apply the principles of sedimentation, coagulation & flocculation, filtration and disinfection.
A3. Understand and apply the principles of dissolved solid removal (hardness removal)
A4. Design water treatment plants.
A5. Analyze and design pipe networks
A6. Define wastewater properties, quality and quantity from different sources
A7. Analyze and design sewer systems

A8. Understand and apply environmental laws for sewage disposal
A9. Understand and apply the principles of the removal of inorganic and organic matters from wastewater
A10. Design wastewater treatment plants

B. The skills goals special to the course.
B1. Construction materials test methods.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals
C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.

6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Enhancing the skill to perform any significant lab test for different engineering purposes.

10. Course Structure					
Week	Hours	ILOs (Article 10(	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5 2the. 1tut. 2exp.	A1	Introduction	1-12 of article (9)	1 – 4 of article (9)
٢	5 2the. 1tut. 2exp.	A1	Quantity of water for various purposes	1-12 of article (9)	1 – 4 of article (9)
٣	5 2the. 1tut. 2exp.	A1	Methods of Forecasting population	1-12 of article (9)	1 – 4 of article (9)
٤	5 2the. 1tut. 2exp.	A1	Water impurities	1-12 of article (9)	1 – 4 of article (9)
٥	5 2the. 1tut. 2exp.	A1,A2, A3	Water treatment plants - Screens	1-12 of article (9)	1 – 4 of article (9)
٦	5 2the. 1tut. 2exp.	A1,A2, A3	Theory of sedimentation	1-12 of article (9)	1 – 4 of article (9)

٧	5 2the. 1tut. 2exp.	A1,A2, A3	Design of sedimentation tanks	1-12 of article (9)	1 – 4 of article (9)
٨	5 2the. 1tut. 2exp.	A1,A2, A3	Coagulation and Flocculation	1-12 of article (9)	1 – 4 of article (9)
٩	5 2the. 1tut. 2exp.	A1,A2, A4	Design of flash mixer, flocculators and clarifiers	1-12 of article (9)	1 – 4 of article (9)
١٠	5 2the. 1tut. 2exp.	A1,A2, A43	Filtration and design of filters	1-12 of article (9)	1 – 4 of article (9)
١١	5 2the. 1tut. 2exp.	A1,A2, A4	Disinfection	1-12 of article (9)	1 – 4 of article (12)
١٢	5 2the. 1tut. 2exp.	A3	Methods of Hardness removal	1-12 of article (9)	1 – 4 of article (9)
١٣	5 2the. 1tut.	A3	Design of zeolite filters	1-12 of article (9)	1 – 4 of article (9)

	2exp.				
١٤	5 2the. 1tut. 2exp.	A5	Water distribution systems	1-12 of article (9)	1 – 4 of article (9)
١٥	5 2the. 1tut. 2exp.	A5	Hydraulic design and analysis of the distribution system	1-12 of article (9)	1 – 4 of article (9)
١٦	5 2the. 1tut. 2exp.	A5	Term Exam	1-12 of article (9)	1 – 4 of article (9)
١٧	5 2the. 1tut. 2exp.	A6	Wastewater characteristics and types	1-12 of article (9)	1 – 4 of article (9)
١٨	5 2the. 1tut. 2exp.	A6	BOD definition, derivation and determination	1-12 of article (9)	1 – 4 of article (9)
١٩	5 2the. 1tut. 2exp.	A6	Runoff discharge determination	1-12 of article (9)	1 – 4 of article (9)
٢٠	5 2the.	A6,A7	Sewer system design	1-12 of article (9)	1 – 4 of article (9)

	1tut. 2exp.				
٢١	5 2the. 1tut. 2exp.	A6,A7	Storm water system design	1-12 of article (9)	1 – 4 of article (9)
٢٢	5 2the. 1tut. 2exp.	A6,A7	Sewer system appurtenance	1-12 of article (9)	1 – 4 of article (9)
٢٣	5 2the. 1tut. 2exp.	A8	Sewage disposal	1-12 of article (9)	1 – 4 of article (9)
٢٤	5 2the. 1tut. 2exp.	A9,A10	Wastewater treatment plants - Screens	1-12 of article (11)	1 – 4 of article (12)
٢٥	5 2the. 1tut. 2exp.	A9,A10	Physical treatment – Flotation, Grit chamber and sedimentation tanks	1-12 of article (9)	1 – 4 of article (9)
٢٦	5 2the. 1tut. 2exp.	A9,A10	Biological concepts in wastewater treatment	1-12 of article (9)	1 – 4 of article (9)
٢٧	5	A9,A10	Trickling filters	1-12 of	1 – 4 of article (9)

