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

Academic Program Specification Form for the Academic

University: University of Basrah
College: Engineering
Department: Civil
Date of Form Completion: 2021

Dean's Name	Dean's Assistant for Scientific Affairs	Head of Department
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TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAM SPECIFICATION

This programme specification provides a concise summary of the main features of the programme 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 programme.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil engineering department
3. Program Title	Civil engineering
4. Title of Final Award	Bachelor in civil engineering
5. Modes of Attendance offered	Class attendance
6. Accreditation	ABET
7. Other external influences	Field and scientific visits
8. Date of production/revision of this specification	2021
9. Aims of the Program	
1. Preparing and qualifying specialized engineers to meet the requirements of the labor market in its private and public sectors in civil engineering through diversification in methods of learning and teaching and training students to apply the acquired knowledge and skills to solve realistic problems. 2. Providing distinguished academic programs in the field of civil engineering, both theoretical and practical, that comply with international standards of academic quality and meet the needs of the labor market. 3. Encouraging and developing scientific research in the fields of civil engineering in general. 4. Preparing a stimulating environment for faculty members to develop their knowledge and educational and research skills. 5. Building and developing partnership with the governmental and private sectors and society in all its various institutions.	

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1- An ability to apply knowledge of mathematics, science, and engineering.

A2- An ability to identify, formulate, and solve engineering problems.

A3- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

A4- Understand the practical codes of the profession and professional specifications.

B. Subject-specific skills

B1 - An ability to supervise or carry out various civil engineering works.

B2 - An ability to think and solve problems that arise during the implementation of the work.

B 3 - An ability to write scientific reports and read engineering drawings.

B4 - An ability to keep pace with developments in engineering materials and methods of implementation.

Teaching and Learning Methods

1. Explanation and clarification through lectures.
2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens.
3. Self-learning through homework and mini-projects within the lectures.
4. Laboratories.
5. Graduation projects.
6. Scientific visits.
7. Seminars held in the department.
8. Summer training.

Assessment methods

1. Short exams (quizzes).
2. Homework.
3. Quarterly and final exams for theoretical and practical subjects.
4. Small projects within the lesson.
5. Interacting within the lecture.
6. Reports.

C. Thinking Skills

C1- Attention: Attracting students' attention through questions during the lecture.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up the interest of the student who interacted the most with the presented material.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

- Method of giving lectures.
- E-learning on campus.
- Scientific trips to follow up on projects designed in civil engineering.
- Engineering workshops.
- Experimental education.
- Applied education (laboratories).

Assessment methods

- Commitment to the deadline in submitting the duties and research required of the student to submit them.
- Active participation in the classroom is evidence of the student's commitment and responsibility.
- The quarterly and final exams express commitment and cognitive and skill achievement

D. General and Transferable Skills (other skills relevant to employability and personal development

D1 - Develop the student's ability to deal with technical means.

D2 - Develop the student's ability to deal with the Internet.

D3 - Develop the student's ability to deal with multiple means.

D4 - Develop the student's ability to dialogue and discussion.

Teaching and Learning Methods

- A case study (graduation project) in providing a description that includes scientific facts about an engineering problem and asking students to analyze some information, diagnose the problem and describe the mathematical solution.
- Raising the student's incentives to answer and study more.
- Working in multiple groups in the workshops.
- Work with other state institutions within the summer training program.
- Organizing field visits to the field of work.

Assessment methods

• Follow up and discuss graduation projects.
• Follow-up of students' performance in engineering workshops.
• Summer Training Program Completion Reports

12. Personal Development Planning

• To provide the student with self-learning skills through the nature of vocabulary, study curricula and approved teaching methods.
• Encouraging students to work as work teams within practical projects that reflect the life reality of the community and its problems.
• Encouraging students to enter and participate in competitions, seminars and conferences that develop and develop their research ability and self-confidence for self-learning.

13. Admission criteria

The Civil Engineering Department is subject to the work mechanism of the Ministry of Higher Education and Scientific Research - Central Admission Department, where graduates of the preparatory school (scientific branch) are nominated for admission to the department based on the graduation rates. In addition, students are accepted in the parallel morning study as well as the evening study. Likewise, some of the top ten graduates of technical institutes are accepted, others from the top five percent of professional studies and some distinguished employees of state ministries.

14. Key sources of information about the programme

1. The websites of Iraqi and foreign universities.
2. Scientific libraries.
3. Workshops held by the Ministry of Higher Education in addition to the Ministry's standards.
4. The American Academic Accreditation Program (ABET).

11. Programme Structure

Level/Year	Course or Module Code	Course or Module Title	Credit Hours	
			Theoretical	Practical
1st year	E112	Mathematics 1	4	
1st year	CE113	Statics	5	
1st year	E118	Engineering Drawing I		6

1st year	E116	Physics	2	1
1st year	CE114	Engineering Geology	2	2
1st year	U111	English language	2	
1st year	E122	Mathematics II	4	
1st year	E123	Dynamics	4	
1st year	E126	Chemistry	2	1
1st year	E128	Engineering Drawing II		6
1st year	CE124	Construction Materials	4	2
1st year	E125	Computer Science	2	2
2nd year	E212	Applied Mathematics I	4	
2nd year	CE213	Mechanics of Materials I	4	
2nd year	CE214	Fluid Mechanics I	3	2
2nd year	CE215	Engineering Surveying I	3	2
2nd year	CE216	Concrete Technology I	2	2
2nd year	CE217	Computer Programming	2	
2nd year	U211	Human Rights and Democracy	2	
2nd year	E222	Applied Mathematics II	4	
2nd year	CE223	Mechanics of Materials II	4	
2nd year	CE224	Fluid Mechanics II	3	2
2nd year	CE225	Engineering Surveying II	3	2
2nd year	CE226	Concrete Technology II	2	2
2nd year	CE227	Engineering Statistics	2	

2nd year	CE228	Building Construction	4	
3rd year	CE311	Engineering Analysis	4	
3rd year	CE312	Theory of Structures I	4	
3rd year	CE313	Soil Mechanics I	3	2
3rd year	CE314	Reinforced Concrete Design I	5	
3rd year	CE315	Irrigation	3	
3rd year	CE316	Engineering Management	2	
3rd year	CE317	Traffic Engineering	3	1
3rd year	CE318	Computer Applications I		2
3rd year	CE321	Numerical Analysis	4	2
3rd year	CE322	Theory of Structures II	4	
3rd year	CE323	Soil Mechanics II	3	2
3rd year	CE324	Reinforced Concrete Design II	5	
3rd year	CE325	Drainage	3	
3rd year	CE326	Engineering Economy	2	
3rd year	CE327	Transportation Engineering	3	
3rd year	CE328	Computer Applications II		2
4th year	CE418	Prestressed Concrete	4	
4th year	CE412	Foundation Engineering I	4	
4th year	CE413	Steel Structures Design I	3	
4th year	CE414	Hydraulic Structures	3	1
4th year	CE415	Highway Engineering	2	1

4th year	CE416	Water Supply Engineering	3	2
4th year	CE417	Construction Methods	3	
4th year	CE422	Foundation Engineering II	4	
4th year	CE423	Steel Structures Design II	3	
4th year	CE424	Engineering Hydrology	4	
4th year	CE425	Highway Pavement Analysis & Design	2	1
4th year	CE426	Sanitary Sewage Engineering	3	2
4th year	CE427	Estimation and Specifications	3	
4th year	E428	Engineering Ethics	2	

Curriculum Skills Map																			
please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																			
Programme 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**	**C5**	**D1**	**D2**	**D3**	**D4**
1st year	E112	Mathematics 1	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
1st year	CE113	Statics	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
1st year	E118	Engineering Drawing I	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1st year	E116	Physics	C	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x
1st year	CE114	Engineering Geology	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1st year	U111	English language	C		x	x			x	x	x	x	x	x	x	x	x	x	x	x
1st year	E122	Mathematics II	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
1st year	E123	Dynamics	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x
1st year	E126	Chemistry	C	x	x	x		x	x		x	x	x	x	x	x	x	x	x	x
1st year	E128	Engineering Drawing II	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1st year	CE124	Construction Materials	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1st year	E125	Computer Science	C	x		x		x	x		x	x	x	x	x	x	x	x	x	x
2nd year	E212	Applied Mathematics I	C	x	x			x	x			x	x	x	x	x	x	x	x	x
2nd year	CE213	Mechanics of	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x

		Materials I																	
2nd year	CE214	Fluid Mechanics I	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
2nd year	CE215	Engineering Surveying I	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
2nd year	CE216	Concrete Technology I	C	x	x	x		x	x		x	x	x	x	x	x	x	x	x
2nd year	CE217	Computer Programming	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2nd year	U211	Human Rights and Democracy	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
2nd year	E222	Applied Mathematics II	C	x	x			x	x			x	x	x	x	x	x	x	x
2nd year	CE223	Mechanics of Materials II	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
2nd year	CE224	Fluid Mechanics II	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
2nd year	CE225	Engineering Surveying II	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
2nd year	CE226	Concrete Technology II	C	x	x	x	x	x				x	x	x	x	x	x	x	x
2nd year	CE227	Engineering Statistics	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2nd year	CE228	Building Construction	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3rd year	CE311	Engineering Analysis	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3rd year	CE312	Theory of Structures I	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
3rd year	CE313	Soil Mechanics I	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
3rd year	CE314	Reinforced Concrete Design I	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
3rd year	CE315	Irrigation	C	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x

3rd year	CE316	Engineering Management	C	x	x	x		x	x			x	x	x	x	x	x	x	x
3rd year	CE317	Traffic Engineering	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
3rd year	CE318	Computer Applications I	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3rd year	CE321	Numerical Analysis	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3rd year	CE322	Theory of Structures II	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
3rd year	CE323	Soil Mechanics II	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
3rd year	CE324	Reinforced Concrete Design II	C	x	x	x		x	x		x	x	x	x	x	x	x	x	x
3rd year	CE325	Drainage	C	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x
3rd year	CE326	Engineering Economy	C	x	x	x	x	x	x			x	x	x	x	x	x	x	x
3rd year	CE327	Transportation Engineering	C	x	x	x		x	x		x	x	x	x	x	x	x	x	x
3rd year	CE328	Computer Applications II	C	x				x				x	x	x	x	x	x	x	x
4th year	CE418	Prestressed Concrete	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4th year	CE412	Foundation Engineering I	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
4th year	CE413	Steel Structures Design I	C	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x
4th year	CE414	Hydraulic Structures	C	x				x				x	x	x	x	x	x	x	x
4th year	CE415	Highway Engineering	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
4th year	CE416	Water Supply Engineering	C	x	x	x	x	x	x			x	x	x	x	x	x	x	x
4th year	CE417	Construction Methods	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x

4th year	CE422	Foundation Engineering II	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4th year	CE423	Steel Structures Design II	C	x	x	x		x	x		x	x	x	x	x	x	x	x	x
4th year	CE424	Engineering Hydrology	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4th year	CE425	Highway Pavement Analysis & Design	C	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
4th year	CE426	Sanitary Sewage Engineering	C	x	x	x		x	x			x	x	x	x	x	x	x	x
4th year	CE427	Estimation and Specifications	C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4th year	E428	Engineering Ethics	C	x	x	x		x	x			x	x	x	x	x	x	x	x

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Mathematics 1
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 1st year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic methods of analyzing statically defined structures as an introduction to the analysis of undefined structures and structural design decisions.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Studying of the Cartesian coordinates and basics of analytic geometry. A2- Learning group of methods to drawing functions by different manners. A3- Using concept of limits and approximations to illustrate and understanding mathematic differential concepts. A4- Using concept of limit to justify calculus and differentiation.
B. Subject-specific skills B1 - Apply quantitative and numerical methods for the purpose of solving structural engineering problems.

B2 - Use basic knowledge to research new technologies.
B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to calculus	Numbers	Lecture	Written exam
2	4	Review	Definition of functions	Lecture	Written exam
3	4	Function basics	Drawing of functions	Lecture	Written exam
4	4	Applications to Drawing of functions	Assymptotes symmetry and infinity approaches	Lecture	Written exam
5	4	Introduction to Analytic geometry	Trigonometric functions	Lecture	Written exam
6	4	Limits	Approaches of numbers and L'Hopital's rule	Lecture	Written exam
7	4	Introduction to Derivatives	Implicit differentiations	Lecture	Written exam
8	4	Derivative applications 1	Sketctch the functions	Lecture	Written exam
9	4	Derivative applications 2	Mean value theory and some applications	Lecture	Written exam
10	4	Transcendental Functions 1	Exponential and Logarithmic Functions	Lecture	Written exam
11	4	Transcendental Functions 2	Hyperbolic functions	Lecture	Written exam
12	4	Transcendental Functions 3	DERIVATIVES OF EXP and LOG FUNCTIONS	Lecture	Written exam
13	4	Transcendental Functions 4	Inverse trigonometric functions	Lecture	Written exam
14	4	Analytic geometry 1	Conics	Lecture	Written exam
15	4	Analytic geometry 2	Drawing the Conics	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books	Calculus, Thomas, Pearson Education 2005.
2- Recommended books and references (scientific journals, reports ,....	Any other Calculus and analytic geometry textbook.
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
There is no developing material for this course soon since the basic preliminary subjects here is the foundation and important entrance to the next study scientific materials for many stages and subjects, the developing of this material indeed depends on the developing of these courses for the next stages of engineering subjects.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Eng. Mechanic -static
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 1st year
6. Number of hours tuition (total)	75 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
To understand the procedure for analysis of static objects; concepts of force, moment, and mechanical equilibrium. To analyze forces and moments in two and three dimensions due to concentrated and distributed forces in various systems such as beams, frames and trusses.	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

On successful completion of this course students will be able to:

A1 Define Newton's laws of motion and Recall trigonometric laws and apply to the addition and decomposition of vectors quantities.

A2 Identify the moment of a force and calculate its value about a specified axis. Define the moment of a couple. Describe the concept of dry friction and

analyse the equilibrium of rigid bodies subjected to this force.

A3 Construct "Free Body Diagrams" of real-world problems and apply Newton's Laws of motion and vector operations to evaluate equilibrium of particles and bodies. Apply the principles of equilibrium of particles and bodies to analyse the forces in planar truss members.

A4 Discuss the concepts of ``centre of gravity" and ``centroids" and compute their location for bodies of arbitrary shape. Apply the concepts used for determining centre of gravity and centroids to find the resultant of a generally distributed loading. Use methods learnt for equilibrium of bodies and the resultant of a generally distributed loading to compute the internal forces in beams. Generalize the procedure to construct bending moments and shear force diagrams (internal forces) and utilise this information in engineering design.

B. Subject-specific skills

B1 - Apply quantitative and numerical methods for the purpose of solving structural engineering problems.

B2 - Use basic knowledge to research new technologies.

B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become

lazy or fidgety.

Teaching and Learning Methods

- The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
- The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
- The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

- Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
- Sudden exams during the theoretical and practical lecture.
- Quarterly exams for the theoretical and practical side.
- Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Introduction	principles of statics	Lecture	Written exam
2	5	Force analysis	Force analysis	Lecture	Written exam
3	5	Force analysis	Force analysis	Lecture	Written exam
4	5	Force analysis	Force analysis	Lecture	Written exam
5	5	Equilibrium	Equilibrium	Lecture	Written exam
6	5	Equilibrium	Equilibrium	Lecture	Written exam
7	5	Equilibrium	Equilibrium	Lecture	Written exam
8	5	friction	friction	Lecture	Written exam
9	5	friction	friction	Lecture	Written exam
10	5	truss	truss	Lecture	Written exam

11	5	truss	truss	Lecture	Written exam
12	5	centroid	centroid	Lecture	Written exam
13	5	centroid	centroid	Lecture	Written exam
14	5	Moment of inertia	Moment of inertia	Lecture	Written exam
15	5	Moment of inertia	Moment of inertia	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Hibbeler R. C., Engineering Mechanics, Statics , 14th ed, 2015 2-M. E. Plesha, Engineering Mechanics Statics, 1st ed, 2010. 3-A. Bedford, Engineering Mechanics Statics, 5th ed, 2008
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides general information for using the tools and concept of engineering drawing, teaching drawing lines, their types and use, and drawing geometric shapes with the method of placing dimensions. The course contributes to reading engineering plans and how to deduce details and measurements of work from the course using the paper plan or using computer-aided engineering drawing programs.

1. Teaching Institution	Basrah University
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Drawing 1
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 1st year
6. Number of hours tuition (total)	90 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	

- It is noticeable that facilities, buildings and construction projects have developed significantly in recent years, and accordingly, the methods of presenting ideas and engineering plans have evolved, and a great deal has been relied on modern technologies such as computers and engineering programs in the presentation of engineering plans. Therefore, this course aims to introduce the student to the methods and tools of paper engineering drawing, how to read diagrams, and ways to find dimensions or shapes that are not shown in the diagram through some of the engineering processes and ideas of engineering drawing. This course is also an important introduction to computer applications of engineering drawing, as the civil engineering specialist will not be able to make the most of the computer unless he is fully familiar with the subject of engineering drawing.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1- Clarify the basic concepts of engineering drawing by defining the tools for drawing and how to use them and how to deduce civil dimensions and shapes from drawings and diagrams.

A2- Acquisition of skills in addressing site engineering problems.

A3- Acquiring basic skills as an introduction to building a successful civil engineer.

A4- Gain a basic understanding of engineering designs and their various industrial and construction applications.

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B. Subject-specific skills

B1 - The ability to draw sections and geometric shapes.

B2 - he ability to think about finding dimensions and deducing missing shapes for any structure or geometric shape.

B3 - Writing detailed scientific reports for engineering plans.

B4 - The ability to gain experience in dealing with executive engineering plans.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	6			General information for the use of tools and the concept of engineering drawing	Class work
2	6				Class work
3	6				Class work
4	6			Teaching drawing lines and their types	Class work
5	6				Class work
6	6			engineering operations	Class work
7	6				Class work
8	6				Class work
9	6			Dimensions	Class work
10	6			applications	Class work
11	6				Class work
12	6				Class work
13	6			projection drawing	Class work
14	6				Class work

15	6				Class work

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Engineering drawing written by Abdul Rasoul Al Khaffaf Descriptive geometry written by Jassim Shehab
2. Key references (sources)	Engineering drawing by French
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Physics: The course provides general information about physics in its many branches such as mechanics, physics, thermodynamics, electricity, magnetism, quantum mechanics and relativity. It should be noted that some laws, such as Newton's law of motion and conservation of energy

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Physics
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 1st year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	

- All phenomena in the natural world are measured in terms of a few basic relationships between measurable properties of matter and energy. These relationships are called laws of physics, and they are formulas that are characterized by a high degree of generality and are derived from a large number of phenomena. The goal of physics can be summarized as expressing these basic relationships (these laws) in a mathematical form, so that the student can use the logical rules of mathematics to apply the laws to specific cases and thus obtain quantitative results. The most important laws of physics are in the field of civil engineering, which requires the engineer to know these laws for the purpose of reflecting them on the engineering reality related to mathematics, engineering foundations, fluid movement, hydraulic installations, and others.

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of physics. A2- Acquisition of skills in dealing with and understanding the laws of physics in a simplified manner. A3- Acquire basic skills as an introduction to the physical properties necessary to describe all measurements physical. These properties, called dimensions, are length, mass, time, temperature, and electric current. The number of particles and luminous intensity. And the derivation of other physical quantities such as force, energy and momentum
B. Subject-specific skills B1 - The ability to know and understand physics B2 - The ability to think about a solution to any problem. B3 - Writing scientific reports. B4 - The ability to gain experience in dealing with physical quantities.
Teaching and Learning Methods
• Readings, self-learning, panel discussions. • Exercises and activities in the lecture. • Homework. • Directing students to some websites to benefit and develop their capabilities. • Conducting seminars to explain and analyze a specific issue and find solutions to it
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2			introduction	Class work
2	2			Physics tools Importance of physics	Class work and quiz
3	2				Class work
4	2			uniform linear motion	Class work and quiz
5	2				Class work
6	2			Ballistic movement	Class work
7	2			Newton's laws of motion	Class work
8	2				Class work and quiz
9	2			Mass and its relationship to weight	Class work

10	2			Friction and friction forces	Class work
11	2			movement in a circle	Class work
12	2			Equations of Angular Motion	Class work and quiz
13	2			Centripetal wheel	Class work
14	2			Newton's law of gravitation	Class work
15	2			orbital motion	Class work

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Geology
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 1st year
6. Number of hours tuition (total)	60 hrs.
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to provide basic information about the components of the earth's crust, types of rocks, forms of geological structures, factors and forces that affect the earth's crust, earthquakes, volcanoes, the natural properties of soil and subsurface water geology as an introduction to studying the geology of tunnels, dams and reservoirs sites, and the use of geological maps and geological survey.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Introducing the concept of engineering geology and its importance in knowing the origin, history and formation of the sphere Earth and the forces acting on its rocks. A2- Determining the environmental problems resulting from geological phenomena, their causes, and ways to reduce their effects. A3- Describe engineering methods for analyzing and designing systems that help

solve foundation geological problems.

A4- Clarify the sources of groundwater and their relationship to surface water and how to avoid its risks during implementation Engineering Works. Explain the methods of drawing topographic sections and knowing the thickness of the layers of the earth's surface. A6- Determining the required investigation methods for the locations of important buildings and facilities and the type of geological phenomena influential.

B. Subject-specific skills

B1 - Analyzing the natural phenomena that are important in realizing the reality of the components of the Earth

B 2 - Choosing engineering decisions in knowing the movement of ground water and explaining the factors affecting it

B3 - Designing illustrative geological maps of the Earth's surface layers and their uses in civil engineering

B4 - Using the concept of metal detection in the earth's crust and analyzing its components and their relationship to foundations Facilities

Teaching and Learning Methods

•Theoretical lectures, practical lectures, small discussion groups, presentation of scientific films, and writing reports.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2 2	Definition of geology Earth Structure	Engineering Geology	Th. Lecture Prac. Lecture	Written exam
2	2 2	Mineral groups	Minerals	Th. Lecture Prac. Lecture	Written exam
3	2 2	Physical properties of minerals	Minerals	Th. Lecture Prac. Lecture	Written exam
4	2 2	Physical and engineering properties of rocks	Rocks	Th. Lecture Prac. Lecture	Written exam
5	2 2	Rock cycle geological structures	Rocks	Th. Lecture Prac. Lecture	Written exam
6	2 2	Earthquakes Volcanoes	Rocks	Th. Lecture Prac. Lecture	Written exam
7	2 2	Geological origin and properties of	Soil and river geology	Th. Lecture Prac. Lecture	Written exam

		soil and rivers			
8	2 2	Transport and sedimentation in rivers	Soil and river geology	Th. Lecture Prac. Lecture	Written exam
9	2 2	The origin and sources of subsurface water	subsurface water geology	Th. Lecture Prac. Lecture	Written exam
10	2 2	subsurface water movement Artesian wells	subsurface water geology	Th. Lecture Prac. Lecture	Written exam
11	2 2	topographic maps	geological maps	Th. Lecture Prac. Lecture	Written exam
12	2 2	contour lines	geological maps	Th. Lecture Prac. Lecture	Written exam
13	2 2	Topographic Profile & vertical section	geological maps	Th. Lecture Prac. Lecture	Written exam
14	2 2	Geological and geotechnical investigations of engineering building sites	Geological and geotechnical investigations of engineering building sites	Th. Lecture Prac. Lecture	Written exam
15	2 2	Engineering geology and foundation problems	Geological and geotechnical investigations of engineering building sites	Th. Lecture Prac. Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. PRINCIPL OF ENGINEERING GEOLOGY & PRACTICES, AL-TAI MAJID ABOUD JASSIM
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

English Language: The course provides general information about English grammar and how to form sentences and tenses.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	English
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 1st year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Develop students' skills to speak English in terms of sentence formation and pronunciation.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of the English language by defining the tools for grammar, formulating sentences, texts and pronunciation. A2- Acquisition of skills in speaking and writing research and reports.
B. Subject-specific skills B1 - The ability to read. B2 - The ability to write. B3 - The ability to gain experience in dealing with foreign companies.

Teaching and Learning Methods
• Readings, self-learning, panel discussions. • Exercises and activities in the lecture. • Homework. • Directing students to some websites to benefit and develop their capabilities. • Conducting seminars to explain and analyze a specific issue and find solutions to it
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2		Sequence		Class
2	2		Contrast		Class
3	2		Cause and consequence		Class and quiz
4	2		Reading		Class
5	2		Comparisons		Class and quiz
6	2				Class
7	2		Reading		Class and quiz
9	2		Nouns		Class
8	2				Class and quiz
10	2		Reading		Class
11	2		Pronouns		Class and quiz
12	2				Class
13	2		Passive		Class and quiz
14	2		Impersonal Passive		Class
15	2		Reading		Class and quiz

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	New Headway_ Beginner A1_ Workbook
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Mathematics 2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 1st year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic methods of analyzing statically defined structures as an introduction to the analysis of undefined structures and structural design decisions.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Learning basic concepts of integration and the scientific justification. A2- Learning group of methods of integration and some techniques for some templates and functions. A3- Using integration to solve some physical and engineering problems. A4- Studying of an introduction to linear algebra and solving some equations related to engineering systems and an introduction of numerical analysis.
B. Subject-specific skills B1 - Apply quantitative and numerical methods for the purpose of solving structural engineering problems.

B2 - Use basic knowledge to research new technologies.
B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to integration	Definitions	Lecture	Written exam
2	4	Applications on Integration 1	Area under curves	Lecture	Written exam
3	4	Applications on Integration 2	Area between curves	Lecture	Written exam
4	4	Applications on Integration 3	Volumes by revolutions about axes	Lecture	Written exam
5	4	Applications on Integration 4	Surface areas and length of curves	Lecture	Written exam
6	4	Integration of some complex function	Logarithmic. exponential and trigonometric functions	Lecture	Written exam
7	4	Method of integration 1	Substitution methods	Lecture	Written exam
8	4	Method of integration 2	Some techniques for trigonometric functions	Lecture	Written exam
9	4	Method of integration 3	Integration by parts 1	Lecture	Written exam
10	4	Method of integration 4	Integration by parts 2	Lecture	Written exam
11	4	Method of integration 5	Partial fraction method	Lecture	Written exam
12	4	Method of integration 6	Trigonometric substitutions 1	Lecture	Written exam
13	4	Method of integration 7	Trigonometric substitutions 1	Lecture	Written exam
14	4	Matrices 2	Basics of matrices	Lecture	Written exam
15	4	Matrices 2	Solving algebraic linear systems	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books	Calculus, Thomas, Pearson Education 2005.
2- Recommended books and references (scientific journals,	Any other Calculus and analytic geometry

reports ,....	textbook.
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
There is no developing material for this course soon since the basic preliminary subjects here is the foundation and important entrance to the next study scientific materials for many stages and subjects, the developing of this material indeed depends on the developing of these courses for the next stages of engineering subjects.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Studying the continuous motion of a particle on linear, curvilinear and circular path. Applying the principle of constant acceleration on the motion of projectiles. Discussing the Newton's law for mass and acceleration and its relation with constant acceleration. Studying the principles of work and energy, and impulse and momentum.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Mechanics : Dynamic
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 1rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to study the principles of motion as an introduction to study the structural dynamic.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Applying the principles distance, velocity and acceleration on motion of particles in linear, circular and curvilinear paths. A2- Applying the principle of constant acceleration on the motion of projectiles. A3- Applying the Newton's law for mass and acceleration. A4- Introduction to work and energy, and impulse and momentum.
B. Subject-specific skills B1 - Apply the principles of motion on the motion of particles. B2 - Use basic knowledge to research new technologies. B3 – Studying the principles of structural dynamic.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to Dynamic	Introduction to Dynamic	Lecture	Written exam
2	4	**Rectilinear Kinematics: Continuous Motion**	**Continuous Motion**	Lecture	Written exam
3	4	**Rectilinear Kinematics: Continuous Motion**	**Continuous Motion**	Lecture	Written exam
4	4	**Rectilinear Kinematics: Continuous Motion**	**Motion of Projectiles**	Lecture	Written exam
5	4	**Rectilinear Kinematics: Continuous Motion**	**Curvilinear Motion**	Lecture	Written exam
6	4	**Coplanar Angular Motion of a Line**	**Motion of a Line**	Lecture	Written exam
7	4	**Coplanar Angular Motion of a Line**	**Motion on circular path**	Lecture	Written exam
8	4	**Kinetics of Rigid Body: Planar Kinetics Equation of Motion**	**Rectilinear Translation**	Lecture	Written exam
9	4	**Kinetics of Rigid Body: Planar Kinetics Equation of Motion**	**Curvilinear Translation**	Lecture	Written exam
10	4	**Work and Energy**	Work of a force	Lecture	Written exam
11	4	**Work and Energy**	**Principle of Work and Energy**	Lecture	Written exam
12	4	**Work and Energy**	**Principle of Work a n d Energy for a System of Particles**	Lecture	Written exam
13	4	**Work and Energy**	Power and Efficiency	Lecture	Written exam
14	4	**Impulse and Momentum**	**Principle of Linear Impulseand**	Lecture	Written exam

			Momentum		
15	4	**Impulse and Momentum**	**Principle of Linear Impulseand Momentum for a System of Particles**	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1.Engineering Mechanics, Higdon 2. Engineering Mechanics: Daynamic, R.C. Hibbeler, Prentice Hall.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	Engineering Mechanics: Daynamic, R.C. Hibbeler, Prentice Hall.
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Chemistry
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 1st year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic methods in explaining the behavior of various types of materials in terms of their chemical structures. The focus is on the application of chemical principles and their relationship to civil engineering.	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1- Studying and knowing the types of cement, the chemical properties and the equations involved in its formation.

A2- Study and understanding water and its chemical properties and equations in its composition and water suitable for concrete mix.

A3- Studying and knowing the types of lime and gypsum and the chemical properties and equations involved in its formation.

B. Subject-specific skills

B1 - Apply chemical equations for the purpose of knowing the chemical properties involved in structural engineering.

B2 - Use basic knowledge to research new chemical techniques.

B3 - Derive and evaluate the equations needed to apply in structural engineering analysis methods.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Chemical analysis skills for materials involved in civil engineering by lecturers through small study groups, evaluation and response to all submitted work.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Chapter One	Cement (composition and types)	Lecture	Written exam
2	3	Chapter One	Cement (composition and types)	Lecture	Written exam
3	3	Chapter One	Cement (composition and types)	Lecture	Written exam
4	3	Chapter One	Cement (composition and types)	Lecture	Written exam
5	3	Chapter One	Cement (composition and types)	Lecture	Written exam
6	3	Chapter One	Cement (composition and types)	Lecture	Written exam
7	3	Chapter One	Cement (composition and types)	Lecture	Written exam
8	3	Chapter Two	Lime and gypsum	Lecture	Written exam
9	3	Chapter Two	Lime and gypsum	Lecture	Written exam
10	3	Chapter Two	Lime and gypsum	Lecture	Written exam

11	3	Chapter Two	Lime and gypsum	Lecture	Written exam
12	3	Chapter Three	Water and its composition	Lecture	Written exam
13	3	Chapter Three	Water and its composition	Lecture	Written exam
14	3	Chapter Three	Water and its composition	Lecture	Written exam
15	3	Chapter Three	Water and its composition	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	

12. Course development plan
Expanding the study of the chemical composition of engineering materials included in the study of civil engineering and its divisions of construction and water and its chemical and engineering equations

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides general information for using the tools and concept of engineering drawing, teaching drawing lines, their types and use, and drawing geometric shapes with the method of placing dimensions. The course contributes to reading engineering plans and how to deduce details and measurements of work from the course using the paper plan or using computer-aided engineering drawing programs.

1. Teaching Institution	Basrah University
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Drawing 2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 1st year
6. Number of hours tuition (total)	90 hrs
7. Date of production/revision of this specification	2021

8. Aims of the Course

- It is noticeable that facilities, buildings and construction projects have developed significantly in recent years, and accordingly, the methods of presenting ideas and engineering plans have evolved, and a great deal has been relied on modern technologies such as computers and engineering programs in the presentation of engineering plans. Therefore, this course aims to introduce the student to the methods and tools of paper engineering drawing, how to read diagrams, and ways to find dimensions or shapes that are not shown in the diagram through some of the engineering processes and ideas of engineering drawing. This course is also an important introduction to computer applications of engineering drawing, as the civil engineering specialist will not be able to make the most of the computer unless he is fully familiar with the subject of engineering drawing.

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1- Clarify the basic concepts of engineering drawing by defining the tools for

drawing and how to use them and how to deduce civil dimensions and shapes from drawings and diagrams.
A2- Acquisition of skills in addressing site engineering problems.
A3- Acquiring basic skills as an introduction to building a successful civil engineer.
A4- Gain a basic understanding of engineering designs and their various industrial and construction applications.
.

B. Subject-specific skills
B1 - The ability to draw sections and geometric shapes.
B2 - he ability to think about finding dimensions and deducing missing shapes for any structure or geometric shape.
B3 - Writing detailed scientific reports for engineering plans.
B4 - The ability to gain experience in dealing with executive engineering plans.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills
C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject

curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	6			Third Projection Conclusion	Class work
2	6				Class work
3	6				Class work
4	6			Isometric Drawing	Class work
5	6				Class work
6	6			Drawing of Sections	Class work
7	6				Class work
8	6				Class work
9	6			Principles of structural drawing	Class work
10	6				Class work
11	6				Class work
12	6				Class work
13	6			principles of descriptive geometry	Class work
14	6				Class work
15	6				Class work

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Engineering drawing written by Abdul Rasoul Al Khaffaf Descriptive geometry written by Jassim Shehab
2. Key references (sources)	Engineering drawing by French
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Building materials: The course provides general information about engineering materials used in construction, which have an effective role and special importance in any technological progress in all aspects of life, research and study of their properties, and the possibility of testing the best and most appropriate of these materials to match the conditions of their use in all required engineering works.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Construction materials
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 1st year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The study of engineering subjects has an effective role and special importance in any technological progress in all fields. Therefore, engineering subjects are the main entity for various engineering works. Therefore, this course aims to introduce the student to the different types of engineering materials and to study the study of their properties and the possibility of testing the best and most appropriate of these materials in line with the conditions of their use in all required engineering works. As the civil engineering student can deal correctly with engineering materials with high capacity and efficiency in all steps of any engineering work. It is required to implement it on the ground to reach the highest technical and technical levels.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Knowing the properties of materials and the necessary tests for the purpose of testing their efficiency.

A2- Acquisition of skills in handling work problems.
A3- Acquisition of basic skills in selecting the appropriate materials for the implementation of the facility so as to ensure the safety of construction at the lowest possible cost
A4- Acquisition of skill in the correct handling of engineering materials with high capacity and efficiency in all steps of any Engineering work required to be implemented on the ground.

B. Subject-specific skills

B1-The ability to choose the appropriate materials to implement the structure so as to ensure the safety of the construction at the lowest possible cost.
B2 - The ability to think about addressing work problems on the ground during the design or construction of any building.
B3 - Writing scientific reports.
B4 - The ability to gain experience in dealing with engineering materials used in construction.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4			Introduction	Class work
2	4			Classification of engineering materials	Class work and quiz
3	4			General properties of engineering materials	Class work
4	4			Physical properties	Class work and quiz
5	4			Physical properties	Class work
6	4			Mechanical properties: types of loading	Class work
7	4			Mechanical properties: stress	Class work

				strain Boson ratio	
8	4			Mechanical properties: stress-strain curve	Class work and quiz
9	4			Modulus of elasticity or Yonk's modulus	Class work
10	4			Mechanical properties of engineering materials	Class work
11	4			Mechanical properties of engineering materials	Class work
12	4			models of engineering materials Bricks and wood	Class work
13	4			Models of engineering materials bonding materials	Class work and quiz
14	4			Models of engineering materials iron materials	Class work
15	4			Models of Alkashi engineering materials	Class work

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	Properties and testing of building materials Building materials and raw materials used in construction
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Computer Science
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 1st year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the computer science in general and makes students familiar with Hardware and general software, and then learn the more specific software that engineering students and engineers mostly used like calculating and reporting programs to be more prepared for engineering analysis and design programs in future stages.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Identifying the two main parts of computer science (the hardware and software) their characteristics and functions. A2- Studying the most essential software starting from the operating system Windows then the office package like Word, Excel and Power Point to be qualify for editing and presenting data.

B. Subject-specific skills

B1 – Identifying the basic functions of different parts of hardware components.

B2 – Practicing the operating system to accomplish different tasks and managing the other programs.

B3 – Getting the necessary skills in the most essential software that all engineering students and engineers are need.