	2the. 1tut. 2exp.			article (9)	
٢٨	5 2the. 1tut. 2exp.	A9,A10	Activated sludge process	1-12 of article (9)	1 – 4 of article (9)
٢٩	5 2the. 1tut. 2exp.	A9,A10	Sludge treatment	1-12 of article (9)	1 – 4 of article (9)
٣٠	5 2the. 1tut. 2exp.	A9,A10	Term Exam	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1.Water Supply and Sewerage by Steel and McGhee 2.Water Supply and Wastewater Eng. by D.Lalan and A.K. Upadhyay
2. Main references (sources)	Laboratory experiments in water and wastewater properties according to WHO standard methods *Available web sites related to the subject
A- Recommended books and References (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Constructional Methods / CE 405**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full-time students, and on campus. They attend full-day program in face-to-face mode. The academic year is composed of 30-week regular subjects
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
Constructional Methods : 1. Introduce basic definitions and introductory concepts of cost accounting and performance. 2. Introduce Construction Equipment history (stream power machines, internal combustion, construction industry, Contracting Environment, planning equipment utilization, and Safety). 3. Introduce the calculated Cost of Capital, Evaluating Investment Alternatives, Elements of Ownership Cost, Operating Cost, Replacement Decisions, Rent & Lease Considerations. 4. Study the Excavators: Front Shovels (Basic Parts & Operation, Selecting of Front Shovel, Calculating shovel Production). Hoes (Basic Parts & Operation, Bucket Rating, Selecting of Hoe, Calculating Hoe Production). Loader (Type and Size, Loader Buckets/Attachments, Operating Specification, Calculating "Wheel Loader Production - Track loader" Production). Draglines(Dragline Components, operation of Dragline, dragline production). Clamshell(Lattice Boom Clamshells, Clamshell Buckets, Production Rates for Clamshells). 5. Introduce the principles of Required Power (Rolling Resistance- Grade resistance), Available Power(Rimpull-Drawbar Pull), Usable Power(Coefficient of Traction-Altitude Effect) performance Charts.	

6. Introduce the Type of Compaction Equipment, Tamping Rollers, Vibrating compactors, Pneumatic-Tired rollers, Towed Impact Compactors, Compaction Wheels, Manually operated Compactors, Rolling Production Estimating.
7. Dozer Performance, Crawler dozer - wheel Dozers, Blade performance, Dozer Employment (Stripping- Backfill-Spreading-Slot dozing-Blade-to-blade dozing), Dozer Production Estimating, Estimating Format, Land Clearing Operation.
7. Enable the student to analyze and estimating of the potential cost of equipment.
8. Enable the student to use the chart productions of different types of construction equipment.
9. Provide a strong physical and analytical understanding of the suitable procedure of estimating cost and production procedures.
10. Provide a background to higher-level courses involving equipment and plant management..

9· Learning Outcomes, Teaching, Learning and Assessment Method

Constructional Methods :

A1.Be familiar with Construction Equipment (stream power machines - internal combustion, construction industry, Contracting Environment, planning equipment utilization, and Safety .

A2.Define and Calculate the Cost of Capital, Evaluating Investment Alternatives, Elements of Ownership Cost, Operating Cost, Replacement Decisions, Rent & Lease Considerations .

A3.Understand and apply the principles of Production Estimating and Production Cycle analysis Operational Consideration .

A4.Formulate and solve Production and Cost Estimating.

A5.Define Mobile Equipment Power Requirements and Calculate Required Power (Rolling Resistance- Grade resistance), Available Power (Rimpull-Drawbar Pull), Usable Power (Coefficient of Traction-Altitude Effect), and performance Charts. Calculate Dozer Performance, Dozer Employment Production Estimating, Estimating Format, Land Clearing Operation. Scrapers Types, Scraper Operation, Scraper Performance Charts, Scraper

A6. Production Cycle, Estimating Format, Operational Consideration .

A7.Define and be familiar with the operating specifications, Basic Parts & Calculating Production of the hydraulic excavators (Front Shovels, Hoes, Loader

A8.Define the Classification of Forming Systems, Formwork Design, formwork Economic, Vertical Systems, Horizontal System.

A9.Analyze, Uses and operations of graders, Cranes (Mobile Cranes, Tower Cranes, Rigging).

A10.Be able to analyze the work situations of different work sites .

A11.Be able to apply modern knowledge and apply mathematics , science, engineering, and technology to construction equipment problems and applications.
A12.Know the type of Compaction Equipment, Tamping Rollers, Vibrating compactors, Pneumatic-Tired rollers, Towed Impact Compactors, Compaction Wheels, Manually operated Compactors, Rolling Production Estimating .
A13.Design and conduct site preparation and layout and selecting the balanced fleet of trucks with the best route from quarry to work site.
A14.Work in groups and function on multi-disciplinary teams .

A15.Identify, formulate and solve engineering construction methods problems .
A16.Understand professional, social, and ethical responsibilities .
A17.Communicate effectively .
A18.Use the techniques, skills, and modern engineering tools necessary for engineering practice in fluid mechanics applications.

B. The skills goals special to the course.

Teaching and Learning Methods

1. 1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. The connection between the Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.

C2. Encouraging the teamwork between the students.

C3. Cooperating the universal activities.

C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

Extracurricular Activities.

2. Student Engagement during Lectures.

3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Improving site investigation skill.