Teaching and Learning Methods

• The theoretical lectures are presenting the essential data and concepts that students are necessarily learned, then the laboratory lectures make practice use of the theoretical lectures and test the different algorithms and tasks on computer, doing the exercises and test the homework.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Introduction to computer	Development of Computer	Lecture	Written exam
1	2	Introduction to Computer	Computer Main Parts	Laboratory	Evaluation
2	2	Introduction to Computer	Hardware Components and Functions	Lecture	Written exam
2	2	Introduction to Computer	Hardware Components and Functions	Laboratory	Evaluation
3	2	Flowcharts and Algorithms	Flowcharts and Algorithms	Lecture	Written exam
3	2	Flowcharts and Algorithms	Flowcharts and Algorithms	Laboratory	Evaluation
4	2	Flowcharts and Algorithms	Flowcharts and Algorithms	Lecture	Written exam
4	2	Flowcharts and Algorithms	Flowcharts and Algorithms	Laboratory	Evaluation
5	2	Windows	Windows	Lecture	Written exam
5	2	Windows	Windows	Laboratory	Evaluation
6	2	Windows	Windows	Lecture	Written exam
6	2	Windows	Windows	Laboratory	Evaluation
7	2	Microsoft Word	Microsoft Word	Lecture	Written exam
7	2	Microsoft Word	Microsoft Word	Laboratory	Evaluation
8	2	Microsoft Word	Microsoft Word	Lecture	Written exam
8	2	Microsoft Word	Microsoft Word	Laboratory	Evaluation
9	2	Microsoft Word	Microsoft Word	Lecture	Written exam
9	2	Microsoft Word	Microsoft Word	Laboratory	Evaluation
10	2	Microsoft Excel	Microsoft Excel	Lecture	Written exam

10	2	Microsoft Excel	Microsoft Excel	Laboratory	Evaluation
11	2	Microsoft Excel	Microsoft Excel	Lecture	Written exam
11	2	Microsoft Excel	Microsoft Excel	Laboratory	Evaluation
12	2	Microsoft Excel	Microsoft Excel	Lecture	Written exam
12	2	Microsoft Excel	Microsoft Excel	Laboratory	Evaluation
13	2	Microsoft Power Point	Microsoft Power Point	Lecture	Written exam
13	2	Microsoft Power Point	Microsoft Power Point	Laboratory	Evaluation
14	2	Microsoft Power Point	Microsoft Power Point	Lecture	Written exam
14	2	Microsoft Power Point	Microsoft Power Point	Laboratory	Evaluation
15	2	Microsoft Power Point	Microsoft Power Point	Lecture	Written exam
15	2	Microsoft Power Point	Microsoft Power Point	Laboratory	Evaluation

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Computer Essentials and Office Applications- Part I & II – Dr. Ghassan Hameed
2. Key references (sources)	Up to date books for learning computers and latest software versions
A- Recommended books and references (scientific journals, reports ,....	Libraries of different universities
B- Electronic references, websites	General websites

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Applied Mathematics 1
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present polar coordinates and vectors and their applications in engineering.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Study polar coordinates and their relation to Cartesian coordinates and their applications. A2- Define vectors and use them to study the analytic geometry of space with their important applications in engineering.
B. Subject-specific skills B1 – Graphing in Polar coordinates, calculating areas and lengths of curves using polar coordinates. B2 - Study the analytic geometry of space using vectors. Vectors provide simple ways to define equations for lines, planes, curves, and surfaces in space with their many important applications in science, engineering.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Definition of Polar Coordinates	Definition of Polar Coordinates	Lecture	Written exam
2	4		Polar Equations and Graphs	Lecture	Written exam
3	4		Relating Polar and Cartesian Coordinates	Lecture	Written exam
4	4	Graphing Polar Coordinate Equations	Symmetry and Slope	Lecture	Written exam
5	4	Areas and Lengths in Polar Coordinates	Area in the Plane	Lecture	Written exam
6	4		Length of a Polar Curve	Lecture	Written exam
7	4	Vectors and the Geometry of Space	Three-Dimensional Coordinate Systems	Lecture	Written exam
8	4	Vectors	Component Form and Vector Algebra Operations	Lecture	Written exam
9	4		Unit Vectors	Lecture	Written exam
10	4		Midpoint of a Line Segment	Lecture	Written exam
11	4	Applications	Navigation, forces action on a single object	Lecture	Written exam
12	4	The Dot Product	Angle Between	Lecture	Written exam

			Vectors, orthogonal Vectors, work and Vector Projections		
13	4	The Cross Product	Calculating the Cross Product as a determinant, Area of a Parallelogram and Torque	Lecture	Written exam
14	4	Lines and Planes in Space	Lines and Line Segments in Space, The Distance from a Point to a Line in Space	Lecture	Written exam
15	4		An Equation for a Plane in Space, Lines of Intersection, The Distance from a Point to a Plane	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Thomas' Calculus, George B. Thomas, Jr.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Mechanics of Materials -I
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic principles to calculate the normal stresses and strains.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Calculating stresses and strains in axially loaded bodies. A2 Calculate the stresses caused by temperature changes. A3- Calculation of stresses in thin-walled cylinders. A4- Calculate the stresses resulting from torsion. Calculation of the principal stresses and planes.
B. Subject-specific skills B1- Applying analytical and numerical methods for the purpose of solving mechanics of materials problems. B2 - Use basic knowledge to research new technologies. B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction stress and strain	Normal stress and strain	Lecture	Written exam
2	4	Introduction stress and strain	Normal stress and strain	Lecture	Written exam
3	4	Applications to Axially Loaded Members	Axially Loaded Members	Lecture	Written exam
4	4	Applications to Axially Loaded Members	Axially Loaded Members	Lecture	Written exam
5	4	Introduction to Thermal stress in axially loaded members	Thermal Stresses	Lecture	Written exam
6	4	Introduction to Thermal stress in axially loaded members	Thermal Stresses	Lecture	Written exam
7	4	Introduction to concepts Thin-Walled Cylinders	Thin Wall Cylinders	Lecture	Written exam
8	4	Introduction to concepts Thin-Walled Cylinders	Thin Wall Cylinders	Lecture	Written exam
9	4	Shear Stresses resulting from Torsion	Torsion	Lecture	Written exam
10	4	Shear Stresses resulting from Torsion	Torsion	Lecture	Written exam
11	4	Shear Stresses resulting from Torsion	Torsion	Lecture	Written exam
12	4	Introduction to stress transformation and principal stresses	Stress Transformation	Lecture	Written exam
13	4	Introduction to stress transformation and principal stresses	Stress Transformation	Lecture	Written exam
14	4	Introduction to stress transformation	Stress Transformation	Lecture	Written exam

		and principal stresses			
15	4	Introduction to stress transformation and principal stresses	Stress Transformation	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1.Strength of Materials. 2. Mechanics of Materials , R.C. Hibbeler.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Adding practical laboratory hours to conduct mechanics of material experiments

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Fluid Mechanics - 1
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	45 theoretical hours and 30 practical hours
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims for studying the basic methods to understand the stability of fluids (liquid and gases) and the physical properties of the fluids. In addition, it provides a studying the fluids at the state of rest or relative rest and finding the resulting pressures and forces.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Understanding the physical properties of fluids such as density, viscosity, compressibility, surface tension, and capillarity. A2- Methods for calculating the pressure of fluids at rest (statics). A3-Methods for calculating the hydrostatic forces for fluids at rest or relative rest. A4- Methods for calculating the buoyant forces. Introduction to the continuity and energy equations.
B. Subject-specific skills B1 - Apply quantitative and numerical methods for solving fluid mechanics problems. B2 - Use basic knowledge to research new technologies.

B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	The properties of fluids	Definition of a fluid, density , specific weight and specific gravity	Lecture	Written exam
2	3	The properties of fluids	Viscosity, pressure and perfect gas, vapor pressure, and surface tension	Lecture	Written exam
3	3	Forces, stresses and pressure at a point	Fluid Statics	Lecture	Written exam
4	3	Basic equation of fluid statics	Fluid Statics	Lecture	Written exam
5	3	Units and scale of pressure measurements , manometers	Fluid Statics	Lecture	Written exam
6	3	Forces on plane surfaces	Fluid Statics	Lecture	Written exam
7	3	Forces components on curved surfaces	Fluid Statics	Lecture	Written exam
8	3	Buoyant forces	Buoyancy	Lecture	Written exam
9	3	Stability of floating and submerged bodies	Buoyancy	Lecture	Written exam
10	3	Fluid masses subjected to a constant acceleration	Horizontal, Vertical, and Inclined accelerations	Lecture	Written exam
11	3	Fluid masses subjected to a constant	Rotational acceleration	Lecture	Written exam

		acceleration			
12	3	Fluid Dynamics	Types of fluid, Types of flow	Lecture	Written exam
13	3	Fluid Dynamics	Continuity equation	Lecture	Written exam
14	3	Equation of fluid motion	Energy conservation and Bernoulli's equation	Lecture	Written exam
15	3	Equation of fluid motion	Energy conservation and Bernoulli's equation	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1.Fluid Mechanics by Streeter &Wylie 2. ميكانيك الموائع د نزار السبتي.
2. Key references (sources)	1- Fluid Mechanics for Engineer by Albertson, Barton &Simons 2- Fluid Mechanics & Hydraulics (Schaums series) by Giles
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	- Reputable websites. - Libraries sites in some international universities
12. Course development plan	

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Surveying I
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Qualifying the students of the second stage to be a scientific base that helps the student to carry out cadastral applications through the use of traditional and modern techniques in the design and implementation of vertical and horizontal tuning networks of various degrees Compiling, designing and producing maps of all kinds from ground and aerial surveys and conducting surveys High-precision engineering projects (dams, reservoirs, bridges, tunnels, laboratories, roads and airports)	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Application of distance measurement methods using tape A2- Applying the method of measuring vertical distances using a leveling device. A3- Conducting the settlement and investigational settlement process between the reference points and points. Applying measurement methods in making all calculations and tables of longitudinal sections. Applying measurement methods

in making all calculations and tables of longitudinal and transverse sections.
A4- Extracting and comparing the magnetic and real directions of the lines and shapes.

B. Subject-specific skills

B1 - the work of surveying projects.
B2 - Making networks of ground control points.
B3 - Making all kinds of cadastral maps.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to. And through lecture, workshop, laboratory, field training, summer training.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Introduction to Surveying Science	Surveying	Lecture and Lab	Quizzes and mid term exams
2	5	Measurements using the Tape	Tape	Lecture and Lab	Quizzes and mid term exams
3	5	Measurements using the Tape	Tape	Lecture and Lab	Quizzes and mid term exams
4	5	Applications to Leveling	Leveling	Lecture and Lab	Quizzes and mid term exams
5	5	Applications to Leveling	Validating Leveling	Lecture and Lab	Quizzes and mid term exams
6	5	Application of Sections	Longitudinal sections	Lecture and Lab	Quizzes and mid term exams
7	5	Application of Sections	Cross Sections	Lecture and Lab	Quizzes and mid term exams
8	5	Application of Sections	Cross Sections	Lecture and Lab	Quizzes and mid term exams
9	5	Angles Measurements	Using Theodolite	Lecture and Lab	Quizzes and mid term exams
10	5	Angles Measurements	Using Theodolite	Lecture and Lab	Quizzes and mid term exams
11	5	Angles Measurements	Using Theodolite	Lecture and Lab	Quizzes and mid term exams
12	5	Application of directions	Directions	Lecture and Lab	Quizzes and mid term exams

13	5	Application of directions	Directions	Lecture and Lab	Quizzes and mid term exams
14	5	Application of directions	Directions	Lecture and Lab	Quizzes and mid term exams
15	5	Application of directions	Directions	Lecture and Lab	Quizzes and mid term exams

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Surveying applications by Yaseen Obead
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Include GIS and remote sensing in lectures

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Concrete Technology
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the fundamentals of concrete technology with special focus on cement, aggregate and concrete properties including the process of manufacturing of cement. This is to pave the way for student to learn more aspect about concrete technology in the second semester.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Introduction to cement and aggregate including cement hydration A2- manufacture of concrete. A3- strength of concrete
B. Subject-specific skills B1 – calculation of various aggregate moisture contents B2 – Methods of workability measurement

B3 – Methods of manufacturing, delivering and placing of concrete

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to cement and aggregates	- Concrete Definition and Historical Development, Characteristics of Concrete	Lecture and Lab	Written exam
2	4	Introduction to cement and aggregates	Types of Concrete, Factors Influencing Concrete Properties	Lecture and Lab	Written exam
3	4	Cementitious Binders	Classification of binders, Manufacture of Portland cement	Lecture and Lab	Written exam
4	4	Cementitious Binders	Hydration	Lecture and Lab	Written exam
5	4	Cementitious Binders	Types of Portland cements, The role of water, Basic tests of Portland cement	Lecture and Lab	Written exam
6	4	Cementitious Binders	Geopolymers, Magnesium phosphoric cement (MPC), Magnesium oxychloride cement	Lecture and Lab	Written exam
7	4	Aggregates	Effects of aggregates, Classification of aggregates, Properties of aggregates	Lecture and Lab	Written exam
8	4	Aggregates	Properties of aggregates, Grading aggregates, Shape and texture of aggregates,	Lecture and Lab	Written exam
9	4	Aggregates	Example Problems	Lecture and	Written exam

				Lab	
10	4	Fresh concrete	workability of fresh concrete	Lecture and Lab	Written exam
11	4	Fresh concrete	Measurement of workability, Factors affecting workability	Lecture and Lab	Written exam
12	4	Fresh concrete	Segregation and bleeding, Slump loss	Lecture and Lab	Written exam
13	4	Fresh concrete	manufacture of concrete, delivery of concrete	Lecture and Lab	Written exam
14	4	Fresh concrete	concrete placing	Lecture and Lab	Written exam
15	4	Fresh concrete	concrete placing	Lecture and Lab	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Advanced concrete technology by Zongjin Li. 2. Concrete technology by Dr. Moaid Nory
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	1. Concrete Technology -2dn Ed by A.M. NEVILLE
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	computer programming
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Familiarity with the programming language Fortran and the implementation of engineering applications using the programming language.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Learn about the programming language Fortran. A2- Learn how to write a program in Fortran. A3- Implementation of several engineering programs using the programming language Fortran. A4- Identify the variables and constants in the programming language. Identify loops, arrays, and subprograms.
B. Subject-specific skills B1- Writing an engineering program in Fortran. B2- Convert any problem to a program written in Fortran. B3- Reserving locations for engineering data in the program's memory and using them.

B4- Linking information to engineering reality.

Teaching and Learning Methods

- Weekly homework and daily and weekly quizzes. Giving assignments and activities in the classroom. As well as guiding students to the important scientific sources and taking some exercises to practice on them.

Assessment methods

- Interacting within the lecture.
- Homework and reports.
- Short exams (quizzes).
- Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

- The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
- The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
- The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

- Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
- Sudden exams during the theoretical and practical lecture.
- Quarterly exams for the theoretical and practical side.
- Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Program, write	Introduction	Lecture	Written exam
2	2	Constant and variables	Constant and variables	Lecture	Written exam
3	2	Inputs and outputs	Inputs and outputs	Lecture	Written exam
4	2	GOTO FORMAT	FORMAT	Lecture	Written exam
5	2	Control statements	Control statements	Lecture	Written exam
6	2	Loop	DO loop	Lecture	Written exam
7	2	IF statement	IF types	Lecture	Written exam
8	2	DO And IF	DO And IF	Lecture	Written exam
9	2	More examples	examples	Lecture	Written exam
10	2	remarks	Remarks	Lecture	Written exam
11	2	Array statement	Types of Array statement	Lecture	Written exam
12	2	DIMENSION	DIMENSION	Lecture	Written exam
13	2	Read and write	Read and write	Lecture	Written exam
14	2	Where statement	Where statement	Lecture	Written exam
15	2	Sub Routines	Sub Routines	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS	Fortran Language programming

· OTHER	
2. Key references (sources)	Lectures on Fortran Language
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	

12. Course development plan
Working on raising the student's skill in helping to quickly integrate into society and refining their skills in line with the needs of scientific research and the labor market.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Definition of human rights and the democratic system and intellectual positions on them with an explanation of the different models of them and the relationship of civil society with them.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Human rights and democracy
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1nt semester / 1rt year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Introducing the student to human rights and its relationship to the democratic system and clarifying its characteristics.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Historical introduction to democracy. A2- The different models of democracy A3- Rights and Responsibilities A4- civil liberties.
B. Subject-specific skills B1 - Apply quantitative methods for the purpose of explaining and interpreting the idea of rights and democracy. B2 - Use Using basic knowledge to examine the historical development of the concept of freedom.