10. Course Structure: Constructional Methods					
Week	Hours	ILos	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 1 the. 1tut	A1,A3,A 14	Construction Methods : Introduction	1-11 of article (9)	1 – 4 of article (9)
٢	2 1 the. 1tut	A1,A3,A 14	Machines Make it possible	1-11 of article (9)	1 – 4 of article (9)
٣	2 1the. 1tut	A2,A4	Equipment Economic	1-11 of article (9)	1 – 4 of article (9)
٤	2 1 the. 1tut	A2,A4	Equipment Economic	1-11 of article (9)	1 – 4 of article (9)
٥	2 1 the. 1tut	A2,A4	Equipment Economic	1-11 of article (9)	1 – 4 of article (9)
٦	2 1the. 1tut	A5,A4	Mobile Equipment Power Requirements	1-11 of article (9)	1 – 4 of article (9)
٧	1	A5,A4	Mobile Equipment	1-11 of	1 – 4 of article (9)

	1 the. 1tut		Power Requirements	article (9)	
٨	2 1 the. 1tut	A5,A4	Mobile Equipment Power Requirements	1-11 of article (9)	1 – 4 of article (9)
٩	2 1 the. 1tut	A12.A13.A14.A15.A16.A17	Compaction Equipment	1-11 of article (9)	1 – 4 of article (9)
١٠	2 1 the. 1tut	A12.A13.A14.A15.A16.A17,,A18	Compaction Equipment	1-11 of article (9)	1 – 4 of article (9)
١١	2 1 the. 1tut	f, c, d, k, n, o, p, q, r	Dozers	1-11 of article (9)	1 – 4 of article (9)
١٢	2 1 the. 1tut	A3,A4,A6,A11,A14,A15,A16,A17,A18	Dozers	1-11 of article (9)	1 – 4 of article (9)
١٣	2 1 the. 1tut	A3,A4,A6,A11,A14,A15,A16,A17,A18	Scrapers	1-11 of article (9)	1 – 4 of article (9)
١٤	2	A3,A4,A6,A11,A1	Scrapers	1-11 of	1 – 4 of article (9)

	1 the. 1tut	4,A15,A16,A17,A18		article (9)	
١٥	2 1 the. 1tut	A3,A4,A7,A11,A14,A15,A16.A17.A18	Excavators	1-11 of article (9)	1 – 4 of article (9)
١٦	2 1 the. 1tut	A3,A4,A7,A11,A14,A15,A16.A17.A18	Excavators	1-11 of article (9)	1 – 4 of article (9)
١٧	2 1 the. 1tut	g A3,A4,A7,A11,A14,A15,A16.A17.A18	Excavators	1-11 of article (9)	1 – 4 of article (9)
١٨	.1 1 the. 1tut	A7	Draglines and Clamshells	1-11 of article (9)	1 – 4 of article (9)
١٩	2 1 the. 1tut	A3,A4,A7,A11,A14,A15,A16.A17.A18	Draglines and Clamshells	1-11 of article (9)	1 – 4 of article (12)
٢٠	2 1 the. 1tut	A9,A10, A14,A15, A16,A17, A18	Finishing Equipment and Cranes	1-11 of article (9)	1 – 4 of article (9)

٢١	2 1 the. 1tut	A9,A10, A14,A15, A16,A17, A18	Finishing Equipment and Cranes	1-11 of article (9)	1 – 4 of article (9)
٢٢	2 1 the. 1tut	A3,A4.A 13,A11,A 14,A15,A 16,A17,A 18	Trucks and Hauling Equipment	1-11 of article (9)	1 – 4 of article (9)
٢٣	2 1 the. 1tut	A3,A4.A 13,A11,A 14,A15,A 16,A17,A 18	Trucks and Hauling Equipment	1-11 of article (9)	1 – 4 of article (9)
٢٤	2 1 the. 1tut	A3,A4.A 13,A11,A 14,A15,A 16,A17,A 18	Trucks and Hauling Equipment	1-11 of article (9)	1 – 4 of article (9)
٢٥	2 1 the. 1tut	A3,A4.A 13,A11,A 14,A15,A 16,A17,A 18	Trucks and Hauling Equipment	1-11 of article (9)	1 – 4 of article (9)
٢٦	2 1 the. 1tut	A3,A4.A 13,A11,A 14,A15,A 16,A17,A 18	Trucks and Hauling Equipment	1-11 of article (9)	1 – 4 of article (9)
٢٧	2 1 the. 1tut	A3,A4,A 8,A10,A1 4,A15,A1 6,A17	Forming Systems	1-11 of article (9)	1 – 4 of article (9)

٢٨	2 1 the. 1tut	A3,A4,A8,A10,A14,A15,A16,A17	Forming Systems	1-11 of article (9)	1 – 4 of article (9)
٢٩	2 1 the. 1tut	A3,A4,A8,A10,A14,A15,A16,A17	Forming Systems	1-11 of article (9)	1 – 4 of article (9)
٣٠	2 1 the. 1tut	A3,A4,A8,A10,A14,A15,A16,A17	Forming Systems	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	"Construction Planning, Equipment, and Methods) Purifoy, seventh edition 2006. References 1. Construction Equipment Management for Engineers, Estimators, and Owners) Douglas Gransberg, 2006 ٢. العزي محمد ايوب صبري ، تخطيط وطرق ومعدات " الانشاء الجامعة التكنولوجية بغداد " 3. Notebook prepared by the instructor of the course. 4. Collection of sheets of solved and unsolved problems and Exam questions.

2. Main references (sources)	Construction Methods : 1. Different models of There are various equipment models with movies and pictures in the (computer Lab). 2. The websites related to the subject are available. 3. Extracurricular activities.
A- Recommended books and References (scientific journals, reports…).	• There are Conducting Field and scientific visits. • Foreign guest lecturers provide extra lectures.
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Quantity Surveying / CE 407**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full-time students, and on campus. They attend full-day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	

Quantity Surveying :
Students must have got a good knowledge to prepare an estimated cost of works.

9· Learning Outcomes, Teaching ,Learning and Assessment Method

Quantity Surveying :

A1.Preparing an Approximate estimate
A2.We are preparing an earthwork Estimate.
A3.We are preparing an estimated cost of work.
A4.We are preparing the bill for the quantity of the project.
A5.Type of contract.
A6.Knowledge about Contract bid documents.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. The Connection between Theory and Application.
7. Field Trips.
8. Extracurricular Activities.
9. Seminars.
10. In- and Out-Class oral conservations.
11. Reports, Presentations, and Posters.

Assessment methods

1. . Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1. Improving site investigation skill.

10. Course Structure: Quantity Surveying

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2 the. 1tut		Quantity Surveying : Introduction to quantity surveying, roles, and tasks of quantity surveying engineer.	1-11 of article (9)	1 – 4 of article (9)
٢	3 2 the. 1tut		Introduction to quantity surveying, roles, and tasks of	1-11 of article (9)	1 – 4 of article (9)

			quantity surveying engineer.		
٣	3 2 the. 1tut	A1	Approximate estimate.	1-11 of article (9)	1 – 4 of article (9)
٤	3 2 the. 1tut	A1	Approximate estimate.	1-11 of article (9)	1 – 4 of article (9)
٥	3 2 the. 1tut	A1	Approximate estimate.	1-11 of article (9)	1 – 4 of article (9)
٦	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
٧	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
٨	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
٩	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٠	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١١	3 2 the.	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)

	1tut				
١٢	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٣	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٤	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٥	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٦	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٧	3 2 the. 1tut	A2,A3, A4	Detailed estimate.	1-11 of article (9)	1 – 4 of article (9)
١٨	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
١٩	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)

٢٠	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢١	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢٢	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢٣	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢٤	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢٥	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢٦	3 2 the. 1tut	A2,A3, A4	Construction materials quantities measurement.	1-11 of article (9)	1 – 4 of article (9)
٢٧	3 2 the.	A5,A6	Contract bids documents.	1-11 of article (9)	1 – 4 of article (12)

	1tut				
٢٨	3 2 the. 1tut	A2,A3, A4	Technical specifications.	1-11 of article (9)	1 – 4 of article (9)
٢٩	3 2 the. 1tut	A2,A3, A4	A comprehensive of project report	1-11 of article (9)	1 – 4 of article (9)
٣٠	3 2 the. 1tut		A comprehensive project report.	1-11 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	Quantity Surveying : 1- Elements of Quantity Surveying)) Br: A.J Willis and C.J Willis, London (7th ed.) 2- Quantity Surveying for Buildings and Civil eng. Works.)) By: P.L Bhasin and S. Chand, New Delhi 1975. 3-Civil Estimating, Costing and Valuation)) By: Amarjit Aggarwal S.Kumar, New Delhi 19997. 4 -Quantity Surveying and Costing 1& 2)) By G.C Malhotra, Khanna Publishers 1986. 5 -building construction course 6-construction drawing course 7-surveying course. 8-concrete course.
2. Main references (sources)	
A- Recommended books and References (scientific journals, reports…).	

B-Electronic references, Internet sites…	

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Reinforced Concrete Design / CE 406**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	120 hrs. / 4 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
9· Learning Outcomes, Teaching ,Learning and Assessment Method	
A1- Apply the basic requirements of the American Concrete Institute ACI 318 in the design specification. A2.help students understand the fundamental principles and procedures of reinforced concrete buildings design; A3.help students learn to apply the principles of reinforced concrete design to real world problems; and A4.help students learn to apply the principles of pre-stress reinforced concrete design to practical problems; and A5.prepare students for entry level structural engineering employment	
B. The skills goals special to the course.	
Teaching and Learning Methods	

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11.In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. . Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10 Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4 2 the. 2tut	A1,A2, A3,A5	Types and definition of Two-Way Slab System	1-12 of article (9)	1 – 4 of article (9)
٢	4 2 the. 2tut	A1,A2, A3,A5	Computation of slab thickness.	1-12 of article (9)	1 – 4 of article (9)
٣	4 2 the. 2tut	A1,A2, A3,A5	Direct Design Method, limitation and requirement	1-12 of article (9)	1 – 4 of article (9)
٤	4 2 the. 2tut	A1,A2, A3,A5	Direct Design Method, limitation and requirement	1-12 of article (9)	1 – 4 of article (9)
٥	4 2 the. 2tut	A1,A2, A3,A5	Total moment in slab	1-12 of article (9)	1 – 4 of article (9)
٦	4 2 the. 2tut	A1,A2, A3,A5	Positive and negative moments in slab.	1-12 of article (9)	1 – 4 of article (9)

٧	4 2 the. 2tut	A1,A2, A3,A5	Moment of column strip and middle strip.	1-12 of article (9)	1 – 4 of article (9)
٨	4 2 the. 2tut	A1,A2, A3,A5	Moment of column strip and middle strip.	1-12 of article (9)	1 – 4 of article (9)
٩	4 2 the. 2tut	A1,A2, A3,A5	Shear strength (flat slab and flat plate)	1-12 of article (9)	1 – 4 of article (9)
١٠	4 2 the. 2tut	A1,A2, A3,A5	Beam action (one way shear action)	1-12 of article (9)	1 – 4 of article (9)
١١	4 2 the. 2tut	A1,A2, A3,A5	Punching shear (two way shear action), Flat slab, Flat plate, Drop Panel and Column Capital.	1-12 of article (9)	1 – 4 of article (9)
١٢	4 2 the. 2tut	A1,A2, A3,A5	Punching shear (two way shear action), Flat slab, Flat plate, Drop Panel and Column Capital.	1-12 of article (9)	1 – 4 of article (9)
١٣	4 2 the.	A1,A2, A3,A5	Transformation of moment to column.	1-12 of article (9)	1 – 4 of article (9)