B3 - Evaluate the information needed to understand different opinions on a common topic.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	A historical introduction to democracy	Democracy	Lecture	Written exam
2	2	The different models of democracy	Democracy	Lecture	Written exam
3	2	Intellectual positions on democracy	Democracy	Lecture	Written exam
4	2	Islam and democracy	Democracy	Lecture	Written exam
5	2	Parliament	Democracy	Lecture	Written exam
6	2	basic components of democracy	Democracy	Lecture	Written exam
7	2	Civil society	Democracy	Lecture	Written exam
8	2	The historical development of human rights	human rights	Lecture	Written exam
9	2	Rights and Responsibilities	human rights	Lecture	Written exam
10	2	Equality and the law	human rights	Lecture	Written exam
11	2	the Constitution	human rights	Lecture	Written exam
12	2	Inalienable rights	human rights	Lecture	Written exam
13	2	Citizenship concept	human rights	Lecture	Written exam
14	2	Majority rule and minority rights	human rights	Lecture	Written exam
15	2	Judicial procedures	human rights	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Human rights, children and democracy About the Ministry of Higher Education and Scientific Research - University of Tikrit
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Applied Mathematics 2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2^{nd} semester / 2^{nd} year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present partial differentiation and multiple integrals and their applications in engineering as well as introduction to complex numbers	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Study partial derivatives and their applications. A2- Study multiple integrals and their applications in engineering.
B. Subject-specific skills B1- study partial derivatives for the functions of two or multiple variables, chain rules, directional derivatives, and critical points. B2 - Study the multiple integrals in Cartesian and polar coordinates and area, volume, centroid and moment of inertia calculations using multiple integrals.
Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student’s ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Partial Derivatives	Functions of Several Variables, Domains and Ranges	Lecture	Written exam
2	4	Limits and Continuity in Higher Dimensions	Limits for Functions of Two Variables	Lecture	Written exam
3	4	Partial Derivatives	Partial Derivatives of a Function of Two and Three Variables Second-Order and higher Partial Derivatives	Lecture	Written exam
4	4	The Chain Rule	The Chain Rule and Implicit Differentiation	Lecture	Written exam
5	4	Directional Derivatives and Gradient Vectors	Directional Derivatives and Gradient Vectors	Lecture	Written exam
6	4	Tangent Planes and Differentials	Tangent Planes and Normal Lines	Lecture	Written exam
7	4	Estimating Change in a Specific Direction	Estimating Change in a Specific Direction	Lecture	Written exam
8	4	Extreme Values and Saddle Points	Extreme Values and Saddle Points	Lecture	Written exam
9	4	Multiple Integrals	Double and triple Integrals	Lecture	Written exam

10	4	Area by Double Integration	Area by Double Integration	Lecture	Written exam
11	4	Double Integrals in Polar Form	Double Integrals in Polar Form, Changing Cartesian Integrals into Polar Integrals	Lecture	Written exam
12	4	Applications	Area, volume, centroid and moment of inertia	Lecture	Written exam
13	4	Triple Integrals in Cylindrical and Spherical Coordinates	Triple Integrals in Cylindrical and Spherical Coordinates	Lecture	Written exam
14	4	Complex Numbers	Complex Numbers, Argand Diagrams, Euler's Formula	Lecture	Written exam
15	4	Operations on complex number	Addition, subtraction, multiplication and division	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Thomas' Calculus, George B. Thomas, Jr.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Mechanics of Materials -II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2^{nd} semester / 2^{nd} year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to introduce the principles of analyzing beams and calculating stresses in them, as well as thin columns.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Calculation of shear forces and bending moments of beams. A2 Calculation of stresses in beams. A3- Calculation of deformations in the beams. A4- Analyzing slender columns.
B. Subject-specific skills B1- Applying analytical and numerical methods for the purpose of solving mechanics of materials problems. B2 - Use basic knowledge to research new technologies. B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to Beam Analysis	Beams	Lecture	Written exam
2	4	Determination of Shear Force	Shear forces	Lecture	Written exam
3	4	Determination of Shear Force	Shear forces	Lecture	Written exam
4	4	Determination of Shear Force	Shear forces	Lecture	Written exam
5	4	Determination of Bending Moments	Bending Moment	Lecture	Written exam
6	4	Determination of Bending Moments	Bending Moment	Lecture	Written exam
7	4	Determination of Bending Moments	Bending Moment	Lecture	Written exam
8	4	Flexural Formula and Bending Stress	Bending Stresses	Lecture	Written exam
9	4	Flexural Formula and Bending Stress	Bending Stresses	Lecture	Written exam
10	4	Introduction to Shear Stress in Beams	Shear Stresses	Lecture	Written exam
11	4	Introduction to Shear Stress in Beams	Shear Stresses	Lecture	Written exam
12	4	Introduction to Shear Stress in Beams	Shear Stresses	Lecture	Written exam
13	4	Introduction to Beam Deflection	Deflection of Beams	Lecture	Written exam
14	4	Introduction to Beam Deflection	Deflection of Beams	Lecture	Written exam
15	4	Introduction to Column Buckling	Column Buckling	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS	1.Strength of Materials. 2. Mechanics of Materials , R.C. Hibbeler.

· OTHER	
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Adding practical laboratory hours to conduct mechanics of material experiments

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Fluid Mechanics - 2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 2nd year
6. Number of hours tuition (total)	45 theoretical hours and 30 practical hours
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims for studying the basic methods to understand the fluid in motion and measure the flow rates of water. Knowing the major and minor losses due to frictions and methods of pipes connections. In addition, knowing how to find the flow rates of water and pressures through pipes networks.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1-Methods for measuring the flow rates through pipelines, tanks, and open channel. A2- Methods for identifying the types of flow regimes. A3-Methods for calculating the major and minor losses in pipelines due to friction. A4- Methods for calculating the equivalent pipe and series and parallel pipelines

connections. Methods for calculating flow rates in branching pies and pipes networks. Studying flow through open channels and how to find the best hydraulic sections, and critical depth.

B. Subject-specific skills

B1 - Apply quantitative and numerical methods for solving fluid mechanics problems.

B2 - Use basic knowledge to research new technologies.

B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Fluid Dynamics	Application of continuity equation	Lecture	Written exam
2	3	Fluid Dynamics	Application of energy equation	Lecture	Written exam
3	3	Fluid Dynamics	Energy line and hydraulic grade line	Lecture	Written exam
4	3	Fluid Dynamics	Energy line and hydraulic grade line	Lecture	Written exam
5	3	Measurements of flow rate	Measurements of flow in pipelines	Lecture	Written exam
6	3	Measurements of flow rate	Measurements of flow in tanks	Lecture	Written exam
7	3	Measurements of flow rate	Measurements of flow in open channels	Lecture	Written exam
8	3	Flow in pipes	Laminar & Turbulent flows, Reynolds No.	Lecture	Written exam
9	3	Flow in pipes	Major losses	Lecture	Written exam
10	3	Flow in pipes	Minor losses , Equivalent pipe	Lecture	Written exam
11	3	Flow in pipes	Parallel pipes, series pipes	Lecture	Written exam
12	3	Flow in pipes	Branching pipes	Lecture	Written exam
13	3	Flow in pipes	Pipe networks	Lecture	Written exam
14	3	Flow in open channels	Types of flow, Best hydraulic section	Lecture	Written exam
15	3	Flow in open channels	Specific energy and critical depth	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1.Fluid Mechanics by Streeter &Wylie 2. ميكانيك الموائع د . نزار السبتي.
2. Key references (sources)	1- Fluid Mechanics for Engineer by Albertson, Barton &Simons 2- Fluid Mechanics & Hydraulics (Schaums series) by Giles
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	- Reputable websites. - Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Surveying II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Qualifying the students of the second stage to be a scientific base that helps the student to carry out cadastral applications through how to establish vertical horizontal control networks, ground control points, geodesic coordinate systems, and convert topographic coordinates to geodesic	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Application of area measurement methods A2- Apply the horizontal curve measurement method. A3- Apply the vertical curve measurement method. A4- Application of volume measurement methods. Introduction to geographic information systems.
B. Subject-specific skills B1 - the work of surveying projects. B2 - Making networks of curves. B3 - Calculation of cadastral quantities and volumes.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to. And through lecture, workshop, laboratory, field training, summer training.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Application of Areas	Area Calculation	Lecture and Lab	Quizzes and mid term exams
2	5	Application of Areas	Area Calculation	Lecture and Lab	Quizzes and mid term exams
3	5	Application of Areas	Area Calculation	Lecture and Lab	Quizzes and mid term exams
4	5	Application of Areas	Area Calculation	Lecture and Lab	Quizzes and mid term exams
5	5	Applications to Curvatures	Vertical Curve	Lecture and Lab	Quizzes and mid term exams
6	5	Applications to Curvatures	Vertical Curve	Lecture and Lab	Quizzes and mid term exams
7	5	Applications to Curvatures	Vertical Curve	Lecture and Lab	Quizzes and mid term exams
8	5	Applications to Curvatures	Horizontal Curve	Lecture and Lab	Quizzes and mid term exams
9	5	Applications to Curvatures	Horizontal Curve	Lecture and Lab	Quizzes and mid term exams
10	5	Applications to Curvatures	Horizontal Curve	Lecture and Lab	Quizzes and mid term exams
11	5	Application of volumes	Volume calculation	Lecture and Lab	Quizzes and mid term exams

12	5	Application of volumes	Volume calculation	Lecture and Lab	Quizzes and mid term exams
13	5	Application of volumes	Volume calculation	Lecture and Lab	Quizzes and mid term exams
14	5	Application of GIS	GIS	Lecture and Lab	Quizzes and mid term exams
15	5	Application of GIS	GIS	Lecture and Lab	Quizzes and mid term exams

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Surveying applications by Yaseen Obead
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Include GIS and remote sensing in lectures

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Concrete Technology
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the fundamentals of concrete technology with special focus on cement, aggregate and concrete properties including the process of manufacturing of cement planning stage. This is to pave the way for student to learn more aspect about concrete technology in the second semester.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Concrete Mix design A2- durability of concrete. A3- deformation of concrete A4 – Non-destructive tests
B. Subject-specific skills B1 – learning to design concrete mix using the American and British methods

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Concrete Mix Design	American Method	Lecture and Lab	Written exam
2	4	Concrete Mix Design	American Method	Lecture and Lab	Written exam
3	4	Concrete Mix Design	American Method	Lecture and Lab	Written exam
4	4	Concrete Mix Design	American Method	Lecture and Lab	Written exam
5	4	Concrete Mix Design	British Method	Lecture and Lab	Written exam
6	4	Concrete Mix Design	British Method	Lecture and Lab	Written exam
7	4	Concrete Mix Design	British Method	Lecture and Lab	Written exam
8	4	Concrete Mix Design	British Method	Lecture and Lab	Written exam
9	4	Concrete Mix Design	Calculation of Concrete raw material quantities	Lecture and Lab	Written exam
10	4	Deformation of Concrete	Dimensional Stability Shrinkage and Creep	Lecture and Lab	Written exam
11	4	Deformation of Concrete	Dimensional Stability Shrinkage and Creep	Lecture and Lab	Written exam
12	4	Durability of Concrete	Durability	Lecture and Lab	Written exam
13	4	Durability of Concrete	Durability	Lecture and Lab	Written exam
14	4	Non-Destructive Tests	Schmidt Hammer	Lecture and Lab	Written exam
15	4	Non-Destructive Tests	Ultrasonic testing	Lecture and Lab	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Advanced concrete technology by Zongjin Li. 2. Concrete technology by Dr. Moaid Nory
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	1. Concrete Technology -2dn Ed by A.M. NEVILLE
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	ENGINEERING STATISTICS
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 2nd year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic of engineering statistics by analyzing, organizing and describing data in tables and drawings, knowing the measures of dispersion and central tendency, in addition to knowing the theory of probability and inference from the data to make decisions and linking them to engineering reality.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Understand the importance of statistics and its divisions. A2- Learn how to show and represent statistical data with tables or graphics. A3- Identify the most important measures of central tendency and dispersion of data. A4- Learn about probability theory and its different distributions. Identifying the design of samples, their estimation, and knowledge of their properties.

B. Subject-specific skills

1- Analyze, organize, and describe data in tables and/or curves.
2- Describe the averages of the data and methods of measuring their dispersion.
3- Engineering inference from the statistical data to take the appropriate decision.
4- Linking information to engineering reality.

Teaching and Learning Methods

- Weekly homework and daily and weekly quizzes. Giving assignments and activities in the classroom. As well as guiding students to the important scientific sources and taking some exercises to practice on them.

Assessment methods

- Interacting within the lecture.
- Homework and reports.
- Short exams (quizzes).
- Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

- The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
- The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
- The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

- Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
- Sudden exams during the theoretical and practical lecture.
- Quarterly exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	brief definition in statistics	INTRODUCTION TO ENGINEERING STATISTICS	Lecture	Written exam
2	2	Frequency distributions, Frequency distributions table	PRESENTATION OF STATISTICS DATA cont.	Lecture	Written exam
3	2	Cumulative frequency distribution, Graphical representation of data	PRESENTATION OF STATISTICS DATA	Lecture	Written exam
4	2	Cumulative frequency curves, Histogram, Frequency polygon	Graphical representation of data	Lecture	Written exam
5	2	Measures of center, four types	MEASURES OF CENTRAL LOCATION	Lecture	Written exam
6	2	Measures of dispersion, four types, Probability theory	MEASURES OF DISPERSION, THE PROBABILITY	Lecture	Written exam
7	2	Combinations of Three or More Events	THE PROBABILITY cont.	Lecture	Written exam

8	2	Probability theory rules, Conditional Probability, Bayes' theorems	THE PROBABILITY cont.	Lecture	Written exam
9	2	Geometric Probability examples,	Geometric Probability,	Lecture	Written exam
10	2	Discrete probability distribution, Discrete Uniform Distribution	PROBABILITY DISTRIBUTION,	Lecture	Written exam
11	2	Geometric Distribution, Negative binomial Distribution, Binomial Distribution	PROBABILITY DISTRIBUTION, cont.	Lecture	Written exam
12	2	Continuous Probability Distributions, Continuous Uniform Distributions, Normal Distributions, Exponential Distributions ,	Continuous Probability Distributions	Lecture	Written exam
13	2	Sampling Distribution of the Sample Mean, Central Limit Theorem, applications	SAMPLING DISTRIBUTION	Lecture	Written exam
14	2	Expectation properties, Moments	THE EXPECTATION	Lecture	Written exam
15	2	point estimator, interval estimator	THE ESTIMATION	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS · OTHER	Statistics with engineering applications Entry to statistics
2. Key references (sources)	Lectures on Statistics
A- Recommended books and references (scientific journals, reports ,....	Fundamentals of Behavioral Statistics ,1988
B- Electronic references, websites	

12. Course development plan
Working on raising the student's skill in helping to quickly integrate into society and refining their skills in line with the needs of scientific research and the labor market.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Building Construction
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 2nd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to provide the student by the information about the details and steps of implementation of projects. such as, earthworks, foundations, piles, masonry construction, and finishing.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Study the steps of implementing construction projects A2- Studying the details and requirements for the implementation of excavation works, foundations, walls and ceilings A3- Knowing how to choose the appropriate construction equipment for each job A4- Design of brick walls
B. Subject-specific skills B1 - Knowing the details of earthworks B2 - Knowing the details of the foundations and pile works B3 - Knowing the details of brickwork B4- Application of brick wall design

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Steps to start an engineering project	Introduction to building construction	Lecture	Written exam
2	4	Earthworks details and requirements	Earthworks	Lecture	Written exam
3	4	Excavation basing details	Excavation side shoring	Lecture	Written exam
4	4	Methods and techniques for withdrawing water from work sites	Water drainage methods	Lecture	Written exam
5	4	Shallow foundation works details and requirements	Shallow foundation works	Lecture	Written exam
6	4	Pile details and requirements	Pile works	Lecture	Written exam
7	4	Concrete work requirements	Concrete works	Lecture	Written exam
8	4	Brick construction details	Brick work	Lecture	Written exam
9	4	Brick wall design steps	Structural design of brick walls	Lecture	Written exam

10	4	Non-structural requirements for wall works	Requirements for walls	Lecture	Written exam
11	4	Details and types of joints	Joint work	Lecture	Written exam
12	4	Types of beams, ceilings and floors and the loads on them	Works of beams, ceilings and floors	Lecture	Written exam
13	4	Details of water proofing layers	Moisture insulation	Lecture	Written exam
14	4	Details and types of stairs and	Means of transition between levels	Lecture	Written exam
15	4	Types and materials of finishes	Finishing work	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Building Construction, Z. Sako and A. Levon
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	**Edward Allen and Joseph Iano "Fundamentals of Building Construction"**
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Introducing advanced mathematical solutions that face the student when studying various engineering topics and engineering analysis methods. It includes the definition of ordinary differential equations of the first and higher order, partial differential equations, how to solve them, their various geometric applications, and the definition of Fourier series and its applications.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Analysis
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 3rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
Recognize the following vocabulary: 1- Ordinary differential equations of the first degree. 2- Engineering applications of first-order differential equations. 3- The set of simultaneous ordinary differential equations. 4- Ordinary differential equations of the second degree and higher with fixed and variable coefficients. 5- Fourier series. 6- Partial differential equations.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Preparing applied engineers in the field of civil engineering who are distinguished by a high level of knowledge and analytical creativity in line with the internationally approved standards in quality assurance and academic accreditation for the corresponding engineering programs, while adhering to the ethics of the engineering profession.

A2- Enabling knowledge and understanding of practical applications in numerical ways and in accordance with the objectives of the course.
A3- The ability to identify different numerical methods.
A4- The ability to build a mathematical model to represent various engineering processes.

B. Subject-specific skills
B1 - The ability to analyze and discuss.
B2 - Brainstorming by encouraging students to produce a large number of ideas about an issue or problem that is raised during the lecture.
B3 - Cooperative learning by working collectively.
B4 - Competitive learning by creating an atmosphere of competition between peers.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills
C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.

• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Knowing the types and classifications of equations Ordinary differential and types of solutions	Introduction to differential equations	Theoretical	Questions, discussion and quiz
2	4	Knowing equations with separable variables and homogeneous equations	First order ordinary differential equations-1	Theoretical	Questions, discussion and quiz
3	4	Knowing exact equations	First order ordinary differential equations-2	Theoretical	Questions, discussion and quiz
4	4	Knowing linear equations and Bernoulli equations	First order ordinary differential equations-3	Theoretical	Questions, discussion and quiz
5	4	Orthogonal trajectories and suspended cables	Applications on 1st order ordinary differential	Theoretical	Questions, discussion and quiz

		application	equations-1		
6	4	Flow through orifices, moving bodies and general applications	Applications on 1st order ordinary differential equations-2	Theoretical	Questions, discussion and quiz
7	4	Knowing homogeneous linear equations with constant coefficients	Second and higher order linear ordinary differential equations-1	Theoretical	Questions, discussion and quiz
8	4	Knowing linear nonhomogeneous equations with constant coefficients	Second and higher order linear ordinary differential equations-2	Theoretical	Questions, discussion and quiz
9	4	Knowing linear equations with variable coefficients	Second and higher order linear ordinary differential equations-3	Theoretical	Questions, discussion and quiz
10	4	Deflection of beams and buckling of columns applications	Applications on 2nd and higher order ordinary differential equations-1	Theoretical	Questions, discussion and quiz
11	4	Deflection of beam-columns application	Applications on 2nd and higher order ordinary differential equations-2	Theoretical	Questions, discussion and quiz
12	4	Vibration application	Applications on 2nd and higher order ordinary differential equations-3	Theoretical	Questions, discussion and quiz
13	4	Knowing the Fourier series	Fourier series	Theoretical	Questions, discussion and quiz
14	4	Knowing the types and solutions of partial differential equations	Partial differential equations	Theoretical	Questions, discussion and quiz
15	4	Learn and solve matrices and determinants in different ways	Matrices and determinants	Theoretical	Questions, discussion and quiz

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	ERWIN KREYSZIG, ADVANCED ENGINEERING MATHEMATICS, NINTH EDITION, JOHN WILEY & SONS, INC., 2006.
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Follow the vocabulary of similar courses in prestigious international universities

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Theory of structures 1
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 3rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic methods of analyzing statically defined structures as an introduction to the analysis of undefined structures and structural design decisions.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Classification of facilities and a review of the concept of equilibrium of facilities under the influence of forces. A2- Analyzing the internal forces and moments generated in lintels and flat structures under the influence of systems of forces and moments. Analysis of forces in the dentate members. A3- Drawing influence diagrams for the lintels and struts and calculating the maximum values of internal reactions as a result of moving loads. A4- Learn approximate methods of analysis of existing structures and trusses. Apply the engineering methods used in calculating the slopes and deviations of the

statically defined beams.

B. Subject-specific skills

B1 - Apply quantitative and numerical methods for the purpose of solving structural engineering problems.

B2 - Use basic knowledge to research new technologies.

B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Classification of structures and review of eqilibrium	Introduction	Lecture	Written exam
2	4	Review of bending moment and shear force diagrams in beams	Internal loading developed in structural members	Lecture	Written exam
3	4	Bending moment and shear force diagrams in frames	Internal loading developed in structural members	Lecture	Written exam
4	4	Bending moment and shear force diagrams in frames	Internal loading developed in structural members	Lecture	Written exam
5	4	Review of truss analysis	Analysis of statically determinate trusses	Lecture	Written exam
6	4	Introduction to concept of influence	Influence lines for statically determinate	Lecture	Written exam

		lines	structures		
7	4	Applications on influence lines for beams	Influence lines for statically determinate structures	Lecture	Written exam
8	4	Applications on influence lines for trusses	Influence lines for statically determinate structures	Lecture	Written exam
9	4	Applications on influence lines for trusses	Influence lines for statically determinate structures	Lecture	Written exam
10	4	Determination of maximum reaction for series of moving loads	Influence lines for statically determinate structures	Lecture	Written exam
11	4	Approximate method for truss analysis	Approximate methods of analysis of structures	Lecture	Written exam
12	4	Portal method	Approximate methods of analysis of structures	Lecture	Written exam
13	4	Double-integration method	Deflections	Lecture	Written exam
14	4	Singularity function method	Deflections	Lecture	Written exam
15	4	Moment-area method	Deflections	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Elementary Theory of Structures, Yan-Yu Hseih, Prentice Hall. 2. Structural Analysis, R.C. Hibbeler, Prentice Hall.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	Steelwork design guide to BS 5950-1

B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Soil Mechanics II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	45 hrs theoretical + 30 hrs practical
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to calculate the stresses generated in the soil and the long-term settlement resulting from these stresses. Also, evaluating the resistance of soil to shear stresses as well as normal and lateral loads.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Identifying the types of stresses in saturated soils. A2- Studying the consolidation settlement of soils. A3- Identify the methods used to find the shear strength of soils. A4- Identifying the methods used for calculating the lateral earth pressure.
B. Subject-specific skills B1 - Learning how to calculate stresses generated in the soil. B2 - Studying the consolidation theory and methods used to calculate long-term settlement. B3 - Derivation of equations used to find soil shear strength. B4 - Derivation of equations used to assess the lateral earth pressure on the

retaining structures.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to. All lectures have been presented electronically and uploaded on social media platforms to be accessible to students when needed.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Introduction soil formation	Basic Characteristics of Soils	Lecture	Written exam
2	3	Derivation of Weight-Volume Relationships	Weight-Volume Relationships	Lecture	Written exam
3	3	Application of Weight-Volume Relationships	Weight-Volume Relationships	Lecture	Written exam
4	3	Introduction to Plasticity and Structure of Soil	Plasticity and Structure of Soil	Lecture	Written exam
5	3	Methods used to find Plasticity characteristics of soil	Plasticity and Structure of Soil	Lecture	Written exam
6	3	Methods used for the mechanical analysis of soil	Classification of Soil	Lecture	Written exam
7	3	Application to the modified soil classification system	Classification of Soil	Lecture	Written exam
8	3	General principles of Compaction	Soil Compaction	Lecture	Written exam
9	3	Determination of field unit weight and equipments used for compaction	Soil Compaction	Lecture	Written exam
10	3	Hydraulic conductivity	Permeability	Lecture	Written exam
11	3	Methods used to determine Hydraulic conductivity	Permeability	Lecture	Written exam
12	3	Flow of water in soil	Permeability	Lecture	Written exam

13	3	Flow nets	Seepage	Lecture	Written exam
14	3	Application of Flow nets	Seepage	Lecture	Written exam
15	3	Seepage through an Earth Dam	Seepage	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	- Principles of Geotechnical Engineering (By: Braja M. Das, 7th Ed.)
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	-Soil Mechanics (By: R.F. Craig, 4th Ed. or higher) -Soil Mechanics (By: T.W. Lambe and R.V. Whitman)
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides the basic description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Reinforced concrete Design I
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1nd semester / 3rd year
6. Number of hours tuition (total)	75 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic methods of analysis and design of reinforced concrete structure including the an introduction to the materials which produce the concrete and the materials tests in laboratory	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Application of the analysis method of reinforced concrete structures including rectangular beam, T beams and special shape beams structural A2- Application of analysis and design the beams for shear. A3- Analysis and design of one-way slab using ACI coefficient method in analysis
B. Subject-specific skills B1 - Apply quantitative and numerical methods for the purpose of solving problems B2 - Use basic knowledge to research new technologies. B3 - Derive and evaluate the information needed to apply engineering analysis

methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and Design problems solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Mixing, Placing, Compacting and Curing of concrete	Introduction	Lecture	Written exam
2	5	Concrete Behavior in Compression and Tension. And Quality Control	Introduction	Lecture	Written exam
3	5	Reinforcing Steel for Concrete. And	Introduction	Lecture	Written exam
4	5	Design Codes and Specifications. Loads and Safety Provisions.	Introduction	Lecture	Written exam
5	5	Behavior of R.C beam under loading and working stress method:	Working Stress Method	Lecture	Written exam
6	5	Introduction to Working Stress Method. And applications of the Working Stress Method.	Working Stress Method	Lecture	Written exam
7	5	Introduction and Behavior of Reinforced Concrete Beam under Bending.	Flexural Beam Analysis And Design	Lecture	Written exam
8	5	Design of Tension Reinforced Rectangular Beams.	Flexural Beam Analysis And Design	Lecture	Written exam
9	5	Practical Consideration in the Design of Beams.	Flexural Beam Analysis And Design	Lecture	Written exam
10	5	Rectangular Sections With Tension and Compression Reinforcement.	Flexural Beam Analysis And Design	Lecture	Written exam
11	5	Flexural Analysis and Design of T-	Flexural Analysis and Design of T-beams.	Lecture	Written exam

		beams.			
12	5	Shear and Diagonal Tension in Beams.	Shear and Diagonal Tension in Beams.	Lecture	Written exam
13	5	Shear Strength of Concrete without Reinforcement. And Reinforced Concrete Beams With Web Reinforcements.	Shear and Diagonal Tension in Beams.	Lecture	Written exam
14	5	Types of Slabs. And Analysis and Design of One-Way Slab.	Design and Analysis of Slabs.	Lecture	Written exam
15	5	Temperature and Shrinkage Reinforcement.	Design and Analysis of Slabs.	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	1- Structural Concrete Theory and Design , By Nadim Hasson, Akthem Aktham Al manseer , 6th Edition 2015 2- Reinforced concrete design , 7th Edition 2007 By Chu Kai Wang, Charles G salmon and Joe A Pincheire 3- Design of Reinforced concrete Structures , 2nd Edition 2008 By Mohammed Tharwat Ghonein, Vol. 3 4- Design of concrete Structure , 14th Edition 2010 By Arthur H. Nilson , Daved Derwin and Charles W . Dolan 5- Reinforced concrete design , 6th Edition 2009 By Edward G. Nawy 6- ACI Code 318- 2019
B- Electronic references, websites	

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides the possibility of designing different irrigation systems and providing accurate details about the plant's need for water consumption, the method of infiltration and how to calculate it, in addition to calculating the consistency coefficient of irrigation, efficiency and adequacy, as well as designs for land grading, concepts of surface irrigation and methods of surface irrigation design, as well as designs for modern methods such as sprinkler and drip.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Irrigation Engineering
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 3rd year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1- Clarify the basic concepts of irrigation engineering systems and their applications in agricultural fields.

A2- Gaining the ability to address water wastage problems through the design of irrigation systems.

A3- Acquisition of basic skills in the management of irrigation systems.

A4- Gaining experience in designing the irrigation system and its suitability according to the different surrounding conditions. Gaining experience in knowing the difference between the old and modern irrigation system. Optimum management of the irrigation system.

B. Subject-specific skills

B1 - The ability to design irrigation systems in their various ways.

B2 - The ability to think about addressing the problems of water wastage and find ways to reduce it.
B3 - Writing scientific reports and reading charts and tables.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Irrigation, benefits of irrigation, irrigation networks	Introduction	theoretical	questions and discussion
2	3	Types of irrigation methods, evaluating irrigation water sources	Introduction	theoretical	questions and discussion
3	3	Calculation of the volume of water in the soil, methods of calculating water consumption	Introduction	theoretical	questions and discussion
4	3	Efficiency, adequacy and uniformity of irrigation	Introduction	theoretical	questions and discussion
5	3	Methods of Land grading design	Land grading design	theoretical	questions and discussion
6	3	Surface irrigation process mechanism, water balance concept	surface irrigation	theoretical	questions and discussion
7	3	Design assumptions, design flow	Border irrigation		

		rate, border length and width			
8	3	Furrow intake characteristics, Two-point method	Furrow irrigation	theoretical	questions and discussion
9	3	Design Equations, Design limitations	Basin irrigation	theoretical	questions and discussion
10	3	Layout of stationary system, the effect of wind direction	Sprinkler irrigation	theoretical	questions and discussion
11	3	Fundamentals of flow hydraulics	Sprinkler irrigation	theoretical	questions and discussion
12	3	Flow in multi-outlet pipes	Sprinkler irrigation	theoretical	questions and discussion
13	3	Design of sprinkler system	Sprinkler irrigation	theoretical	questions and discussion
14	3	Benefits of drip irrigation, the basic components of the drip system	Drip irrigation	theoretical	questions and discussion
15	3	Design of drip system	Trickle irrigation	theoretical	questions and discussion

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Field Irrigation Systems Engineering
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Management
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 3rd year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the fundamentals of project management with special focus on planning stage. This is to pave the way for student to learn more aspect about project management in the second semester.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Introduction to project management, the need for project management in the construction industry, Organizational influences and Project life Cycle, Project management processes and Integration Management. A2- Scope, time and cost management. A3- Resource and Quality Management
B. Subject-specific skills B1 - Plan Schedule Management, Define and sequence Activities, Estimate

Activity Resources and Duration and Level resources

B2 – Application of key project planning and scheduling techniques including CPM, PERT and LOB.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Introduction to project management	Introduction to project management	Lecture	Written exam
2	2	Project scope management	Collect requirement, Define Scope, Create WBS, Validate Scope and Control Scope	Lecture	Written exam
3	2	Project Time management	Define and sequence Activities,	Lecture	Written exam
4	2	Project Time management	Estimate Activity Resources and Duration	Lecture	Written exam
5	2	Project Time management	Bar Chart Method	Lecture	Written exam
6	2	Project Time management	AOA Method	Lecture	Written exam
7	2	Project Time management	AON Methods	Lecture	Written exam
8	2	Project Time management	CPM Calculation	Lecture	Written exam
9	2	Project Time management	PERT Method	Lecture	Written exam
10	2	Project Time management	LOB method	Lecture	Written exam

11	2	Project Time management	LOB method	Lecture	Written exam
12	2	Resource Management	Resource Smoothing Method	Lecture	Written exam
13	2	Resource Management	Resource Levelling Method	Lecture	Written exam
14	2	Project Quality Management	Plan Quality, Perform Quality Assurance and Control Quality	Lecture	Written exam
15	2	Communication Management	Plan, Manage and Control Communications	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. A Guide to the project management body of knowledge - PMI. 2. إدارة المشاريع الإنشائية والعلاقات المهنية: احسان العطار
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	1. Project Management, A Systems Approach to Planning, Scheduling, and Controlling, 10th edition, KERZNER 2. Principles of Construction management By: Roy Piltcher 3. Construction Planning, Programming and Control by Brian Cooke 4. Operations Management Creating Value Along the Supply Chain Russell - Chapter 9: Project management
B- Electronic references, websites	Reputable websites. Such as PMI.org or apm.org.uk Libraries sites in some international universities.

12. Course development plan

TEMPLATEFORCOURSESPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Traffic Engineering is that phase of engineering which deals with the planning, geometric design and traffic operations of roads, streets, and highways, their networks, terminals, abutting lands and relationships with other modes of transportation for the achievement of safe, efficient, and convenient movement of persons and goods.

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1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Traffic engineering
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1nd semester / 3rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic methods of study the traffic stream **parameters** such as speed ,volume ,density ,act .also study relationship among parameters	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge ,Understanding,teaching A1- Traffic Counting methods A2- speed counting methods. A3- roadway design A4- traffic control design and accident analyses. .
B. Subject-specific skills B1 - Apply quantitative and numerical methods for the purpose of solving traffic engineering problems.

B2 - Use basic knowledge to research new technologies.
B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction t	Introduction of Traffic engineering	Lecture	Written exam
2	4	The methods of volume counting	Volume subdues	Lecture	Written exam
3	4	The methods of speed counting	Speed studies	Lecture	Written exam
4	4	The method of capacity design of the roadway	Relation ship among speed, volume and density	Lecture	Written exam
5	4	Introduction to intersections types	intersections	Lecture	Written exam
6	4	Introduction to intersection traffic control	Traffic control methods	Lecture	Written exam
7	4	Introduction to intersection traffic control	Sign and marking	Lecture	Written exam
8	4	The method of determine delay in traffic signalized	traffic signalized analysis	Lecture	Written exam
9	4	The method of traffic signalized design	traffic signalized design - Webster metod	Lecture	Written exam
10	4	Determine the Sight distance	Stoping Sight distance	Lecture	Written exam
11	4	Determine the Sight distance	Passing Sight distance	Lecture	Written exam
12	4	Curves design	Horizontal curve design	Lecture	Written exam
13	4	Curves design	Vertical curve design	Lecture	Written exam
14	4	The method of parking design	Parking study	Lecture	Written exam
15	4	Analysis of accident	Accident study	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS · OTHER	1. principles of the traffic engineering ,dr.lamia A.Ahmed 2. text book lab , traffic engineering ,dr.lamia A.Ahmed
2.Key references (sources)	
A-Recommended books and references (scientific journals, reports ,....	High way capacity manual
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
The development plan can be summarized by the small projects in the roadway networks for each student

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Computer Applications
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 3rd year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to provide the student with the skills to use the available engineering software them in the analysis and design of engineering projects	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Learn about engineering programs and their types A2- Knowing the sources of obtaining the programs A3- Knowing the basics of engineering programs
B. Subject-specific skills B1 - Learn to choose the right program B2 - Knowing how to provide the information required to be fed to the program B3 - Knowing how to open the program and enter information B4- Learn to perform analysis and get results

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Learn about engineering programs	Introduction	Practical Lecture	Practical exam
2	2	EPANET basics	EPANET software	Practical Lecture	Practical exam
3	2	Learn to draw the components of the water network	Data entry	Practical Lecture	Practical exam
4	2	Specifying the levels of nodes, tanks and pipe diameters	Network component properties	Practical Lecture	Practical exam
5	2	Enter pump information	Pumps information	Practical Lecture	Practical exam
6	2	Perform network analysis	Water Network Analysis	Practical Lecture	Practical exam
7	2	How to view the results	Display results	Practical Lecture	Practical exam
8	2	How to enter input information that changes over time	Time Pattern	Practical Lecture	Practical exam
9	2	How to conduct the analysis and present the results	Analysis and review of results	Practical Lecture	Practical exam
10	2	Definition of MS-Project	Introduction to MS-Project	Practical Lecture	Practical exam

11	2	Learn to divide the project into sub-activities	Work Breakdown Structure	Practical Lecture	Practical exam
12	2	Learn to enter the names of the activity and the time for each one	Activities and duration	Practical Lecture	Practical exam
13	2	Learn how to connect activities with time relationships	Relationships between activities	Practical Lecture	Practical exam
14	2	Using the critical path method	Critical Path Method	Practical Lecture	Practical exam
15	2	Learn to enter and organize resources	Resources	Practical Lecture	Practical exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Manual of EPANET 2. Manual of MS-PROJECT
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Introducing the advanced mathematical solutions that the student faces when studying various engineering topics and numerical analysis methods. It includes solving algebraic equations by numerical and Taylor series, how to perform derivation and integration by numerical methods, solving differential equations by numerical methods, and finding the mathematical model for a set of points, interpolation and extrapolation.

1. Teaching Institution	Basrah University
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Numerical Analysis
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
Recognize the following vocabulary: 1- Numerical solution to algebraic equations. 2- Taylor series. 3- Derivation and integration by numerical methods. 4- Numerical solution to differential equations. 5- Finding the mathematical model for a set of points. 6- interpolation and extrapolation.	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding

A1- Preparing applied engineers in the field of civil engineering who are distinguished by a high level of knowledge and analytical creativity in line with the internationally approved standards in quality assurance and academic accreditation for the corresponding engineering programs, while adhering to the ethics of the engineering profession.

A2- Enabling knowledge and understanding of practical applications in numerical

ways and in accordance with the objectives of the course.
A3- The ability to identify different numerical methods.
A4- The ability to build a mathematical model to represent various engineering processes.