	2tut				
١٤	4 2 the. 2tut	A1,A2, A3,A5	Transformation of moment to column.	1-12 of article (9)	1 – 4 of article (9)
١٥	4 2 the. 2tut	A1,A2, A3,A5	Equivalent Frame Method	1-12 of article (9)	1 – 4 of article (9)
١٦	4 2 the. 2tut	A1,A2, A3,A5	Equivalent Frame Method	1-12 of article (9)	1 – 4 of article (9)
١٧	4 2 the. 2tut	A1,A2, A3,A5	Computation of beam and slab stiffness	1-12 of article (9)	1 – 4 of article (9)
١٨	4 2 the. 2tut	A1,A2, A3,A5	Computation of column stiffness.	1-12 of article (9)	1 – 4 of article (9)
١٩	4 2 the. 2tut	A1,A2, A3,A5	Torsion stiffness of beam (Kt).	1-12 of article (9)	1 – 4 of article (9)
٢٠	4	A1,A2, A3,A5	Torsion stiffness of beam (Kt).	1-12 of	1 – 4 of article (9)

	2 the. 2tut			article (9)	
٢١	4 2 the. 2tut	A1,A2, A3,A5	Effective stiffness of column (Kec).	1-12 of article (9)	1 – 4 of article (9)
٢٢	4 2 the. 2tut	A1,A2, A3,A5	carry over factor and distribution factors of frame(Cof, D.F.,FEM)	1-12 of article (9)	1 – 4 of article (9)
٢٣	4 2 the. 2tut	A1,A2, A3,A5	carry over factor and distribution factors of frame(Cof, D.F.,FEM)	1-12 of article (9)	1 – 4 of article (9)
٢٤	4 2 the. 2tut	A1,A2, A3,A5	Yield Line theory	1-12 of article (9)	1 – 4 of article (9)
٢٥	4 2 the. 2tut	A1,A2, A3,A5	Yield Line theory	1-12 of article (9)	1 – 4 of article (9)
٢٦	4 2 the. 2tut	A1,A2, A3,A5	Yield Line theory	1-12 of article (9)	1 – 4 of article (9)

٢٧	4 2 the. 2tut	A1.A4. A5	Prestressed concrete.	1-12 of article (9)	1 – 4 of article (9)
٢٨	4 2 the. 2tut	A1.A4. A5	Prestressed concrete.	1-12 of article (9)	1 – 4 of article (9)
٢٩	4 2 the. 2tut	A1,A2, A3,A5	Design of stairs.	1-12 of article (9)	1 – 4 of article (9)
٣٠	4 2 the. 2tut	A1,A2, A3,A5	Design of stairs.	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1- Nilson, A., Darwin, D., and Dolan, C., Design of concrete Structures, McGraw Hill Inc., Thirteen Edition, 2004. 2- Chu-Kia, W., Charles, G. S., and Jose, A. P., Reinforced Concrete Design, John Wiley & Sons, Inc., Seventh Edition,2007. 3- Ferguson, P. M., Reinforced concrete fundamentals. John Wiley & Son, 2008. 4- Nawy, Edward G. Reinforced concrete: a fundamental approach, Prentice Hall, 1996.
2. Main references (sources)	

A- Recommended books and References (scientific journals, reports…).	
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Hydrology / CE 409**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects. The course is taught through 2 hrs. per week, 1 theoretical and 1 tutorial.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	

9· Learning Outcomes, Teaching ,Learning and Assessment Method

A1. An ability to apply knowledge of mathematics, science, and engineering.
A2.nterpret data.
A3. An ability to design a system, component, or process to meet desired needs.
A4. An ability to function on multi-disciplinary teams (Our interpretation of multidisciplinary teams includes teams of individuals with similar educational backgrounds focusing on different aspects of a project as well as teams of individuals with different educational backgrounds).
A5. An ability to identify, formulates, and solves engineering problems.
A6. An understanding of professional and ethical responsibility.
A7. An ability to communicate effectively.
A8. The broad education necessary to understand the impact of engineering solutions in a global and societal context.
A9. A recognition of the need for, and an ability to engage in life-long learning (Our interpretation of this includes teaching students that the underlying theory is important because the technology changes, coupled with enhancing their self-learning ability).
A10. Knowledge of contemporary issues (Our interpretation of this includes presenting students with issues such as the impact of globalization, the outsourcing of both engineering and other support jobs as practiced by modern international companies).
A11. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11.In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2 the. 1tut	A1	Introduction in engineering hydrology, Hydrological cycle	1-12 of article (9)	1 – 4 of article (9)
٢	3 2 the. 1tut	A1,A2	Precipitation, Ppt. types	1-12 of article (9)	1 – 4 of article (9)
٣	3 2 the. 1tut	A1,A2	Precipitation measurement, ppt. gauge networks	1-12 of article (9)	1 – 4 of article (9)
٤	3 2 the. 1tut	A1,A2, A3	Average depth of ppt., Test of consistency	1-12 of article (9)	1 – 4 of article (9)
٥	3 2 the. 1tut	A1,A2, A3	Estimation of missing data, Terminal velocity	1-12 of article (9)	1 – 4 of article (9)
٦	3 2 the. 1tut	A1,A2, A3	Runoff, flow mass curve	1-12 of article (9)	1 – 4 of article (9)