B. Subject-specific skills
B1 - The ability to analyze and discuss.
B2 - Brainstorming by encouraging students to produce a large number of ideas about an issue or problem that is raised during the lecture.
B3 - Cooperative learning by working collectively.
B4 - Competitive learning by creating an atmosphere of competition between peers.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills
C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the

different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	6	Knowing what numerical methods and approximate solution are and how to calculate error in approximate solution	Introduction to numerical methods	Theoretical & Practical	Questions, discussion and quiz
2	6	Application of the bisection, fixed-point, Newton-Raphson, and modified Newton method in solving algebraic equations	Numerical solution of algebraic equations	Theoretical & Practical	Questions, discussion and quiz
3	6	Solving a set of simultaneous algebraic equations by numerical methods	Numerical solution to a set of algebraic equations	Theoretical & Practical	Questions, discussion and quiz
4	6	Application of Taylor series to approximation of functions	Taylor series	Theoretical & Practical	Questions, discussion and quiz
5	6	Derivation of	Numerical	Theoretical	Questions,

		different functions by numerical methods	differentiation	& Practical	discussion and quiz
6	6	Performing the integration of different functions in numerical methods	Numerical Integration	Theoretical & Practical	Questions, discussion and quiz
7	6	Application of Euler's, Runge-Kutta and finite differences method in solving ODEs	Numerical solution of ordinary differential equations (ODEs)	Theoretical & Practical	Questions, discussion and quiz
8	6	Application of the finite difference method in solving PDEs	Numerical solution of partial differential equations (PDEs)	Theoretical & Practical	Questions, discussion and quiz
9	6	Finding a suitable curve for a set of points	Curve fitting	Theoretical & Practical	Questions, discussion and quiz
10	6	Performing interpolation and extrapolation in approximation of functions	Interpolation and extrapolation	Theoretical & Practical	Questions, discussion and quiz

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	ERWIN KREYSZIG, ADVANCED ENGINEERING MATHEMATICS, NINTH EDITION, JOHN WILEY & SONS, INC., 2006.
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Follow the vocabulary of similar courses in prestigious international universities

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Theory of structures 2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
The course aims to elaborate on the principles introduced in Theory of Structures-1. It deals with the analysis of statically indeterminate structures through imposing the conditions of geometry of the deformed structure upon statics. The methods include force methods such as consistent deformations and displacement methods such as slope-deflection, and moment-distribution.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A-1 Understand the concept of Force Methods of analysis. Understand the Method of Consistent Deformations and its application to indeterminate beams. A-2 Understand the concept of Displacement Methods of analysis. Understand the Slope-Deflection method and its application to indeterminate beams and frames. Understand the moment-distribution method and its application to indeterminate beams and frames. A-3 Understand the concept of Strain Energy.

A-4 Understand Castigliano's theorems and their application to indeterminate beams and frames.

B. Subject-specific skills

B-1 Ability to analyze statically indeterminate structures and evaluate their external reaction components.

B-2 Ability to draw shear force and bending moment diagrams for statically indeterminate structures.

B-3 Ability to evaluate deflections at points on indeterminate structures.

Teaching and Learning Methods

1. Explanation and clarification through lectures.
2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens.
3. Self-learning through homework and mini-projects within the lectures.

Assessment methods

- Interacting within the lecture.
- Homework and reports.
- Short exams (quizzes).
- Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

- The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
- The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
- The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to force methods	Force Methods	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
2	4	Introduction to method of consistent deformations	Method of Consistent Deformations	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.

3	4	Applications to indeterminate beams	Method of Consistent Deformations	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
4	4	Applications to indeterminate beams	Method of Consistent Deformations	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
5	4	Introduction to displacement methods and derivation of slope-deflection method	Displacement Methods: Slope-Deflection	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.

6	4	Application of slope-deflection method to beams and non-sway frames	Displacement Methods: Slope-Deflection	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
7	4	Introduction to concepts of stiffness and carry-over	Displacement Methods: Moment Distribution	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
8	4	Modified stiffness and application to beams	Displacement Methods: Moment Distribution	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
9	4	Application with support settlement	Displacement Methods: Moment Distribution	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.

10	4	Application to non-sway frames	Displacement Methods: Moment Distribution	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
11	4	Application to non-sway frames	Displacement Methods: Moment Distribution	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
12	4	Introduction to strain energy in elastic structures	Energy Methods	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
13	4	Derivation and application of Castigliano's theorem	Energy Methods	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.

14	4	Derivation and application of Castigliano's theorem	Energy Methods	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
15	4	Analysis of indeterminate beams and frames using energy methods	Energy Methods	1. Explanation and clarification through lectures. 2. The method of displaying scientific materials with projectors: data show, smart boards, plasma screens. 3. Self-learning through homework and mini-projects within the lectures.	• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Elementary Theory of Structures Yan-Yu Hseih, Prentice Hall. 2.Structural Analysis Nabeel Abdulrazzaq Jassim, Meyyada Yahya Mohammed, Univ. of Basrah.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Soil Mechanics II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	45 hrs theoretical + 30 hrs practical
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to calculate the stresses generated in the soil and the long-term settlement resulting from these stresses. Also, evaluating the resistance of soil to shear stresses as well as normal and lateral loads.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Identifying the types of stresses in saturated soils. A2- Studying the consolidation settlement of soils. A3- Identify the methods used to find the shear strength of soils. A4- Identifying the methods used for calculating the lateral earth pressure.
B. Subject-specific skills B1 - Learning how to calculate stresses generated in the soil. B2 - Studying the consolidation theory and methods used to calculate long-term settlement. B3 - Derivation of equations used to find soil shear strength. B4 - Derivation of equations used to assess the lateral earth pressure on the

retaining structures.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to. All lectures have been presented electronically and uploaded on social media platforms to be accessible to students when needed.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Knowledge of different types of soil stresses	In Situ Stresses	Lecture	Written exam
2	3	Fundamentals of Consolidation	Compressibility of Soil-Consolidation Settlement	Lecture	Written exam
3	3	Determination of Consolidation Characteristics by Laboratory Consolidation Test	Compressibility of Soil-Consolidation Settlement	Lecture	Written exam
4	3	Application to Laboratory Consolidation Test Results	Compressibility of Soil-Consolidation Settlement	Lecture	Written exam
5	3	Application to calculate primary and secondary consolidation	Compressibility of Soil-Consolidation Settlement	Lecture	Written exam
6	3	Determination of time rate of consolidation	Compressibility of Soil-Consolidation Settlement	Lecture	Written exam
7	3	How to accelerate consolidation settlement	Compressibility of Soil-Consolidation Settlement	Lecture	Written exam
8	3	Introduction to shear strength of soil	Shear Strength of Soil	Lecture	Written exam
9	3	Derivation of Mohr-Coulomb Failure Criterion	Shear Strength of Soil	Lecture	Written exam
10	3	Determination of shear strength parameters from laboratory tests	Shear Strength of Soil	Lecture	Written exam
11	3	Application of finding shear strength parameters from laboratory tests	Shear Strength of Soil	Lecture	Written exam
12	3	Application of finding shear strength parameters from laboratory tests	Shear Strength of Soil	Lecture	Written exam

13	3	Introduction to lateral earth pressure	Lateral Earth Pressure	Lecture	Written exam
14	3	Derivation of Rankine's Theory of active and passive pressure	Lateral Earth Pressure	Lecture	Written exam
15	3	Application of Rankine's Theory of active and passive pressure	Lateral Earth Pressure	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	- Principles of Geotechnical Engineering (By: Braja M. Das, 7th Ed.)
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	-Soil Mechanics (By: R.F. Craig, 4th Ed. or higher) -Soil Mechanics (By: T.W. Lambe and R.V. Whitman)
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Reinforced concrete Design II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	75 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the essential method of analysis and design reinforced concrete two way slabs.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Application Examples and problem of analysis and design of two-way slab system using ACI coefficient method. A2- analysis and design of short column. A3- Examples and application for using design chart and table in analsyis and Design of column A4- .application on understanding and calculation the development length of steel bars
B. Subject-specific skills B1 - Apply quantitative and numerical methods for the purpose of solving engineering problems. B2 - Use basic knowledge to research new technologies.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	Slabs type	Introduction	Lecture	Written exam
2	5	Two way slab behavior under load	Two way slabs	Lecture	Written exam
3	5	Load slab transfer to adjacent beams	Two way slab	Lecture	Written exam
4	5	Two way slab analysis using ACI code method	Two way slab Analysis	Lecture	Written exam
5	5	Reinforced two way slabs system design	Two way slab Design	Lecture	Written exam
6	5	Application Examples on design and analysis of Two way slab	Practical Examples	Lecture	Written exam
7	5	Introduction	Columns	Lecture	Written exam
8	5	Column under concentrated axial load	Analysis of column	Lecture	Written exam
9	5	Column under concentrated axial load	application Examples	Lecture	Written exam
10	5	Column under uniaxial load	Analysis and design of column	Lecture	Written exam
11	5	Column under uniaxial load	application Examples	Lecture	Written exam
12	5	Column under biaxial loads	Analysis and design of column	Lecture	Written exam
13	5	Column under biaxial loads	application Examples	Lecture	Written exam
14	5	Introduction	Development length	Lecture	Written exam
15	5	Application examples	Development length	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS	

· OTHER	
2. Key references (sources)	- Structural Concrete Theory and Design , By Nadim Hasson, Akthem Aktham Al manseer , 6th Edition 2015 2- Reinforced concrete design , 7th Edition 2007 By Chu Kai Wang, Charles G salmon and Joe A Pincheire 3- Design of Reinforced concrete Structures , 2nd Edition 2008 By Mohammed Tharwat Ghonein, Vol. 3 4- Design of concrete Structure , 14th Edition 2010 By Arthur H. Nilson , Daved Derwin and Charles W . Dolan 5- Reinforced concrete design , 6th Edition 2009 By Edward G. Nawy 6- ACI Code 318- 2019
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.
12. Course development plan	

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides the possibility of designing different drainage systems, providing accurate details of soil permeability and the method of calculating the permeability coefficient, types of trocars and their differences, the design of open drainage channels and the design of covered trocars, the distance between tubular trocars and details of vertical drainage.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Drainage Engineering
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of drainage engineering systems and their applications in agricultural fields. A2- Gaining the ability to deal with the problems of rising groundwater levels. Acquisition of basic skills in managing puncture systems. A3- Gaining experience in designing the puncture system and its suitability according to the different surrounding conditions. Gaining experience in knowing the difference between the old and modern puncture systems. A4- Optimum management of the puncture system.

B. Subject-specific skills

B1 - The ability to design puncture systems in their various ways.
B2 - The ability to think about the problems of rising groundwater levels.
B3 - Writing scientific reports and reading charts and tables.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Definition of drainage, and benefits of drainage	Introduction	theoretical	questions and discussion
2	3	drainage project investigations	Introduction	theoretical	questions and discussion
3	3	Soil permeability, a method for calculating the permeability coefficient	Introduction	theoretical	questions and discussion
4	3	Types of drainage system	Drainage networks	theoretical	questions and discussion
5	3	Open channel of drainage system	Drainage networks	theoretical	questions and discussion
6	3	Vertical drainage	Drainage networks	theoretical	questions and discussion
7	3	Continuity equation, Manning equation	Design of drainage system	theoretical	questions and discussion
8	3	Examples for design of drainage system	Design of drainage system	theoretical	questions and discussion
9	3	Examples for design of drainage	Design of drainage system	theoretical	questions and discussion

		system			
10	3	Hooghoudt equation	Spacing of drains	theoretical	questions and discussion
11	3	Hooghoudt equation for layered soil	Spacing of drains	theoretical	questions and discussion
12	3	Equivalent depth	Spacing of drains	theoretical	questions and discussion
13	3	Hydraulic conductivity in the case of steady flow of a confined and unconfined aquifer	Vertical drainage	theoretical	questions and discussion
14	3	Hydraulic conductivity in case of unsteady flow	Vertical drainage	theoretical	questions and discussion
15	3	Pumping from multiple wells	Vertical drainage	theoretical	questions and discussion

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Economy
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the fundamentals of project management with special focus on Project Selection stage, cost estimation, cash flow, Crashing, EVM, Risk management and contracts	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Introduction, strategic planning, Project Selection process. A2- Earn Value Management and project compression technique. A3- Risk and Procurement Management. A4- Stakeholder and Human resource Management
B. Subject-specific skills B1 – economic evaluation methods and cost estimation B2 – application of EVM and crashing techniques.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem-solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Introduction to Strategic Planning and Project Selection	Introduction to project management	Lecture	Written exam
2	2	Project Selection Methods	Simple and Compound Interest	Lecture	Written exam
3	2	Project Selection Methods	Net Present Value (NPV)	Lecture	Written exam
4	2	Project Selection Methods	Payback Period (PP)	Lecture	Written exam
5	2	Project Selection Methods	Return On Investment (ROI), Internal Rate of Return (IRR)	Lecture	Written exam
6	2	Project Selection Methods	Accounting Rate of Return (ARR)	Lecture	Written exam
7	2	Cost Management	Cost Estimation	Lecture	Written exam
8	2	Cost Management	Cash Flow	Lecture	Written exam
9	2	Project Monitoring and Control	Crashing	Lecture	Written exam
10	2	Project Monitoring and Control	EVM	Lecture	Written exam
11	2	Risk Management	Planning for Risk	Lecture	Written exam

12	2	Procurement Management	Contracts	Lecture	Written exam
13	2	Linear Programming	LP Formulation and LP Simplex	Lecture	Written exam
14	2	Stakeholder Management	Stakeholder Management	Lecture	Written exam
15	2	Human resource management	Human resource management	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. A Guide to the project management body of knowledge - PMI. 2. إدارة المشاريع الإنشائية والعلاقات المهنية: احسان العطار
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	1. Project Management, A Systems Approach to Planning, Scheduling, and Controlling, 10th edition, KERZNER 2. Principles of Construction management By: Roy Piltcher 3. Construction Planning, Programming and Control by Brian Cooke 4. Operations Management Creating Value Along the Supply Chain Russell - Chapter 9: Project management
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Transportation Engineering
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
This course aims to present the basic concepts of transportation planning as an introduction to studying the process of travel demand forecasting and public transportation.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Application of the basic elements of transportation planning. A2- Application of the sequential steps of the travel demand forecasting process (four-step process). A3- Introduction/Entrance to public transportation.
B. Subject-specific skills B1 - Ability to identify and analyze engineering problems B2 - Apply quantitative and numerical methods for the purpose of solving transportation engineering problems. B3 - Ability to design, collect, analyze and interpret data and data.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Introduction to Transportation Engineering	Introduction and Background	Lecture	Written exam
2	3	Introduction to Transportation Engineering	History of transportation engineering	Lecture	Written exam
3	3	Introduction to Transportation Engineering	Modes of Transportation & mode selection	Lecture	Written exam
4	3	Transportation Planning	Urban transportation Planning	Lecture	Written exam
5	3	Transportation Planning	Basic Elements of Transportation Planning	Lecture	Written exam
6	3	Travel Demand Forecasting	Travel Demand Forecasting process	Lecture	Written exam
7	3	Travel Demand Forecasting	Data Collection	Lecture	Written exam
8	3	Travel Demand Forecasting	Trip Generation	Lecture	Written exam
9	3	Travel Demand Forecasting	Trip Generation	Lecture	Written exam
10	3	Travel Demand Forecasting	Trip Distribution	Lecture	Written exam
11	3	Travel Demand Forecasting	Modal Split	Lecture	Written exam
12	3	Travel Demand Forecasting	Traffic Assignment	Lecture	Written exam
13	3	Public Transportation	Bus and Rail Operations	Lecture	Written exam
14	3	Public Transportation	Capacity of Bus Stop	Lecture	Written exam
15	3	Public Transportation	Constructing Route Schedule	Lecture	Written exam

11. Infrastructure

1- Required reading: · Books · COURSE MATERIALS · OTHER	Traffic & Highway Engineering (4th Edition, SI) Nicholas J. Garber and Lester A. Hoel Cengage Learning, Stamford, USA, 2010.

2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Update and develop academic subjects periodically.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Computer Applications -II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 3rd year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to introduce the structural analysis and design using CSI ETABS.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Structural analysis and design of structures using CSI ETABS.
B. Subject-specific skills B1- Structural analysis and design of structures using CSI ETABS.
Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student’s ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	Introduction to Etabs	Introduction to Etabs	Practice	Practical exam
2	4	Modelling of the Structures	Modelling of the Structures	Practice	Practical exam
3	4	Modelling of the Structures	Modelling of the Structures	Practice	Practical exam
4	4	Modelling of the Structures	Modelling of the Structures	Practice	Practical exam
5	4	Loading Definition	Loading Definition	Practice	Practical exam
6	4	Loading Application	Loading Application	Practice	Practical exam
7	4	Lateral Loads	Lateral Loads	Practice	Practical exam
8	4	Structural Analysis	Structural Analysis	Practice	Practical exam
9	4	Results Display	Results Display	Practice	Practical exam
10	4	Results Display	Results Display	Practice	Practical exam
11	4	Reinforced Concrete Frame Design	Reinforced Concrete Frame Design	Practice	Practical exam
12	4	Reinforced Concrete Frame Design	Reinforced Concrete Frame Design	Practice	Practical exam
13	4	Steel Frame Design	Steel Frame Design	Practice	Practical exam
14	4	Steel Frame Design	Steel Frame Design	Practice	Practical exam
15	4	Export and Import Files	Export and Import Files	Practice	Practical exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1CSI ETABS Manuals
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Adding practical laboratory hours to conduct mechanics of material experiments

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Prestressed concrete is a type of reinforced concrete that contains reinforcing bars that have been pre-stressed in order to generate initial stresses in the concrete section that are inherently opposite to the stresses that the structure is likely to be exposed to during service use. This is done by pulling (or stringing) a special type of heavy-duty bars to a certain amount inside the concrete and then releasing it after ensuring its impediment from returning to its original position and based on Newton's laws and other engineering laws that will in turn apply opposite stresses on the concrete, which are the initial stresses that make concrete pre-stressed based

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Prestressed concrete design
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 4th year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Giving students an adequate idea of how to manufacture, install and dispose of pre-stressed concrete and its uses, as well as how to design pre-stressed concrete beams. Calculation of live and dead loads lifted on the precast concrete structure.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of pre-stressed concrete. A2- Acquisition of skills in dealing with problems and issues related to pre-stressed concrete. A3- Acquisition of basic skills as an introduction to the design and implementation of prestressed concrete. A4- Gain a basic understanding of how this type of concrete works.