٧	3 2 the. 1tut	A1,A2, A3	Flow duration curve, floods	1-12 of article (9)	1 – 4 of article (9)
٨	3 2 the. 1tut	A1,A2, A3.A4	Hydrograph	1-12 of article (9)	1 – 4 of article (9)
٩	3 2 the. 1tut	A1,A2, A3,A4	S curve method,	1-12 of article (9)	1 – 4 of article (9)
١٠	3 2 the. 1tut	A1,A2, A3MA 4	Separation of hydrograph in to its components	1-12 of article (9)	1 – 4 of article (9)
١١	3 2 the. 1tut	A1,A2, A3,A4	Reservoirs, storage equation	1-12 of article (9)	1 – 4 of article (9)
١٢	3 2 the. 1tut	A1,A2, A3,A4	Rating curve	1-12 of article (9)	1 – 4 of article (9)
١٣	3 2 the. 1tut	A1,A2, A3,A4	Reservoir sedimentations	1-12 of article (9)	1 – 4 of article (9)

١٤	3 2 the. 1tut	A1,A2, A3,A4, A5	Area elevation relation, capacity elevation relation	1-12 of article (9)	1 – 4 of article (9)
١٥	3 2 the. 1tut	A1,A2, A3,A4, A5	Evaporation	1-12 of article (9)	1 – 4 of article (9)
١٦	3 2 the. 1tut	A1,A2, A3,A4, A5	Transpiration	1-12 of article (9)	1 – 4 of article (9)
١٧	3 2 the. 1tut	A1,A2, A3,A4, A5	wind	1-12 of article (9)	1 – 4 of article (9)
١٨	3 2 the. 1tut	A1,A2, A3,A4, A5	Aerodynamic effects on structures	1-12 of article (9)	1 – 4 of article (9)
١٩	3 2 the. 1tut	A1,A2, A3,A4, A5.A6	Ground water	1-12 of article (9)	1 – 4 of article (9)
٢٠	3 2 the.	A1,A2, A3,A4,	Hydraulic equilibrium of wells	1-12 of article (9)	1 – 4 of article (9)

	1tut	A5,A6, A7			
٢١	3 2 the. 1tut	A1,A2, A3,A4, A5,A6, A7,A8	Non equilibrium of wells	1-12 of article (9)	1 – 4 of article (9)
٢٢	3 2 the. 1tut	A1,A2, A3,A4, A5,A6, A7,A8	Hydraulic design of hydroelectric power plants	1-12 of article (9)	1 – 4 of article (9)
٢٣	3 2 the. 1tut	A1,A2, A3,A4, A5,A6, A7,A8	Penstock and surge tank design	1-12 of article (9)	1 – 4 of article (9)
٢٤	3 2 the. 1tut		seminars	1-12 of article (9)	1 – 4 of article (9)
٢٥	3 2 the. 1tut		seminars	1-12 of article (9)	1 – 4 of article (9)
٢٦	3 2 the. 1tut		seminars	1-12 of article (9)	1 – 4 of article (9)
٢٧	3 2 the. 1tut		seminars	1-12 of article (9)	1 – 4 of article (9)
٢٨	3 2 the. 1tut		Tests	1-12 of article (9)	1 – 4 of article (9)

٢٩	3 2 the. 1tut		Tests	1-12 of article (9)	1 – 4 of article (9)
٣٠	3 2 the. 1tut		Tests	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	1-Irrigation, water power and water resources engineering by Dr. ARORA, 2009 2-Water power engineering by SHARMA, 2008
2. Main references (sources)	Hydrology by P.Jaya Reddy
A- Recommended books and References (scientific journals, reports…).	Engineering Hydrology by K.Subramanya
B-Electronic references, Internet sites…	

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**FOURTH YEAR** **Selected Topics / CE 410**
4. Modes of Attendance offered	Annual System ; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	90 hrs. / 3 hrs. per week
7. Date of production/revision of this specification	01/09/2019

8. Aims of the Course

Improving student's skill in design of hydraulic structures and improving their ability to comply with relevant codes and design specifications.

9· Learning Outcomes, Teaching, Learning and Assessment Method

At the end of the class, the student will be able to:

A1.Design of structures other than buildings (hydraulic structures like barrages and culverts)
A2.Design of different types of concrete bridges (superstructures)
A3.Design of water retaining structures (concrete tanks)
A4.Identify and comply with relevant codes and specification. e-
A5. Advanced method of structural analysis.

B. The skills goals special to the course.

Teaching and Learning Methods

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.

8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

Homework and Assignments.
1. In-Class Questions and Discussions.
2. Field Trips.
3. Extracurricular Activities.
4. Seminars.
5. In- and Out-Class oral conservations.
6. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development) .