B. Subject-specific skills

B1 - The ability to understand the mechanism of prestressing.
B2 - The ability to think about addressing a particular problem or issue.
B3 - Writing scientific reports.
B4 - The ability to gain experience in dealing with solving structural problems related to prestressing.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4		effects of prestressing and advantages and disadvantages	theory	Questions and discussion
2	4		materials of prestress concrete	theory and tutorial	Questions and discussion and quiz
3	4		prestressing systems and equipment	theory	Questions and discussion
4	4		concrete stress control by prestressing	theory and tutorial	Questions and discussion and quiz
5	4		loss of prestress force	theory	Questions and discussion
6	4		elastic flexural analysis	theory and tutorial	Questions and discussion
7	4		elastic flexural analysis	theory	Questions and discussion
8	4		flexural strength	theory	Questions and discussion and quiz
9	4		flexural strength	theory and tutorial	Questions and discussion
10	4		shear in prestressed concrete beams	theory	Questions and discussion
11	4		shear in prestressed concrete beams	theory	Questions and discussion

12	4		camber and deflections	theory and tutorial	Questions and discussion
13	4		camber and deflections	theory	Questions and discussion and quiz
14	4		yield line analysis for slabs	theory	Questions and discussion
15	4		yield line analysis for slabs	theory and tutorial	Questions and discussion

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	• Design of Concrete Structures, David Darwin, Charles W. Dolan, Arthur H. Nilson, McGraw-Hill. • Design of prestressed Concrete, Arthur H. Nilson, John Wily and Sons • Prestressed Concrete Building, Design, and Construction, Charles W. Dolan and H.R.(Trey) Hamilton, Springer. Design of prestressed Concrete Structures, T.Y. Lin and Ned H. Burns, John Wily and Sons
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
• Conducting multiple visits to prestressed concrete plants or work sites for the purpose of gaining on-site experience

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Foundation Engineering-I
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 4th year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to know the designs of shallow foundations so that no shear failure occurs in the supporting soil for the foundation and foundation settlement is within the allowable value.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Knowing how to conduct field investigations. A2- Knowing the methods of calculating the bearing capacity of the soil for shallow foundations. A3- Knowing the factors affecting the bearing capacity of the soil. A4- Knowing how to calculate the immediate, consolidation and secondary settlement. Knowing how to calculate the stresses in the soil mass as a result of loads of different shapes applied to the soil surface.
B. Subject-specific skills

B1 – Design of shallow foundations for buildings so that the loads of the buildings transfer to the soil safely.
B2 - Determine the number and depth of boring required in the soil investigations.
B3 - Determine the total settlement that occurs under the shallow foundations.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	- Definition - Foundation Classification - General Requirements of Foundations - Foundation Selection	Introductory Concepts	Lecture	Written exam
2	4	- Purpose of Sub-soil Exploration - Planning for Site Investigation - Methods of Soil Exploration	Site Investigations	Lecture	Written exam
3	4	- Soil Samples - Causes of Disturbance - Soil Samplers - Number of Borings	Site Investigations	Lecture	Written exam
4	4	- Depth of Borings - Field Tests	Site Investigations	Lecture	Written exam
5	4	- Soil Exploration Report - Bearing Failure Patterns	Soil Bearing Capacity for Shallow Foundations	Lecture	Written exam
6	4	- Terzaghi's Ultimate Bearing Capacity Equation - Factor of Safety	Soil Bearing Capacity for Shallow Foundations	Lecture	Written exam
7	4	- Ground Water Table Effect - Meyerhof's Bearing Capacity Equations - General	Soil Bearing Capacity for Shallow Foundations	Lecture	Written exam

		(Hansen's) Bearing Capacity Equations			
8	4	- Skempton's Method [φ = 0] - Foundations Under Eccentric Loads	Soil Bearing Capacity for Shallow Foundations	Lecture	Written exam
9	4	- Footings on Layered Soils - Footings Adjacent to a Slope	Soil Bearing Capacity for Shallow Foundations	Lecture	Written exam
10	4	-Bearing Capacity From Field Tests	Soil Bearing Capacity for Shallow Foundations	Lecture	Written exam
11	4	- Foundations Subjected to Uplift or Tension Forces - Types of Settlement - Contact Pressure	Foundation Settlement	Lecture	Written exam
12	4	-Stresses in the Soil Mass	Foundation Settlement	Lecture	Written exam
13	4	-Immediate Settlement Semi-infinite mass Saturated clay underlain by a hard stratum	Foundation Settlement	Lecture	Written exam
14	4	-Consolidation Settlement Compressibility characteristics Pre-consolidation pressure In-situ (e-log σ') curve -Calculation of one-dimensional consolidation settlement	Foundation Settlement	Lecture	Written exam
15	4	-Rate of consolidation settlement Correction for construction period -Secondary Settlement -Allowable Settlement	Foundation Settlement	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Foundation Analysis and Design, 5th Ed, Bowles, 1996.

2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	Principles of Foundation Engineering, 9th Ed, Das, 2019.
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides the basic information for the properties of steel material and to identify the different design methods of steel structures and how to design structural members subjected to flexural forces, both lateral supported and not lateral supported. Also learn how to design the connections between the structural members

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Design of steel structures-2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Definition of the structural properties of iron. • Introducing the methods of designing steel structures. • Design of structural members subject to flexion. • Design of links using screws and welding.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of design A2- Acquisition of skills in designing members of steel structures subjected to flexural forces. A3- Recognize the design of the links between the structural members. .
B. Subject-specific skills B1 - The ability to design members of steel structures subject to bending.

B2 - The ability to design different links for the structural members.
B3 - Writing scientific reports.
B4 - The ability to gain experience in dealing with programmed systems.

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3		introduction	Lectures and discussions	questions
2	3		Limit states for steel design	Lectures and discussions	questions
3	3		Working and factored loads	Lectures and discussions	questions
4	3		Materials properties and specification	Lectures and discussions	Questions and quiz
5	3		Design of beams	Lectures and discussions	questions
6	3		Laterally supported beams	Lectures and discussions	questions
7	3		Laterally unsupported beams	Lectures and discussions	questions
8	3		Design for flexure	Lectures and discussions	questions
9	3		Web bearing and web buckling	Lectures and discussions	questions
10	3		Design of gantry girders	Lectures and discussions	questions
11	3		Moment capacity	Lectures and discussions	questions
12	3		Design for shear	Lectures and discussions	questions
13	3		Bolted connections	Lectures and discussions	Questions and quiz
14	3		Bolted connections	Lectures and discussions	questions
15	3		Welded connections		questions

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	-Structural steelwork design to limit state theory . by D. Lam -BS 5950 part-1 - steelwork design guide to BS 5950-1
2. Key references (sources)	BS 5950 part-1
A- Recommended books and references (scientific journals, reports ,....	Steelwork design guide to BS 5950-1
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Study and design of different types of hydraulic installations.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Hydraulic structures
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 4th year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Ability to design and implement hydraulic installations.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Cognitive abilities. Understanding the types of hydraulic installations.
B. Subject-specific skills B1 - Ability to work on civil engineering projects.
Teaching and Learning Methods
• Readings, self-learning, panel discussions. • Exercises and activities in the lecture. • Homework. • Directing students to some websites to benefit and develop their capabilities. • Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student’s ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4		Intoduction		
2	4		Piping and seepagr		
3	4		Design of floor		
4	4		Bligh method		
5	4		Lane method		
6	4		Khosla method		
7..15	4		Hydraulic jumpe Stilling basin Vertical drop Culvert Aqueduct Siphon Vertical gate Weir		

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Hydraulic structures by Novak
2. Key references (sources)	Theorynand Design of irragation structures by Gupta
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Highway engineering is a multidisciplinary field with interconnected sub disciplines that include planning, safety, operations, design, and related fields such as structural, hydraulic, and geotechnical engineering.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Highway Engineering/415
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st Semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic element for geometric design for highway and deals with the dimensions and layout of visible features of the highway. The features normally considered are the cross section elements, sight distance consideration, horizontal curvature, gradients, and intersection.	

9· Learning Outcomes, Teaching, Learning and Assessment Method

A- Knowledge and Understanding highway design features

A1- The history of highway engineering gives us an idea about the roads of ancient times.

A2- The emphasis of the geometric design is to address the requirement of the driver and the vehicle such as safety, comfort, efficiency, etc.

A3- The characteristics of cross-sectional elements are important in highway geometric design because they influence the safety and comfort.

A4- Horizontal alignment is one of the most important features influencing the efficiency and safety of a highway.

B. Subject-specific skills

B1 - Proper design of a horizontal curve, including elements within a single curve and consistency of curvature along a highway.

B2 - Design speed is the single most important factor that affects the geometric design.

B3 - Derive and evaluate the information needed to apply engineering analysis methods to unfamiliar problems.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and design solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Introduction to Highway Engineering	History of Highway Engineering	Lecture	Oral exam
2	3	Introduction to geometric design	Factors affecting geometric design	Lecture	Oral exam
3	3	Road classification	Factors affecting classification of roads	Lecture	Oral exam
4	3	Cross Sectional Element	Right of Highway	Lecture	Oral exam
5	3	Highway Location	Principle of Highway Location	Lecture	Oral exam
6	3	Horizontal alignment I	Analysis of super-elevation	Lecture	Written exam
7	3	Horizontal alignment II	Extra Widening	Lecture	Written exam
8	3	Horizontal alignment III	Horizontal Curve Fundamentals	Lecture	Written exam
9	3	Horizontal alignment III	Reverse, compound, and Spiral curves	Lecture	Written exam
10	3	Horizontal	Sight Distance	Lecture	Written exam

		alignment IV	on Horizontal Curve		
11	3	Vertical Alignment	Parabolic Formula	Lecture	Written exam
12	3	Macadam Bases & Stabilization	Stabilized Bases & Subases	Lecture	Written exam
13	3	Earthworks & Subgrades	Compaction	Lecture	Written exam
14	3	Earthworks & Subgrades	Control of Embankment Construction	Lecture	Written exam
15	3	Highway Drainage	Surface Drainage System Design	Lecture	Written exams

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1-Handbook: The Handbook of Highway Engineering.By T.F.Fwa.2006. 2. Hand book : Highway Engineering Handbook .By Roger.L.b.and Kenneth J. 2nd.ed. 2004. .
2. Key references (sources)	Hand book: Handbook of Transportation Engineering. By Myer Kutz.2004.
A- Recommended books and references (scientific journals, reports ,....	AASHTO (1993)
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Addition new exam and subject

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Water supply engineering
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the material deals with water distribution and treatment. It presents all the details of hydraulic design of water treatment plant units.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1-water quantity calculation. A2- piping materials description. A3- water distribution systems. A4- design of water treatment plant units.
B. Subject-specific skills B1- Mathematical solution of problems governing design of water distribution and treatment systems. B2- EXCEL Sheets for fascinating the solution of repeated calculations.
Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student’s ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	The students will learn how to calculate the water quantity required for different uses and how to estimate future population	Quantity of Water	Lecture	Written exam
2	3	The students will learn How to select the material of pipes and what are the types of pipes and fittings	Piping materials	Lecture	Written exam
3	3	The students will have a knowledge about the types and components of water distribution systems and how to analyze these systems using Hardy Cross method.	Water distribution systems	Lecture	Written exam
4	6	The students will have a knowledge about the types of pumping stations and pumps and how to select the appropriate pumps according to the characteristics of flow system.	Water pumping stations	Lecture	Written exam
5					
6	3	The students will learn what are the types of water intake structures and how to design these structures.	Water intakes	Lecture	Written exam
7	3	The students will have a knowledge about the types of water sources and water impurities and what are the components of conventional water treatment plant. They will learn, also, how to design rapid mix unit	Water treatment: introduction and rapid mix unit	Lecture	Written exam
8	3	The students will have a knowledge about the coagulation process, the types of coagulants and how to determine the required coagulant dose and how to design a chemical feed system.	Water treatment: Coagulation process	Lecture	Written exam
9	6	The students will have a knowledge about flocculation	Water treatment:	Lecture	Written exam

10		process and the types of flocculation units and how to design flocculation unit.	Flocculation unit	Lecture	Written exam
11	3	The students will have a knowledge about Introduction the sedimentation process, classes of settling and efficiency of discrete and flocculant settling processes.	Water treatment: Sedimentation process	Lecture	Written exam
12	3	The students will learn what are the types of sedimentation tanks, the components of sedimentation tanks and how to design sedimentation unit.	Water treatment: Sedimentation unit	Lecture	Written exam
13	3	The students will have a knowledge about the types of water filters and how to design filtration unit	Water treatment: Filtration unit	Lecture	Written exam
14	3			Lecture	Written exam
15	3	The students will have a knowledge about the types of water disinfectants and how to how to calculate disinfectant dose.	Water treatment: Disinfection unit	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Steel, E. W. and McGhee, T. J., "Water supply and sewerage", McGraw-Hill KOGAKUSHA, LTD, 1979.
2. Key references (sources)	1. Vissman, W., Hammer, M. and Perez, E. M., "Water supply and pollution control", 8th Ed., Pearson Education Limited, 2014. 2. Binnie, C. and Kimber, M., "Basic water treatment", 5th Ed., Thomas Telford Limited, 2013.
A- Recommended books and references (scientific journals, reports ,....	1. Barut, E. E., "Water treatment plant design", 4th Ed., McGraw-Hill, Inc., 2005. 2. Journal of Environmental Engineering
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
The course is considered complete in line with the hours allocated for it.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Methods of Construction
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	1st semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The aim of the course is to provide the student by the necessary information and tools required for the site engineer in projects, costs and management of equipment.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- The costs of ownership and operating the equipment. A2- Knowledge of the appropriate type of equipment for earth works. A3- The methods of determining the productivity of equipment. A4- The forces and moments relating to concrete formworks.
B. Subject-specific skills B1 – Application of determining the ownership and operation of construction equipment. B2 – Determining the production of equipment. B3 – Design the forms of concrete structures.

Teaching and Learning Methods
• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.
Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Ownership cost	Depreciation	Lecture	Written exam
2	3	Ownership cost	Costs of insurance, tax, storage, and investment.	Lecture	Written exam
3	3	Operation cost	Cost of fuel and lubrication	Lecture	Written exam
4	3	Operation cost	Maintenance, tyre and operator costs.	Lecture	Written exam
5	3	Replacement and useful life	Evaluation of economic life	Lecture	Written exam
6	3	Power of equipment	Resistance of equipment.	Lecture	Written exam
7	3	Power of equipment	Actual horse power and traction force.	Lecture	Written exam
8	3	Earthwork equipment	Swelling and shrinkage	Lecture	Written exam
9	3	Soil compaction	Rollers and compactors	Lecture	Written exam
10	3	Tractors	Types and operation of Tractors	Lecture	Written exam
11	3	Scraper Types, work and productivity	Scrapers	Lecture	Written exam
12	3	Earth Hauling Equipment Production	Earth hauling Equipment	Lecture	Written exam

		Calculation and Selection			
13	3	Soil loading types and productivity	Soil loading equipment	Lecture	Written exam
14	3	Types and productivity of digging equipment	Power Shovel	Lecture	Written exam
15	3	concrete formworks	Design of concrete formworks	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. **Peurif oy, P .E. "Construction Planning, Equipment, and Methods"**
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Foundation Engineering-II
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 4th year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
The course aims to • Structural design of shallow foundation. • Knowing the ultimate bearing capacity of single piles and pile groups. • Knowing the stability of the sheet-pile walls. • Design of the structural members of braced cuts.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Knowing the structural design of shallow foundations including single, combined and mat foundations. A2- Knowing the ultimate bearing capacity of individual piles and pile groups. A3- Knowing the stability of the sheet-pile walls (cantilever and anchored). A4- Knowing the design of the structural members in the braced cuts.

B. Subject-specific skills

B1 - Determine type of the foundation that is suitable for the building.

B2 – Structural design of shallow foundation.

B3 - Determine the bearing capacity of the piles to carry the applied loads of the buildings.

B4 - Determine the stability of the sheet-pile walls.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4	-Spread Footings (Pad and Wall) -Eccentrically Loaded Spread Footings	Structural Design of Shallow Foundations	Lecture	Written exam
2	4	-Rectangular Combined Footings -Trapezoidal Combined Footings	Structural Design of Shallow Foundations	Lecture	Written exam
3	4	-Strap Footings -Raft (Mat) Foundations	Structural Design of Shallow Foundations	Lecture	Written exam
4	4	Piled foundations -Introduction Definition Uses Types Choice Design criteria	Piled Foundations	Lecture	Written exam
5	4	-Ultimate Static Pile Capacity Ultimate point capacity	Piled Foundations	Lecture	Written exam
6	4	Skin resistance capacity	Piled Foundations	Lecture	Written exam
7	4	-Pile Groups Group efficiency Capacity of a pile group	Piled Foundations	Lecture	Written exam

8	4	Settlement of a pile group	Piled Foundations	Lecture	Written exam
9	4	-Load distribution in a pile group -Negative Skin Friction	Piled Foundations	Lecture	Written exam
10	4	Sheet-Pile Walls -Review of Lateral Earth Pressure Coulomb earth pressure theory Rankine earth pressure theory -Sheet-Pile Walls Types of sheet piling Safety factors -Cantilever Sheet piling Cantilever sheet piling in granular soil	Sheet-Pile Walls	Lecture	Written exam
11	4	Cantilever sheet piling in cohesive Soils ($\varphi = 0$) -Anchored Sheet piling; Free-Earth Support Rowe's moment reduction applied to free-earth support method	Sheet-Pile Walls	Lecture	Written exam
12	4	Capacity of deadman Location of deadman -Braced Cuts Pressure envelope for braced-cut design	Sheet-Pile Walls	Lecture	Written exam
13	4	Design of various components of a braced cut Bottom heaving of a cut in clay Slope Stability -Types of Slips -Stability Analysis -Total Stress Versus Effective Stress Analyses	Sheet-Pile Walls	Lecture	Written exam
14	4	-Simplified Methods of Stability Analysis Infinite slopes Triangular cross-section Cylindrical failure ($\varphi = 0$ condition) Cylindrical failure (Taylor's stability charts	Slope Stability	Lecture	Written exam

15	4	-Slices Methods of Stability Analysis Fellenius method Simplified Bishop's method	Slope Stability	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Foundation Analysis and Design, 5th Ed, Bowles, 1996.
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	Principles of Foundation Engineering, 9th Ed, Das, 2019.
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides the basic information for the properties of steel material and to identify the different design methods of steel structures and how to design structural members subjected to flexural forces, both lateral supported and not lateral supported. Also learn how to design the connections between the structural members

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Design of steel structures-2
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Definition of the method of designing iron joists made of plates. • Designs members subject to tension. • Design of members subject to compression. • Column base design.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of design A2- Acquisition of skills in designing members of steel structures subjected to tensile or compressive forces A3- Understand the design of links and column bases. .
B. Subject-specific skills B1 - The ability to design members of steel structures subject to tensile or

compression.
B2 - The ability to design plate joists.
B3 - The ability to design column bases

Teaching and Learning Methods

• Readings, self-learning, panel discussions.
• Exercises and activities in the lecture.
• Homework.
• Directing students to some websites to benefit and develop their capabilities.
• Conducting seminars to explain and analyze a specific issue and find solutions to it

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)
D1- Develop the student's ability to perform the duties and deliver them on time
D2 - Logical and programmatic thinking to find programmatic solutions to various problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3		Design of plate girders	Lectures and discussions	questions
2	3		Moment capacity	Lectures and discussions	questions
3	3		Web design	Lectures and discussions	questions
4	3		Stiffeners design	Lectures and discussions	Questions and quiz
5	3		Tension members	Lectures and discussions	questions
6	3		Members with eccentric connections	Lectures and discussions	questions
7	3		Tension members with moments	Lectures and discussions	questions
8	3		Compound tension members	Lectures and discussions	questions
9	3		Compression members	Lectures and discussions	questions
10	3		Axially loaded compression members	Lectures and discussions	questions
11	3		Built-up columns	Lectures and discussions	questions
12	3		Members subjected to compression plus bending	Lectures and discussions	questions
13	3		Moments in columns of simple constructions	Lectures and discussions	Questions and quiz
14	3		Design of column	Lectures and	questions

			base plate	discussions	
15	3		Design of column base plate		questions

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	-Structural steelwork design to limit state theory . by D. Lam -BS 5950 part-1 - steelwork design guide to BS 5950-1
2. Key references (sources)	BS 5950 part-1
A- Recommended books and references (scientific journals, reports ,....	Steelwork design guide to BS 5950-1
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The course provides general information about the water cycle and its relationship to everything that affects human life from the abundance of water suitable for consumption, as well as methods for calculating its quantities. Also the relationship of rain to the design of drainage networks and the drainage of rain water in cities. As well as information on engineering precautions to ward off the potential risk of flooding.