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3 2 the. 1tut	A2,A4	Bridges :Introduction, Types of Reinforced Concrete Bridges	1-12 of article (9)	1 – 4 of article (9)
٢	3 2 the. 1tut	A2,A4	AASHTO Specification, AASHTO Truck Loading	1-12 of article (9)	1 – 4 of article (9)
٣	3 2 the. 1tut	A2,A4	Design of Slab Deck Bridges	1-12 of article (9)	1 – 4 of article (9)
٤	3 2 the. 1tut	A2,A4	Design of Girder – Deck Concrete Bridges	1-12 of article (9)	1 – 4 of article (9)
٥	3 2 the. 1tut	A2,A4	Design of Composite Concrete Slab – Steel Girder Bridges	1-12 of article (9)	1 – 4 of article (9)
٦	3 2 the. 1tut	A2,A4	Construction Details in Bridges	1-12 of article (9)	1 – 4 of article (9)

٧	3 2 the. 1tut	A5	Beam on elastic foundation :Introduction, Assumption,Derivation and Solution of Govern Differential Equation	1-12 of article (9)	1 – 4 of article (9)
٨	3 2 the. 1tut	A5	Relative Stiffness of Beam on Elastic Foundation	1-12 of article (9)	1 – 4 of article (9)
٩	3 2 the. 1tut	A5	Beam on elastic foundation :Application for Different Boundary Conditions and Loading	1-12 of article (9)	1 – 4 of article (9)
١٠	3 2 the. 1tut	A5	Beam on elastic foundation :Application for Different Boundary Conditions and Loading	1-12 of article (9)	1 – 4 of article (9)
١١	3 2 the. 1tut	A5	Beam on elastic foundation :Application for Different Boundary Conditions and Loading	1-12 of article (9)	1 – 4 of article (9)
١٢	3 2 the. 1tut	A3,A4	Reinforced concrete tanks : Circular reinforced concrete tanks, Introduction,	1-12 of article (9)	1 – 4 of article (9)

			Derivation and Solution of Govern Differential Equation Using Beams on Elastic Foundation Theory		
١٣	3 2 the. 1tut	A3,A4	Application for Different Boundary Conditions and Loading	1-12 of article (9)	1 – 4 of article (9)
١٤	3 2 the. 1tut	A3,A4	Analysis of Circular Tanks Using PCA Design Aids, Section Subjected to Shrinkage and Hoop Tension	1-12 of article (9)	1 – 4 of article (9)
١٥	3 2 the. 1tut	A3,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)
١٦	3 2 the. 1tut	A3,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)
١٧	3 2 the. 1tut	A3,A4	Rectangular reinforced concrete tanks : Introduction	1-12 of article (9)	1 – 4 of article (9)

١٨	3 2 the. 1tut	A3,A4	Using PCA Design Aids for Analysis of Rectangular Reinforced Concrete Tanks	1-12 of article (9)	1 – 4 of article (9)
١٩	3 2 the. 1tut	A3,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)
٢٠	3 2 the. 1tut	A3,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)
٢١	3 2 the. 1tut	A3,A4	Construction Details in Reinforced Concrete Tanks	1-12 of article (9)	1 – 4 of article (9)
٢٢	3 2 the. 1tut	A1,A4	Barrage : Introduction and Description	1-12 of article (9)	1 – 4 of article (9)
٢٣	3 2 the. 1tut	A1,A4	Design of Barrage floor Using Beams on Elastic Foundation Theory	1-12 of article (9)	1 – 4 of article (9)
٢٤	3 2 the. 1tut	A1,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)

٢٥	3 2 the. 1tut	A1,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)
٢٦	3 2 the. 1tut	A1,A4	Construction Details in Barrage	1-12 of article (9)	1 – 4 of article (9)
٢٧	3 2 the. 1tut	A1,A4	Reinforced concrete culverts : Introduction	1-12 of article (9)	1 – 4 of article (9)
٢٨	3 2 the. 1tut	A1,A4	Calculation of live load effects on buried structures using AASHTO specification	1-12 of article (9)	1 – 4 of article (9)
٢٩	3 2 the. 1tut	A1,A4	Analysis of single cell box culverts using design aids or moment distribution method for different load cases	1-12 of article (9)	1 – 4 of article (9)
٣٠	3 2 the. 1tut	A1,A4	Design Examples	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	There is no text can covered all the course contains **References :** 1- Hetenyi, M. "Beams on elastic foundation " 2- Nilson, A. and Winter, G. "Design of concrete structures " 3- Anchor, R. " Design of liquid retaining concrete structures" Sehgal, P. "Design of irrigation structures"
2. Main references (sources)	----
A- Recommended books and References (scientific journals, reports…).	----
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan

1. Teaching Institution	College of Engineering University of Baghdad
2. University Department/Centre	Civil Engineering (CE)
3. Course title/code	**English Languages / GE 411**
4. Modes of Attendance offered	Annual System; There is only one mode of delivery, which is a "Day Program". The students are full time students, and on campus. They attend full day program in face-to-face mode. The academic year is composed of 30-week regular subjects.
5. Semester/Year	1st and 2nd/ Academic Year 2019–2020
6. Number of hours tuition (total)	60 hrs. / 2 hrs. per week
7. Date of production/revision of this specification	01/09/2019
8. Aims of the Course	
1. great deal of successful language learning comes from experiences in which the learning is largely unconscious.	
2. This course aimed to make the student's interest in the career information presented will increase his or her ability to communicate more easily in English.	
9· Learning Outcomes, Teaching ,Learning and Assessment Method	
A1.This Course is to introduce the student to the particular vocational area in which he or she is involved. A2.The duties of different kinds of jobs are discussed, as well as the problems that might be encountered at work. A3.Different phases of the civil engineering filed are discussed, together with some of the methods involved in designing structures for a number of different purposes. A4.The aptitudes and education that an engineer must have are also discussed, as well as some of the specific job areas in which he or she may work. A5.. This course will be an introduction to the different kinds of work in the field of civil engineering.	
B. The skills goals special to the course.	
Teaching and Learning Methods	

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Lab. Experiments.
5. Tests and Exams.
6. In-Class Questions and Discussions.
7. Connection between Theory and Application.
8. Field Trips.
9. Extracurricular Activities.
10. Seminars.
11. In- and Out-Class oral conservations.
12. Reports, Presentations, and Posters.