1. Teaching Institution	Basrah University
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering Hydrology
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 4th year
6. Number of hours tuition (total)	60 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course (Engineering Hydrology) aims to introduce the civil engineering student in the fourth stage to the various water sources, especially the sources of water coming from the atmosphere in the form of all forms of precipitation, especially rain. As well as the definition of the relationship of these precipitations to the abundance of fresh water through the study of methods of measuring the amount of rain reaching the surface of the earth and knowing the amount of water that will be lost in the form of evaporation or infiltration into the ground and the relationship of all this to the drainage of rivers and ways to benefit from it in the form of storage in fresh water bodies such as lakes and marshes. Also, one of the course objectives is to introduce the student to groundwater, how to calculate its quantities, and ways to benefit from and preserve it, as it is one of the important water sources.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts of hydrology and its relationship to civil engineering. A2- Acquisition of skills in designing rainwater drainage networks. A3- Acquire basic skills in measuring and forecasting the future of rain and its relationship to river drainage and annual water quantities. A4- Gain a basic understanding of engineering designs and their applications in relation to rivers, dams and ferries bridges and flood protection installations.
B. Subject-specific skills B1 - The ability to understand the relationship of rain with engineering water phenomena. B2 - The ability to find solutions to extreme natural weather phenomena such as flooding. B3 - Writing detailed scientific reports for water accounts. B4 - The ability to gain experience in dealing with executive engineering plans for water facilities.
Teaching and Learning Methods
• Readings, self-learning, panel discussions. • Exercises and activities in the lecture. • Homework. • Directing students to some websites to benefit and develop their capabilities. • Conducting seminars to explain and analyze a specific issue and find solutions to it
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods
• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject. • The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum. • The method of laboratory display using special devices for measuring the different properties of the substance under experiment.
Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4		Introduction		Class
2	4		Water Cycle		Class
3	4		Precipitations		Class
4	4		Rain Gages		Class
5	4		Average Rain		Class
6	4		Evaporation		Class
7	4		Infiltration		Class
9	4		Measurements of rivers		Class
10	4		Rating curve		Class
11	4		Hydrographs		Class
12	4				Class
13	4		Analysis of a Hydrograph		Class
14	4				Class

15	4				Class

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	
2. Key references (sources)	**Engineering hydrology/ Subramanya 2008**
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Pavement Design and Analysis deals with the study of different types of pavement like flexible pavement and rigid pavement, and study the materials of creates these types of pavements and properties, behaviors, and specifications.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Pavement Design and Analysis /425
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd Semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the basic element for design the pavement (flexible & Rigid) also analyze all stresses and applied loads on the pavement and take in the consider choose the materials which used in the pavement construction.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding of pavement design and analysis. A1- Bituminous materials, Natural Asphalt, constituents of asphalt cement, and test of asphalt A2- The emphasis of the different aggregate characteristics with size and gradation, and methods of blending for dry mix design. A3- Bituminous mix design, with the objective of mix design. A4- Study of stress distribution through the pavement with the calculation of flexible pavement stresses and deflections.

B. Subject-specific skills

B1 – Marshal mix design determines the optimum bitumen content for the mix of the flexible pavement.

B2 – Flexible pavement design methods (CBR method and AASHTO Design method).

B3 – Rigid pavement types and types of joints in the rigid pavement, and temperature stresses.

Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and design solving skills are further developed employing a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods
• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture. • Sudden exams during the theoretical and practical lecture. • Quarterly exams for the theoretical and practical side. • Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	Bituminous Materials	Test for Asphalt	Lecture	Oral exam
2	3	Aggregate	Physical Properties of Aggregate	Lecture	Oral exam
3	3	Gradation	Methods of Blending	Lecture	Written exam
4	3	Bituminous Mix Design	The objective of Mix Design	Lecture	Oral exam
5	3	Marshal Mix Design	Marshall Stability and Flow	Lecture	Written exam
6	3	Stress distribution through the pavement	Calculation of stresses and deflections	Lecture	Written exam
7	3	Introduction to pavement design	Types of pavements	Lecture	Oral exam
8	3	Flexible pavement design methods	CBR Method	Lecture	Written exam
9	3	Flexible pavement design methods	AASHTO Design Method	Lecture	Written exam
10	3	Flexible pavement design methods	Cumulative ESAL	Lecture	Written exam
11	3	Rigid Pavement	Rigid Pavement Types	Lecture	Oral exam

12	3	Rigid Pavement	Types of Joints in Rigid Pavement	Lecture	Oral exam
13	3	Rigid Pavement	Critical load position	Lecture	Written exam
14	3	Rigid Pavement	Temperature Stresses	Lecture	Written exam
15	3	Check Points	Rigid Pavement	Lecture	Written exams

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1-Handbook: The Handbook of Highway Engineering.By T.F.Fwa.2006. 2. Hand book : Highway Engineering Handbook .By Roger.L.b.and Kenneth J. 2nd.ed. 2004. .
2. Key references (sources)	Hand book: Handbook of Transportation Engineering. By Myer Kutz.2004.
A- Recommended books and references (scientific journals, reports ,....	AASHTO (1993)
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
Addition new exam and subject

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Sanitary engineering/ CE426
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to present the material deals with sewer systems and sanitary sewage treatment plant description and design.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Determination of storm water and sanitary sewage quantities. A2- Design of sewer systems. A3- Design of sewage treatment units.
B. Subject-specific skills B1- Mathematical solution of problems governing design of sewer systems and sewage treatment plant. B2- EXCEL Sheets for fascinating the solution of repeated calculations.
Teaching and Learning Methods

• Scientific and research skills are developed through teaching and learning activities. Analysis and problem solving skills are further developed by means of a set of problems prepared by the lecturers in small study groups and all work submitted is evaluated and responded to.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills

C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.

C2- Response: Follow up the student's interaction with the material displayed on the screen.

C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.

C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.

C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.
• Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student’s ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various

problems
D3 - developing the student's ability to dialogue and debate
D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	The students will learn how to calculate sanitary sewage and storm water quantities	Quantity of sewage	Lecture	Written exam
2 3	6	The students will have a knowledge about the types of sewer systems, components of sewer systems, mechanisms of flow in sewer systems and the formula govern the flow in sewer systems.	Flow in Sewers	Lecture	Written exam
4 5	6	The students will learn how to design sanitary and storm sewer systems	Design of sewer systems	Lecture	Written exam
6	3	The students will have a knowledge about the pollutants of sanitary sewage and the processes of sewage treatment.	Treatment of Sanitary Sewage: General description	Lecture	Written exam
7	3	The students will learn how to design screening unit	Treatment of Sanitary Sewage: Screening unit	Lecture	Written exam
8 9	6	The students will learn how to design grit removal unit	Treatment of Sanitary Sewage: Grit removal unit	Lecture	Written exam
10	3	The students will learn how to design primary sedimentation unit	Treatment of Sanitary Sewage: Primary sedimentation unit	Lecture	Written exam
11 12	6	The students will learn how to design activated sludge system	Biological treatment of sewage by activated sludge system	Lecture	Written exam
13 14	6	The students will learn how to design trickling filters	Biological treatment of sewage by trickling filters	Lecture	Written exam
15	3	The students will learn how to design secondary sedimentation unit	Secondary sedimentation unit	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	2. Steel, E. W. and McGhee, T. J., "Water supply and sewerage", McGraw-Hill KOGAKUSHA, LTD, 1979.
2. Key references (sources)	3. Vissman, W., Hammer, M. and Perez, E. M., "Water supply and pollution control", 8th Ed., Pearson Education Limited, 2014. 4. Mays, L. W., "Storm water collection systems design handbook", The McGraw-Hill Companies, 2004.
A- Recommended books and references (scientific journals, reports ,....	1. Davis. M. L., "water and wastewater engineering", McGraw-Hill Companies, Inc, 2010.
B- Electronic references, websites	Reputable websites. Libraries sites in some international universities.

12. Course development plan
1. Addition of processes relating to sludge treatment and reuse. 2. Give brief description for the methods of treated sewage reuse.

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

Estimation is the art of estimating the quantities and construction paragraphs in terms of prices and construction period to the nearest reasonable number, usually before commencing work in order to allocate the expected financial amounts for its implementation.
Estimation is one of the basic tasks of the practicing engineer, through which estimates are made for the cost of construction works and projects. Therefore, the business owner or the project financier gives special importance to the accuracy of cost estimates because of their impact on determining the implementation of project decisions and working to provide the necessary amounts for them. For this reason, the estimated cost estimation processes are considered a source for testing the professional integrity of the engineer as well as the scientific competence of the engineer.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Estimation and engineering specifications
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 4th year
6. Number of hours tuition (total)	45 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• Estimation is the art of estimating the quantities and construction paragraphs in terms of prices and construction period to the nearest reasonable number, usually before commencing work in order to allocate the expected financial amounts for its implementation. • Estimation is one of the basic tasks of the practicing engineer, through which estimates are made for the cost of construction works and projects. Therefore, the business owner or the project financier gives special importance to the accuracy of cost estimates because of their impact on determining the implementation of project decisions and working to provide the necessary amounts for them. For this reason, the estimated cost estimation processes are considered a source for testing the professional	

integrity of the engineer as well as the scientific competence of the engineer.

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- Clarify the basic concepts in calculating the quantities of construction materials. A2- Acquisition of skills in dealing with problems and issues related to bills of quantities. A3- Acquisition of basic skills as an introduction to estimating construction buildings. A4 -Gain a basic understanding of how to accurately estimate various construction materials.
B. Subject-specific skills B1 - The ability to understand the estimation mechanism and engineering specifications. B2 - The ability to think about addressing a particular problem or issue. B3 - Writing scientific reports. B4 - The ability to gain experience in dealing with solving construction problems related to calculating the quantities of construction materials.
Teaching and Learning Methods
• Readings, self-learning, panel discussions. • Exercises and activities in the lecture. • Homework. • Directing students to some websites to benefit and develop their capabilities. • Conducting seminars to explain and analyze a specific issue and find solutions to it
Assessment methods
• Interacting within the lecture. • Homework and reports. • Short exams (quizzes). • Semester and final exams.
C. Thinking Skills C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall. C2- Response: Follow up the student's interaction with the material displayed on the screen. C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display. C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it. C 5- Formation of value behavior: meaning that the student reaches the top of the

emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

- The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
- The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
- The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

- Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
- Sudden exams during the theoretical and practical lecture.
- Quarterly exams for the theoretical and practical side.
- Final exams for the theoretical and practical side.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- Develop the student's ability to perform the duties and deliver them on time

D2 - Logical and programmatic thinking to find programmatic solutions to various problems

D3 - developing the student's ability to dialogue and debate

D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3		Guessing (introduction)	theory	Questions and discussion
2	3		Construction cost estimation	theory and tutorial	Questions and discussion and quiz
3	3		Detailed estimation	theory	Questions and discussion
4	3		Materials in the unit of measure for construction work	theory and tutorial	Questions and discussion and quiz
5	3		Materials in the unit of measure for construction work	theory	Questions and discussion
6	3		Ceramic wall covering	theory and tutorial	Questions and discussion
7	3		flatness	theory	Questions and discussion
8	3		Estimation the construction work	theory	Questions and discussion and quiz

			paragraphs for buildings		
9	3		casting concrete foundations	theory and tutorial	Questions and discussion
10	3		wooden mold work	theory	Questions and discussion
11	3		Estimation of steel reinforcement quantities for foundations	theory	Questions and discussion
12	3		Estimating the quantities of steel reinforcement for the foundations	theory and tutorial	Questions and discussion
13	3		Casting bridges and roofs	theory	Questions and discussion and quiz
14	3		Casting bridges and roofs	theory	Questions and discussion
15	3		Box Culvert	theory and tutorial	Questions and discussion

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	1. Conjecture and Specifications, Medhat Fadil Fathallah, revised fourth edition, 1985. 2. Calculating Quantities, M. Fawaz Muhammad Al-Qudah, Al-Balqa Applied University, Jordan, first edition, 2006. 3. Calculation of Quantities and Specifications, Eng. Ahmed Hussein Abu Odeh, Civil Engineering Series (1), Part One, Al-Balqa Applied University/College of Technological Engineering, Jordan, first edition, 2008. 4. Civil Engineering and Costing, S.P. Mahajan, 624. 1042, M214. 5. Estimating Building and Construction, 692.5, H816, 73-119.
2. Key references (sources)	Engineering Estimation and costing -Journal
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	

12. Course development plan

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

The model description provides a brief description of the main features of the course and the scientific outputs that the model student is expected to achieve if the student takes advantage of the learning opportunities available for the course. It should be compared with the description of the program.

1. Teaching Institution	University of Basrah
2. University Department/Centre	Civil Engineering Department
3. Course title/code	Engineering ethics
4. Modes of Attendance offered	Class attendance or online
5. Semester/Year	2nd semester / 4th year
6. Number of hours tuition (total)	30 hrs
7. Date of production/revision of this specification	2021
8. Aims of the Course	
• The course aims to enhance the ethics of engineers from a professional point of view from several axes, the most important of which is the religious and societal axis, considering that ethics is an acquired matter since childhood, in addition to linking these ethics to all work facilities (whether it is engineering or administrative) and the impact of the lack of a moral sense among the worker on the further development of countries due to Depletion of economic resources by administrative or engineering fraud, which leads to the failure of engineering projects that may lead to disasters that lead to the death of citizens.	

9· Learning Outcomes, Teaching, Learning and Assessment Method
A- Knowledge and Understanding A1- A study of the concept of professional ethics in its general, linguistic, and idiomatic sense, and the importance of these ethics. A2- Knowing the history and development of ethical engineering codes and their

interrelationship with each other.
A3- List some engineering disasters that occurred due to lack of professional ethics.

B. Subject-specific skills
B1 - Organize work well and avoid chaos that does not lead to harvesting its fruits.
B 2- Monitoring the work by providing a good system of supervision.

Teaching and Learning Methods

• The acquired professional ethics are reinforced by recalling Quranic verses or An Honorable Prophetic Hadith, or even mentioning some global examples of positive engineering profession codes and refining these ethics.

Assessment methods

• Interacting within the lecture.
• Homework and reports.
• Short exams (quizzes).
• Semester and final exams.

C. Thinking Skills
C1- Attention: Arousing the students' attention by implementing one of the applied programs on the display screen in the hall.
C2- Response: Follow up the student's interaction with the material displayed on the screen.
C3- Attention: Follow up on the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display.
C4 - Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion about the direction of the presented topic and defend it.
C 5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so that he has a stable level in the lesson and does not become lazy or fidgety.

Teaching and Learning Methods

• The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the curriculum of the subject.
• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the subject curriculum.
• The method of laboratory display using special devices for measuring the different properties of the substance under experiment.

Assessment methods

• Direct questions in a manner (how and why) for the subject during the theoretical and practical lecture.
• Sudden exams during the theoretical and practical lecture.
• Quarterly exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.
D. General and Transferable Skills (other skills relevant to employability and personal development) D1- Develop the student's ability to perform the duties and deliver them on time D2 - Logical and programmatic thinking to find programmatic solutions to various problems D3 - developing the student's ability to dialogue and debate D4 - Develop the student's ability to deal with modern technology, especially the Internet

10. Course Structure					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	1st Lecture	Professional ethics concept	Lecture	Written exam
2	2	2nd Lecture	Professional ethics concept	Lecture	Written exam
3	2	3rd Lecture	General principles of professional ethics	Lecture	Written exam
4	2	4th Lecture	General principles of professional ethics	Lecture	Written exam
5	2	5th Lecture	Engineering Ethics	Lecture	Written exam
6	2	6th Lecture	History of engineering blogs	Lecture	Written exam
7	2	7th Lecture	History of engineering blogs	Lecture	Written exam
8	2	8th Lecture	Engineering disasters	Lecture	Written exam
9	2	9th Lecture	Examples of codes of ethics for the engineering profession	Lecture	Written exam
10	2	10th Lecture	Examples of codes of ethics for the	Lecture	Written exam

			engineering profession		
11	2	11th Lecture	Examples of codes of ethics for the engineering profession	Lecture	Written exam
12	2	12th Lecture	Examples of codes of ethics for the engineering profession	Lecture	Written exam
13	2	13th Lecture	Examples of codes of ethics for the engineering profession	Lecture	Written exam
14	2	14th Lecture	Institute of Electrical Engineers blog	Lecture	Written exam
15	2	15th Lecture	Institute of Electrical Engineers blog	Lecture	Written exam

11. Infrastructure	
1- Required reading: · Books · COURSE MATERIALS · OTHER	Ethics of the engineering profession, author: Dr. Nabil Abdel Razzaq
2. Key references (sources)	
A- Recommended books and references (scientific journals, reports ,....	
B- Electronic references, websites	

12. Course development plan