Assessment methods

1. Examinations, Tests, and Quizzes.
2. Extracurricular Activities.
3. Student Engagement during Lectures.
4. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

C. Affective and value goals

C1. Increasing student's self-confidence to perform his (homework, classwork and assessment) within the corresponding time.
C2. Encouraging the teamwork between the students.
C3. Cooperating the universal activities.
C4. Supporting the extra-curricular university activities and urging students to participate in them.

Teaching and Learning Methods

1. Homework and Assignments.
2. In-Class Questions and Discussions.
3. Field Trips.
4. Extracurricular Activities.
5. Seminars.
6. In- and Out-Class oral conservations.
7. Reports, Presentations, and Posters.

Assessment methods

1. Extracurricular Activities.
2. Student Engagement during Lectures.
3. Responses Obtained from Students, Questionnaire about Curriculum and Faculty Member (Instructor).

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 1the. 1tut.	A1,A2	Chapter 1	1-12 of article (9)	1 – 4 of article (9)
٢	2 1the. 1tut	A1,A2	Chapter 1	1-12 of article (9)	1 – 4 of article (9)
٣	2 1the. 1tut	A1,A2	Chapter 2	1-12 of article (9)	1 – 4 of article (9)
٤	2 1the. 1tut	A2,A3, A4,A5	Chapter 2	1-12 of article (9)	1 – 4 of article (9)
٥	2 1the. 1tut	A2,A3, A4,A5	Chapter 3	1-12 of article (9)	1 – 4 of article (9)
٦	2 1the. 1tut	A2,A3, A4,A5	Chapter 3	1-12 of article (9)	1 – 4 of article (9)
٧	2 1the. 1tut	A2,A3, A4,A5	Chapter 4	1-12 of article (9)	1 – 4 of article (9)
٨	2 1the. 1tut	A2,A3, A4,A5	Chapter 4	1-12 of article (9)	1 – 4 of article (9)

٩	2 1the. 1tut	A2,A3, A4,A5	Chapter 5	1-12 of article (9)	1 – 4 of article (9)
١٠	2 1the. 1tut	A2,A3, A4,A5	Chapter 5	1-12 of article (9)	1 – 4 of article (9)
١١	2 1the. 1tut	A2,A3, A4,A5	Chapter 6	1-12 of article (9)	1 – 4 of article (9)
١٢	2 1the. 1tut	A2,A3, A4,A5	Chapter 6	1-12 of article (9)	1 – 4 of article (9)
١٣	2 1the. 1tut	A2,A3, A4,A5	Chapter 7	1-12 of article (9)	1 – 4 of article (9)
١٤	2 1the. 1tut	A2,A3, A4,A5	Chapter 7	1-12 of article (9)	1 – 4 of article (9)
١٥	2 1the. 1tut	A2,A3, A4,A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
١٦	2 1the. 1tut	A2,A3, A4,A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
١٧	2 1the. 1tut	A2,A3, A4,A5	Chapter 8	1-12 of article (9)	1 – 4 of article (9)

١٨	2 1the. 1tut	A2,A3, A4,A5	Chapter 8	1-12 of article (9)	1 – 4 of article (9)
١٩	2 1the. 1tut	A2,A3, A4,A5	Chapter 9	1-12 of article (9)	1 – 4 of article (9)
٢٠	2 1the. 1tut	A2,A3, A4,A5	Chapter 9	1-12 of article (9)	1 – 4 of article (9)
٢١	2 1the. 1tut	A2,A3, A4,A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٢	2 1the. 1tut	A2,A3, A4,A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٣	2 1the. 1tut	A2,A3, A4,A5	Chapter 10	1-12 of article (9)	1 – 4 of article (9)
٢٤	2 1the. 1tut	A2,A3, A4,A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
٢٥	2 1the. 1tut	A2,A3, A4,A5	Presentations	1-12 of article (9)	1 – 4 of article (9)
٢٦	2 1the. 1tut	A2,A3, A4,A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)

٢٧	2 1the. 1tut	A2,A3, A4,A5	Chapter 11	1-12 of article (9)	1 – 4 of article (9)
٢٨	2 1the. 1tut		Chapter 12	1-12 of article (9)	1 – 4 of article (9)
٢٩	2 1the. 1tut		Chapter 12	1-12 of article (9)	1 – 4 of article (9)
٣٠	2 1the. 1tut		Chapter 12	1-12 of article (9)	1 – 4 of article (9)

11. Infrastructure	
1. Books Required reading:	**Textbook:** New Headway Plus (Upper Intermediate Student's Book and Student's Workbook with Key), by Liz and John Soars
2. Main references (sources)	----
A- Recommended books and References (scientific journals, reports…).	---
B-Electronic references, Internet sites…	----

12. The development of the curriculum plan